PSI-CO
Public Sector Innovation through Collaboration

Belgian Science Policy Office
belspo

BRAIN-be

BELGIAN RESEARCH ACTION THROUGH INTERDISCIPLINARY NETWORKS

Deliverable 6.1.1, 6.2.1 and 6.3.1

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

Public Sector Innovation through Collaboration (PSI-CO)

D.6.1.1. outline survey, D.6.2.1. descriptive analyses and D.6.3.1 explanatory analyses

.be

NETWORK

COORDINATOR

Prof. dr. Koen Verhoest, University of Antwerp, Research group on Politics and Public Governance

PARTNERS

Prof. dr. Koen Verhoest, University of Antwerp, Research group on Politics and Public Governance

Prof. dr. Trui Steen, KU Leuven, Public Governance Institute

Prof. dr. David Aubin, Université Catholique de Louvain, Institut de sciences politiques Louvain-Europe (ISPOLE)

Prof. dr. Stéphane Moyson, Université Catholique de Louvain, Institut de sciences politiques Louvain-Europe (ISPOLE)

Prof. dr. Catherine Fallon, Université de Liège, Spiral

Prof. dr. Lars Tummers, Utrecht University, Utrecht School of Governance

AUTHORS

Prof. dr. Koen Verhoest, University of Antwerp, Research group on Politics and Public Governance

Prof. dr. Trui Steen, KU Leuven, Public Governance Institute

Tom Langbroek, University of Antwerp, Research group on Politics and Public Governance

Charlotte van Dijck, KU Leuven, Public Governance Institute

Emmanuel Dockx, University of Antwerp, Research group on Politics and Public Governance

Cécile Riche, Université Catholique de Louvain, Institut de sciences politiques Louvain-Europe (ISPOLE)

Paulien Lingier, KU Leuven, Public Governance Institute

PROJECT WEBSITE:

www.psico.be

Contents

Managementsamenvatting

Dit rapport behandelt de bevindingen naar het onderzoek naar de aanjagers van innovatie in de federale overheid. Onder innovatie wordt in dit rapport diensten, processen, instrumenten of beleid die in een bepaalde context als 'nieuw' beschouwd kunnen worden. Het kan zijn dat deze nieuwigheid al ergens anders bestaat of wordt toegepast, maar ze moet voor de context van de respondent een duidelijk verschil inhouden ten opzichte van hoe zaken in het verleden werden aangepakt. Innovatie is daarin anders dan optimalisatie: Innovatie betekent een breuk met het verleden en betreft de implementatie van echt nieuw beleid, diensten, technologieën of processen.

Dit rapport bekijkt vier aspecten van innovaties:

- **De mate van innovatie**, dat is de mate waarin innovaties de afgelopen drie jaar in de organisaties zijn ontwikkeld. Er worden vier soorten innovaties onderscheiden:
    - Beleidsinnovaties verwijzen naar de ontwikkeling van nieuw beleid;
    - Technologische innovaties verwijzen naar de creatie of het gebruik van nieuwe technologieën om diensten aan gebruikers of burgers te leveren;
    - Service-innovaties zijn nieuwe diensten die door de organisaties worden aangeboden aan gebruikers of burgers;
    - Procesinnovaties omvatten het verbeteren van de kwaliteit en de efficiëntie van organisatieprocessen.
- **De oorsprong van innovatie**, die verwijst naar de bron van innovatie, of de manier waarop innovaties zijn ontwikkeld. Innovaties kunnen worden ontwikkeld:
    - Volledig binnen de organisatie;
    - Binnen de organisatie maar deels geïnspireerd door externe bijdragen;
    - In samenwerking met externe actoren.
- **De tevredenheid over de innovatie** die is ontwikkeld binnen de organisatie, binnen de organisatie maar geïnspireerd door anderen en in samenwerking.
- **De status van innovatie**, waarmee de mate waarin innovaties zijn getest of geïmplementeerd in de organisatie wordt bedoeld. Innovaties kunnen:
    - Getest of geëxperimenteerd zijn in de organisatie;
    - Geïmplementeerd zijn door of in de organisaties.

Met betrekking tot de ontwikkeling van innovaties in de afgelopen drie jaar hebben alle typen van organisaties gemiddeld in relatief lage of gemiddelde mate beleids-, technologische, service of procesinnovaties ontwikkeld. Respondenten geven aan dat innovaties met betrekking tot organisatieprocessen relatief meer ontwikkeld zijn dan andere soorten innovaties. Het blijkt dat de federale organisaties het meest betrokken zijn bij de ontwikkeling en/of implementatie van procesinnovaties. Als we verder kijken naar de significante verschillen tussen de soorten en grootte van organisaties, blijkt dat Federale Wetenschappelijke Instellingen (FWI) en kleine organisaties het minst vaak betrokken zijn bij de ontwikkeling en / of implementatie van innovaties.
De oorsprong van de innovatie verschilt naargelang het type organisatie. Innovaties in Openbare Instellingen voor Sociale Zekerheid (OISZ) worden meestal intern ontwikkeld. Federale Wetenschappelijke Instellingen (FWI) ontwikkelen op hun beurt het grootste deel van hun innovaties in samenwerking met externe actoren. Federale overheidsdiensten, ministeries en programmatorische federale overheidsdiensten (FOD/POD) evenals de Federale Instellingen voor Openbaar Nut (ION) ontwikkelen gemiddeld evenveel innovaties intern als in samenwerking met externe actoren. In alle organisaties zijn innovaties die intern zijn ontwikkeld, maar geïnspireerd door

externe bijdragen, de minst voorkomende innovatie. In vergelijking met andere type organisaties ontwikkelen Openbare Instellingen voor Sociale Zekerheid (OISZ) significant meer innovaties binnen de eigen organisatie, maar een aanzienlijk minder deel van hun innovaties in samenwerking met externe actoren.
Tevredenheid over de ontwikkelde innovaties wordt gemiddeld voor alle type organisaties gemiddeld tot relatief hoog aangemerkt ongeacht de herkomst van de innovatie. Er zijn verschillen tussen de soorten organisaties als het gaat om het testen of experimenteren met innovatie. Testen / experimenteren met de innovatie komt significant minder vaak voor bij Federale Wetenschappelijke Instellingen (FWI). De mate waarin organisaties innovaties implementeren is relatief hoog in alle organisaties. Over het algemeen worden innovaties vaker geïmplementeerd dan getest.

Overzicht van de condities voor innovatie

Innovatie door samenwerking is afhankelijk van verschillende condities. Die voorwaarden zijn gestructureerd rond vijf categorieën:

- **De organisatorische omgeving** omvat de voorwaarden met betrekking tot de cultuur van de organisatie, de aanwezigheid van gezamenlijke administratieve rompslomp, de mate van stress en de inzet van werknemers;
- **Organisatorische capaciteiten** verwijzen naar de capaciteiten die de organisatie moet hebben om te kunnen innoveren.
- **Kenmerken van de samenwerking**, waaronder de mate van samenwerking, de omvang, en de samenstelling;
- **Kenmerken van het informatie-uitwisselingsproces**, waaronder vertrouwen en het genereren van nieuwe kennis;
- **Autonomie, organisatorische controle en prioriteit, en inmenging van en discussie met de verantwoordelijke minister**, waaronder de autonomie en controle van de respondent in hun thuisorganisatie, de prioriteit die wordt gegeven aan innovatie door de organisatie, evenals de discussie met en inmenging door de verantwoordelijke ministers.

De volgende secties bespreken de belangrijkste beschrijvende resultaten over de aanwezigheid van die condities in de organisatie.

Organisatorische omgeving

De organisatorische omgeving is samengesteld uit de organisatiecultuur, het niveau van de organisatorische red tape, red tape betreffende samenwerking, het niveau van betrokkenheid van de werknemer en de mate van stress bij de federale ministeries en agentschappen.

Zowel een administratieve als niet-administratieve cultuur is te vinden in federale organisaties, hoewel niet noodzakelijkerwijs in dezelfde organisatie. De administratieve cultuur legt de nadruk op interne controle en formele regels, terwijl de niet-administratieve cultuur de nadruk legt op het bereiken van prestaties, sociale relaties en creativiteit. Deze mix geeft aan dat federale overheidsorganisaties en -agentschappen zowel het bereiken van doelstellingen, vertrouwen en creativiteit als stabiliteit en continuïteit waarderen. Gemiddeld zijn de twee verschillende culturen in gemiddelde of in vrij hoge mate te vinden in de federale organisaties.

De items betreffende organisatorische red tape kunnen worden onderverdeeld in twee verschillende factoren. Hogere scores worden gegeven aan de factor die verwijst naar budgettaire red tape. Terwijl de niet-budgettaire red tape bij alle soorten organisaties gemiddeld tamelijk laag en in gemiddelde

mate aanwezig is, wordt op de budgettaire red tape hoger gescoord, met de hoogste scores in de FWI. Ter vergelijking: managers van de Openbare Instellingen van Sociale Zekerheid (OISZ) rapporteren relatief de laagste budgettaire red tape, hoewel nog steeds aanzienlijk aanwezig. Eenzelfde patroon wordt gevonden met betrekking tot de red tape betreffende samenwerking; zijnde regels die samenwerking beperken. OISZ rapporteren het laagste niveau van dit type red tape.

De federale respondenten geven aan dat medewerkers in hun organisatie gemiddeld in hoge mate organisatorisch betrokken zijn. Het stressniveau verschilt op zijn beurt tussen de Instellingen van Openbaar Nut (ION) en de andere type organisaties. De organisatorische omgeving in Instellingen van Openbaar Nut (ION) wordt als aanzienlijk stressvoller ervaren.

Organisatorische capaciteiten

In de rapporten werden drie soorten organisatorische capaciteiten onderzocht:

- **Verbindende capaciteiten** zijn de capaciteiten om linken te leggen en de uitwisseling tussen verschillende actoren te vergemakkelijken. Ze bestaan op drie niveaus. Op individueel niveau verwijzen verbindende capaciteiten naar het individuele vermogen om een relatie tussen actoren op te bouwen en hun ideeën en interesses te koppelen. Op intra-organisatorisch niveau verwijzen verbindende capaciteiten naar processen of middelen die de uitwisseling van informatie en samenwerking binnen een organisatie tussen verschillende organisatie-eenheden vergemakkelijken. Op inter-organisatorisch niveau verwijzen verbindende capaciteiten naar processen of middelen die informatie-uitwisseling en samenwerking met externe organisaties vergemakkelijken.
- **Lerende capaciteiten** zijn de capaciteiten die organisaties moeten hebben om kennis te gebruiken. We hebben ze op twee niveaus bekeken. Op intra-organisatorisch niveau verwijst lerend vermogen naar het vermogen van de organisatie om bestaande praktijken aan te passen op basis van nieuwe inzichten. Op inter-organisatorisch niveau verwijst lerend vermogen naar de mate waarin organisaties experimenteren en leren met actoren buiten de organisatie.
- **Innovatiecapaciteiten** zijn de capaciteiten om innovaties door te voeren en te ontwikkelen. Deze capaciteiten zijn verdeeld over enerzijds processen en anderzijds middelen.

Als het gaat om intra-organisatorische verbindende capaciteiten, zijnde processen en middelen die uitwisseling tussen eenheden van één organisatie vergemakkelijken, zijn in het algemeen in vergelijkbare mate aanwezig, maar er zijn aanzienlijke verschillen naar organisatiegrootte. Capaciteiten die samenwerking tussen organisatie-eenheden vergemakkelijken, zijn in grotere mate aanwezig in grote organisaties dan in kleinere. Het niveau van intra-organisatorische capaciteiten is aanzienlijk hoger in grotere organisaties. Daarnaast bestaan er ook verschillen tussen organisatietypes. De intra-organisatorische verbindende capaciteiten zijn aanzienlijk lager voor Federale Wetenschappelijke Instellingen (FWI). Het niveau van inter-organisatorische verbindende capaciteiten is in alle organisaties in vrij lage mate aanwezig. Ook hier bestaan er significante verschillen tussen kleine en grotere organisaties en tussen typen organisaties. Inter-organisatorische capaciteiten die samenwerking met externe organisaties vergemakkelijken zijn gemiddeld vooral in kleine organisaties in lage mate aanwezig, evenals in Federale Wetenschappelijke Instellingen (FWI).
Verder geven respondenten aan dat individuele verbindende capaciteiten in hun organisatie in gemiddelde mate aanwezig zijn. Een minderheid van de respondenten geeft aan dat deze capaciteiten in zeer hoge mate aanwezig zijn.

De resultaten laten zien dat lerende capaciteiten op zowel intra- als interorganisatie-niveau niet zo sterk ontwikkeld zijn. Over het algemeen beschikken organisaties op gemiddelde niveau over lerende capaciteiten. Beide lerende capaciteiten zijn in grotere organisaties significant hoger aanwezig dan bij kleinere. Deze capaciteiten zijn in redelijk lage mate aanwezig bij de Federale Wetenschappelijke Instellingen (FWI) en in hogere mate aanwezig bij de Openbare Instellingen van Sociale Zekerheid (OISZ).

Zowel de innovatiecapaciteiten in termen van processen (plannen, beleid en procedures) als middelen voor innovatie zijn niet zo sterk ontwikkeld in de federale overheid; ze zijn gemiddeld in redelijk lage tot gemiddelde mate aanwezig. Maar net als bij lerende capaciteiten bestaan er verschillen tussen soorten organisaties. Innovatieve capaciteiten in termen van processen zijn gemiddeld hoger bij Openbare Instellingen van Sociale Zekerheid (OISZ) in vergelijking met andere soorten organisaties, maar zelfs in deze organisaties meldt slechts ongeveer 40% van de respondenten dat deze capaciteiten aanwezig zijn in een redelijk hoog tot zeer hoge mate. Het resultaat is vergelijkbaar voor innovatieve capaciteiten in termen van middelen. Openbare Instellingen van Sociale Zekerheid (OISZ) hebben gemiddeld een grotere capaciteit qua middelen in vergelijking met andere soorten organisaties en zijn lager voor de Federale Wetenschappelijke Instellingen (FWI). Bij alle typen organisaties zijn innovatieve capaciteiten qua middelen minder aanwezig dan capaciteiten qua processen.

Kenmerken van de samenwerking

Dit rapport onderzoekt drie kenmerken van samenwerking:

- **Het type samenwerking** verwijst naar het doel dat organisaties nastreven wanneer ze beginnen met samenwerken. Er wordt onderscheid gemaakt tussen samenwerking waarbij op een bepaald moment het doel was om een innovatie te ontwikkelen en andere samenwerkingsvormen;
- **De omvang van samenwerking** is het aantal actoren waarmee een organisatie doorgaans samenwerkt;
- **Het type actoren** waarmee organisaties samenwerken;

Met betrekking tot het type samenwerking werken alle type organisaties samen om innovaties te ontwikkelen alsook om andere redenen. Respondenten geven aan dat hun organisatie(eenheid) vaker samenwerkt met als doel een innovatie te ontwikkelen dan voor andere doeleinden. Opnieuw verschilt de betrokkenheid bij dergelijke samenwerkingen aanzienlijk tussen, maar ook binnen organisaties. Bovendien zijn de federale organisaties gemiddeld relatief meer betrokken bij kleine samenwerkingen om innovaties te ontwikkelen dan bij grote samenwerkingen.

Meer dan de helft van de respondenten van de OISZ en de FOD/POD meldt met betrekking tot de overheidsactoren binnen de Belgische openbare landschapsorganisaties dat hun organisatie (eenheid) samenwerkt met andere federale ministeries en instanties in hetzelfde beleidsterrein in redelijk hoge tot zeer hoge mate.

Samenwerking met andere federale organisaties uit verschillende beleidsterreinen komt iets minder vaak voor. Federale Wetenschappelijke Instellingen (FWI) zijn het type organisaties dat het minst samenwerkt met andere federale organisaties die actief zijn op verschillende beleidsterreinen. De FOD-POD rapporteren het hoogste niveau van samenwerking met andere federale instanties die tot

andere beleidsterreinen behoren, zij het dat ze over het algemeen in gemiddelde mate dergelijke samenwerkingsverbanden aangaan.

De samenwerking met organisaties van andere overheidsniveaus is vrij beperkt, met name voor Instellingen van Sociale Zekerheid (OISZ). De samenwerking met onderzoeksinstituten is hoger, maar ook de verschillen tussen verschillende organisaties zijn groter. Dit soort samenwerkingen is vooral hoog voor de Federale Wetenschappelijke Instellingen (FWI) en laag voor de Instellingen van Sociale Zekerheid (OISZ). Ze zijn ook meer gebruikelijk voor kleine organisaties. Bovendien is samenwerking met burgers en non-profitorganisaties binnen de federale overheid tamelijk schaars. Een grote meerderheid van de respondenten geeft aan dat dergelijke samenwerkingen niet bestaan of slechts in beperkte mate aanwezig zijn. Dit geldt voor alle soorten federale organisaties.

Met betrekking tot andere niet-overheid of niet-Belgische actoren waarmee wordt samengewerkt, is samenwerking met private bedrijven de meest voorkomende. Samenwerking met private bedrijven wordt gemiddeld relatief meer uitgeoefend dan samenwerking met burgers en non-profitorganisaties welke binnen de federale overheid nauwelijks voorkomen. Toch komen dergelijke samenwerkingen nog vrij beperkt voor, al is de variatie tussen en binnen typen organisaties substantieel.

De samenwerking met Europese of internationale instellingen verschilt per type organisatie. Instellingen van Openbaar Nut (ION) werken het vaakst met hen samen, terwijl Instellingen van Sociale Zekerheid (OISZ) het minst betrokken lijken te zijn bij dergelijke internationale of Europese samenwerkingen.

Informatie-uitwisseling en kennisverwerving

De organisatieomgeving is samengesteld uit het niveau van het delen van informatie met anderen buiten de organisatie en kennisverwerving, de kennis die is opgedaan als gevolg van de samenwerking. De opgedane kennis bestaat uit kennis over (1) beleidsinhoud (2) de samenwerkingspartners (3), de externe gebruikers of burgers en (4) kennis over de prioriteit van hun verantwoordelijke ministers.

Gemiddeld genereren alle typen en grootten van organisaties binnen de federale overheid in gemiddelde mate kennis als ze samenwerken met andere partijen. Met betrekking tot het delen van informatie controleren organisaties in een gemiddelde mate de verstrekte informatie en het gedrag van andere organisaties waarmee ze samenwerken. Tegelijkertijd zijn organisaties gemiddeld bereid om in gemiddelde mate risico te nemen en alle benodigde informatie te geven aan de organisatie waarmee ze samenwerken, ook al kan het geven van die informatie schadelijk zijn. Organisaties doen gemiddeld door hun samenwerking op in gemiddelde mate kennis op. Gemiddeld wordt kennis over de inhoud van het beleid, het belang van de samenwerkingspartners, het belang van de gebruikers en burgers en de prioriteit van hun verantwoordelijke ministers in gemiddelde mate verworven.

Autonomie, organisatorische controle en prioriteit, en interesse en inmenging van politiek

Deze categorie bevat vijf elementen:
- De autonomie die de medewerker heeft in de organisatie;
- De controle die de organisatie uitoefent op hun medewerker;
- de prioriteit die de organisaties geven aan gezamenlijke innovatie;
- de mate waarin de verantwoordelijke minister geïnteresseerd is in het innovatieproces;
- de inmenging van de verantwoordelijke minister ten opzichte van de innovatie;

Met betrekking tot de organisatorische sfeer hebben werknemers van alle federale ministeries en agentschappen gemiddeld gezien een gemiddeld niveau van ervaren autonomie en organisatorische controle. Ook de gepercipieerde prioriteit ten aanzien van de door de organisatie uitgeoefende innovatie is in gemiddelde mate aanwezig. Op politiek vlak is de discussie met de verantwoordelijke minister over de gezamenlijke innovaties redelijk laag. Er zijn aanzienlijke verschillen naargelang de grootte en het type organisatie. De hoeveelheid discussie over de innovatie is lager voor kleine organisaties en de Federale Wetenschappelijke Instelling (FWI) en groter voor de Instellingen van Openbaar Nut (ION). In dit laatste type organisatie is de inmenging van de verantwoordelijke minister in gemiddelde mate aanwezig. Verantwoordelijke ministers geven over het algemeen in gemiddelde mate prioriteit aan gezamenlijke innovatie. Ook hier bestaan er verschillen naargelang de omvang en het type organisaties. De prioriteit die wordt gegeven aan gezamenlijke innovatie is lager bij kleine organisaties en bij de Federale Wetenschappelijke Instellingen (FWI). De interesse van de verantwoordelijke ministers is op haar beurt hoger voor federale overheidsdiensten, ministeries en programmatorische federale overheidsdiensten (FOD/POD).

Effect op innovatie

In hoeverre beïnvloeden bovenstaande condities innovatie? In deze paragraaf worden de belangrijkste condities uitgewerkt die van invloed zijn op (1) de mate waarin beleids-, proces-, service- en technologische innovaties zijn ontwikkeld (2) de oorsprong van die innovaties (3) de tevredenheid van de respondent met de innovaties en (4) de mate waarin ze zijn getest en/of geïmplementeerd.

Mate van ontwikkelde innovatie

Voor de ontwikkeling van elk type innovaties is de organisatorische omgeving belangrijk. Concreet wordt de ontwikkeling van innovatie positief beïnvloed door de mate waarin organisaties een niet-administratieve cultuur hebben. Organisaties die waarde hechten aan het behalen van doelstellingen, het opbouwen van relaties en creativiteit, ontwikkelen meer innovaties.

De ontwikkeling van beleids-, technologische, proces- en service-innovatie is significant positief gerelateerd aan alle verbindende, lerende- en innovatieve capaciteiten.

Kijkend naar de kenmerken van de samenwerking heeft de mate waarin organisaties deelnemen aan samenwerking gericht op innovatie een positieve invloed op de mate waarin zij beleids-, technologische, service- en procesinnovatie ontwikkelen. Wanneer actoren samenwerken met het duidelijke doel om te innoveren, hebben ze de neiging om meer innovaties te ontwikkelen. Bovendien bevordert de deelname aan kleine en grote samenwerkingen de ontwikkeling van allerlei soorten innovatie. Samenwerking met een bepaalde type actoren is voor sommige soorten innovatie belangrijker dan voor andere, maar samenwerking met alle genoemde verschillende soorten actoren leidt tot de ontwikkeling van meer innovaties.

Met betrekking tot het informatie-uitwisselingsproces wordt de ontwikkeling van elk type innovatie ook gedreven door de mate waarin organisaties nieuwe kennis verwerven. Leren over de beleidsinhoud, het belang van hun partners, het belang van hun gebruikers of de burger, evenals over de politieke prioriteiten is daarom belangrijk voor de ontwikkeling van elk type innovatie.

Ten slotte zien we dat de mate waarin de organisatie prioriteit geeft aan collaboratieve innovatie een positieve invloed heeft op de mate waarin organisaties elk type innovaties ontwikkelen, net als autonomie en politieke inmenging. Interessant is dat de ontwikkeling van beleidsinnovatie naast

organisatorische prioriteit ook afhangt van de mate waarin de verantwoordelijke minister geïnteresseerd is in het proces.

Oorsprong van de innovatie

Over het algemeen verklaren weinig condities de oorsprong of de bron van de ontwikkelde innovaties, zijnde het relatieve aandeel van innovaties dat binnen de eigen organisatie is ontwikkeld, intern is ontwikkeld maar is geïnspireerd door externe bijdragen en/of is ontwikkeld in samenwerking met externe actoren. De organisatieomgeving heeft geen invloed op de oorsprong van innovaties. Verrassend genoeg lijkt het, wat betreft organisatorische capaciteiten, dat individueel leervermogen, dat is de mate waarin een organisatie personeel heeft dat in staat is om relaties op te bouwen en ideeën te verbinden, een negatieve invloed heeft op het aandeel innovaties dat organisaties binnen hun eigen organisatie ontwikkelen.

Het aandeel van innovaties dat intern ontwikkeld wordt, al dan niet geïnspireerd door externe bijdragen, wordt negatief beïnvloed door samenwerking met particuliere bedrijven. Aan de andere kant, samenwerking met private bedrijven heeft een positieve invloed op het aandeel van innovaties dat is ontwikkeld door samenwerking met andere organisaties: federale organisaties die samenwerken met private bedrijven hebben de neiging om meer innovaties te ontwikkelen in samenwerking met externe actoren innovaties.

De kenmerken van het informatie-uitwisselingsproces tijdens samenwerking hebben geen invloed op de oorsprong van innovatie.

Tevredenheid met de ontwikkelde innovaties

Het hebben van een niet-administratieve cultuur is een goede indicator voor de tevredenheid met de ontwikkelde innovaties. Het is positief gerelateerd aan de tevredenheid van intern ontwikkelde innovaties, intern ontwikkelde innovaties die geïnspireerd zijn door externe bijdragen of ontwikkeld zijn in samenwerking met anderen. Dit betekent dat organisaties die waarde hechten aan het behalen van doelstellingen, het opbouwen van relaties en creativiteit meer tevreden zijn met de innovaties die ze hebben ontwikkeld. Aan de andere kant, budgettaire red tape heeft een negatief effect op de tevredenheid met in samenwerking met anderen ontwikkelde innovaties.

Wat betreft de verschillende capaciteiten die een organisatie kan bezitten, zien we dat tevredenheid wordt verklaard door alle soorten van de onderzochte capaciteiten, ongeacht de manier waarop innovaties worden ontwikkeld. Verbindende capaciteiten (intra, inter en individueel), lerende capaciteiten (intra en inter) en innovatiecapaciteiten (met betrekking tot procedures en middelen) hebben allemaal een positieve invloed op de tevredenheid van intern ontwikkelde innovaties, intern ontwikkelde innovaties die zijn geïnspireerd op externe bijdragen of ontwikkeld in samenwerking met anderen. Dit geldt ook voor de houding van de leidinggevende tegenover de innovaties. Hoe positiever, hoe meer tevredenheid met de ontwikkelde innovaties, ongeacht de oorsprong van de innovatie.

Als we kijken naar voorwaarden die verband houden met de kenmerken van de samenwerkingen zien we datzelfde patroon. Samenwerkingen gericht op het creëren van een innovatie, samenwerking met federale actoren (uit hetzelfde of een ander beleidsdomein), kennisverwerving, autonomie en organisatorische prioriteit hebben allemaal een positieve invloed op de tevredenheid met innovaties ongeacht de oorsprong van de innovatie. Verder zien we dat samenwerking met elk type actor leidt

tot meer tevredenheid, behalve samenwerking met private bedrijven. Samenwerking met private bedrijven leidt niet tot meer tevredenheid. Samenwerking met alle andere actoren leidt wel tot meer tevredenheid, maar hangt af van de oorsprong van innovatie. Bijvoorbeeld samenwerking met burgers leidt alleen tot meer tevredenheid over de innovatie wanneer deze in actieve samenwerking wordt ontwikkeld. Dit geldt ook voor de organisatorische prioriteit, politieke inmenging en de omvang van de samenwerking. Deze kenmerken leiden tot meer tevredenheid, maar alleen voor bepaalde innovaties met een bepaalde origine.

Testen en implementatie van innovaties

In dit rapport wordt onderscheid gemaakt tussen de mate waarin innovaties worden getest of mee wordt geëxperimenteerd door federale organisaties en de mate waarin innovaties worden geïmplementeerd door of binnen federale organisaties. In beide gevallen heeft de organisatiecultuur een belangrijk effect. Federale organisaties met een niet-administratieve cultuur hebben de neiging om innovaties in grotere mate te sturen of te implementeren. Een niet-bestuurlijke cultuur is dus belangrijk voor innovatie, omdat het ook de ontwikkeling van innovaties en de tevredenheid met innovaties ondersteunt.

Belangrijke organisatorische capaciteiten voor testen of experimenteren zijn de lerende capaciteiten (zowel inter als intra) en innovatie capaciteiten (zowel qua processen als middelen). Een positieve houding van de leidinggevende ten opzichte van samenwerking en innovatie is ook een belangrijke indicator. We zien echter dat met betrekking tot de organisatorische capaciteiten alleen intra-organisatorische leer- en innovatieprocessen met betrekking tot processen een significant positieve relatie hebben met de mate van implementatie van de ontwikkelde innovatie. Het testen en implementeren lijkt dus afhankelijk te zijn van de mate waarin organisaties interne organisatieprocessen hebben die gericht zijn op leren van externe partners en innovatie.

Ten slotte wordt, kijkend naar de kenmerken van de samenwerking, het testen of de implementatie van innovaties positief beïnvloed door de mate waarin organisaties samenwerken met het doel om te innoveren. Met andere woorden, organisaties die samenwerken om nadrukkelijk een innovatie te ontwikkelen testen en implementeren deze in een hogere mate. We zien ook een positieve invloed van kleine samenwerkingen, die doorgaans een gunstiger context zijn voor het proefdraaien en implementeren van innovatie. Wat samenwerking met anderen betreft, leidt alleen samenwerking met andere federale actoren in een ander beleidsdomein tot een hogere uitvoeringsgraad. Geen van de samenwerkingen met specifieke actoren leidt tot meer testen/experimentatie.

Ten slotte hebben zowel de mate van kennisverwerving als de autonomie van medewerkers en de organisatorische prioriteit een significante positieve invloed op de mate waarin organisaties innovaties testen of implementeren.

Aanbevelingen

Op basis van de resultaten geven we de volgende aanbevelingen:

Capaciteiten

De resultaten laten zien dat verbindende, lerende- en innovatiecapaciteiten allemaal positief gerelateerd zijn aan de ontwikkeling van beleids-, technologische, service- en procesinnovaties. Bovendien leidt de aanwezigheid van deze capaciteiten ook tot een hogere mate van tevredenheid met

ontwikkelde innovaties. We raden daarom aan om aandacht te besteden aan de ontwikkeling van al deze capaciteiten. Hieronder geven we aanbevelingen hoe dat kan.

Intra-organisatorisch verbindend vermogen

Onze resultaten laten zien dat de organisatie over voldoende intra-organisatorische verbindende capaciteit moet beschikken. Het leidt tot de ontwikkeling van innovaties en tot meer tevredenheid daarmee. Intra-organisatorisch verbindende capaciteit is de manier waarop een organisatie het verbinden met anderen binnen de eigen organisatie faciliteert en het is aanbevolen om dit te versterken. Om dit te doen, raden we het volgende aan:

Aanbeveling 1. Organiseer regelmatig werk-gerelateerde sociale activiteiten. Sociale activiteiten zijn een goede manier om werknemers elkaar te laten leren kennen. Wanneer medewerkers elkaar beter kennen, wordt het voor hen gemakkelijker om samen te werken en informatie te delen. Niet alleen omdat de drempel om naar iemand te gaan die ze niet kennen wordt verminderd, maar ook omdat medewerkers beter weten wie binnen de organisatie een bepaalde expertise of verantwoordelijkheid heeft.

Aanbeveling 2. Stimuleer samenwerking tussen verschillende organisatie-eenheden. Innovatie wordt gedreven door samenwerking. Daarom wordt aanbevolen dat verschillende organisatie-eenheden samenwerken om nieuwe inzichten te verkrijgen en van elkaar te kunnen leren. Op die manier kan groepsdenken wat mogelijk in de organisatie-eenheid aanwezig is worden doorbroken en kunnen organisatie-eenheden worden geïnspireerd door collega's die nieuwe inzichten kunnen inbrengen.

Aanbeveling 3. Zorg voor voldoende gelegenheid voor informele informatie-uitwisseling binnen de organisatie. Soms ontstaan de beste ideeën niet tijdens formele vergaderingen, maar in de keuken van het kantoor terwijl men koffie met collega's drinkt. Om die reden is het belangrijk dat de organisatie een omgeving faciliteert waar werknemers informeel kunnen samenkomen om bepaalde zaken te bespreken. Op die manier kunnen kwesties die niet tijdens formele vergaderingen worden besproken nog steeds worden afgehandeld. Een informele setting kan ook discussie stimuleren over dingen die niet geschikt zijn voor plenaire vergaderingen.

Aanbeveling 4. Faciliteer systemen of procedures om informatie en kennis binnen de organisatie effectief te delen. Om medewerkers gemakkelijk te kunnen bereiken en informatie en kennis met elkaar te kunnen delen, is het belangrijk om binnen de organisatie systemen of procedures op te zetten. Dit kunnen eenvoudige regelingen zijn, zoals wekelijkse vergaderingen waarbij de hoofden van de organisatie-eenheid elkaar op de hoogte houden van de dingen waar ze mee bezig zijn. Een ander voorbeeld is een intra-web waar medewerkers gemakkelijk kunnen zien wat er in de organisatie gebeurt, waarop ze elkaar kunnen bereiken of waaraan ze kunnen samenwerken. De mogelijkheden zijn eindeloos zolang het de informatie- en kenniscirculatie binnen de organisatie stimuleert.

Inter-organisatorisch verbindende capaciteit

Vervolgens is het hebben van inter-organisatorisch verbindende capaciteit gunstig voor de ontwikkeling van innovaties en de tevredenheid ervan. Inter-organisatorisch verbindende capaciteit is de manier waarop een organisatie het verbinden met anderen buiten de eigen organisatie faciliteert. Het volgende wordt aanbevolen:

Aanbeveling 5. Stel beleid en routines op voor samenwerkingsverbanden en netwerkactiviteiten. Het is belangrijk dat de organisatie effectief kan deelnemen aan samenwerkingsverbanden en kansen in het netwerk buiten de eigen organisatie kan signaleren. Het wordt daarom aanbevolen dat de organisatie beleid en procedures heeft, zoals b.v. stakeholdermanagement, strategisch omgevingsmanagement om optimaal gebruik te maken van de omgeving.

Aanbeveling 6. Investeer in rollen of functies voor het leiden van samenwerkingsverbanden en netwerkactiviteiten. Het wordt aanbevolen dat medewerkers van de organisatie in staat zijn contact te leggen met anderen buiten de eigen organisatie. Het is belangrijk dat er posities worden gecreëerd waar medewerkers te maken hebben met actoren buiten de organisatie en die bezet worden door medewerkers die bedreven zijn in het aansturen van samenwerkingsarrangementen en netwerkactiviteiten.

Aanbeveling 7. Faciliteer training over hoe effectief te handelen in samenwerkingsverbanden. Om ervoor te zorgen dat de medewerkers van de organisatie effectief kunnen deelnemen aan samenwerkingsverbanden is het van belang dat zij hierin getraind zijn. Dit maakt niet alleen de samenwerking efficiënter, maar vergroot ook de kans dat de medewerker het beste uit de samenwerking haalt voor de organisatie. Hierbij kan gedacht worden aan trainingen betreffende onder andere onderhandeling, stakeholderanalyse en omgevingsmanagement.

Individuele verbindende capaciteiten

Naast het focussen op de processen en procedures in de organisatie als geheel, is het ook belangrijk dat de organisatie bepaalde medewerkers heeft die zich gemakkelijk met anderen kunnen verbinden aangezien uit onze resultaten blijkt dat dit een indicator is voor de ontwikkeling en tevredenheid van innovaties. We geven de volgende aanbeveling:

Aanbeveling 8. De organisatie moet investeren in personeel dat in staat is om (zich met) anderen en ideeën te verbinden. Omdat het gezamenlijke innovatieproces wordt gedreven door een synergie van verschillende ideeën en inzichten, is het belangrijk dat de organisatie personeel heeft dat bekwaam is om deze inzichten te verbinden en deze kan gebruiken om vooruitgang te boeken in het proces. De organisatie moet medewerkers ondersteunen en opleiden om competenties te ontwikkelen die hen daartoe in staat stellen, maar ook in staat stellen belangen van verschillende actoren te verbinden. Bijna iedereen in een samenwerkingsverband heeft verschillende belangrijk. Het is belangrijk dat de organisatie medewerkers opleidt of selecteert die kunnen zien hoe tegengestelde belangen met elkaar verbonden kunnen worden om zo een win-win situatie te creëren, of in ieder geval een situatie voorkomen waarin actoren niet meer met elkaar willen samenwerken.

Bovendien is het belangrijk dat de organisatie werknemers selecteert of traint om effectief vertrouwensrelaties op te bouwen en te onderhouden met andere actoren buiten de organisatie. Op die manier kan samenwerking met actoren buiten de eigen organisatie worden gestimuleerd. Evenzo moet aandacht worden besteed aan personeel dat niet geheel nieuw is in het werken met actoren van buiten de eigen organisatie. Hun ervaring kan worden gebruikt om veelvoorkomende valkuilen te vermijden en om tot een effectievere manier van werken te komen. De organisatie mag echter niet vergeten personeel op te leiden en te ondersteunen dat nieuw is in samenwerking, zodat de organisatie niet te afhankelijk wordt van werknemers met veel ervaring.
Deze genoemde punten moeten speciale aandacht krijgen bij het opleiden of aannemen van personeel.

Intra-organisatorisch lerende capaciteiten

De organisatie moet ook aandacht besteden aan zowel het intra- als inter-organisatorische lerend vermogen. Eerst geven we aanbevelingen om het lerend vermogen binnen de organisatie te vergroten. Dit is de mate waarin de organisatie het leren binnen de organisatie faciliteert. We ontdekten dat deze capaciteit positief gerelateerd is aan de ontwikkeling van innovaties, de tevredenheid en de mate van testen en implementatie van de innovatie. We raden daarom het volgende aan:

Aanbeveling 9. Ontwikkel routines om na te denken over wat nieuwe inzichten en kennis voor de organisatie betekenen en pas beleid en routines regelmatig aan nieuwe inzichten of technieken aan. Soms lijkt het makkelijker om nieuwe inzichten te negeren en door te gaan met oude praktijken. Om te kunnen veranderen en reflecteren op oude praktijken en nieuwe inzichten is het aan te bevelen dat de organisatie routines ontwikkelt om hier structureel over na te denken. Dit kan bijvoorbeeld door planningcycli in de organisatie door te voeren. Op die manier kan de organisatie structureel evalueren hoe nieuwe inzichten gebruikt kunnen worden in de organisatie. Het is belangrijk dat de organisatie niet vasthoudt aan oude procedures, maar dat beleid en routines regelmatig worden bijgewerkt. Organisaties die niet blind zijn voor nieuwe inzichten of technieken hebben een groter intra-organisatorisch leervermogen en zijn daardoor effectiever in het ontwikkelen van innovaties.

Aanbeveling 10. Reflecteer of de organisatie optimaal leert van de ervaringen van medewerkers. De organisaties in ons onderzoek variëren van klein (minder dan 250 personen) tot groot (meer dan 1000 personen). Ongeacht de grootte zijn ze groot genoeg om te bestaan uit een groot aantal mensen die dingen leren, zichzelf ontwikkelen en ervaring opdoen. Dit kan allemaal voordelig zijn voor de organisatie, dus de organisatie moet hiervan kunnen profiteren en ervan kunnen leren.

Inter-organisatorische lerende capaciteit

Het andere type leren dat moet worden gestimuleerd, is inter-organisatorisch leren. Inter-organisatorisch leren is de mate waarin de organisatie leert van actoren buiten de eigen organisatie. Deze capaciteit is positief gerelateerd aan de ontwikkeling van innovaties, de tevredenheid en de mate van testen. Om dit te ontwikkelen raden we het volgende aan:

Aanbeveling 11. Stimuleer gezamenlijk leren met en van andere partijen buiten de eigen organisatie. Het uitgangspunt van innovatie door samenwerking is dat innovatie wordt gestimuleerd door het combineren van verschillende inzichten van verschillende actoren. Daarom moet de organisatie stimuleren om over de grenzen van de organisatie heen te kijken en gezamenlijk te leren. Alleen dan kan gezamenlijke innovatie tot stand komen.

Aanbeveling 12. Gebruik pilots en experimenten om nieuwe oplossingen te testen met andere partijen buiten uw organisatie. Pilots en experimenteren met de ontwikkelde innovaties is een goede manier om te zien of de innovatie echt werkt en hoe deze moet worden aangepast. Dit toont een goed leervermogen, omdat de organisatie bereid is om te testen wat ze heeft ontwikkeld en niet terugdeinst voor het hebben van een paar extra ogen op de innovatie om van te leren.

Innovatiecapaciteit (procesmatig)

We hebben gevonden dat de innovatiecapaciteiten met betrekking tot processen gerelateerd zijn aan de ontwikkeling van innovaties, de tevredenheid, het experimenteren en de implementatie van deze innovaties. We geven drie aanbevelingen om de innovatiecapaciteit procesmatig te verbeteren.

Aanbeveling 13. Maak innovatie onderdeel van de plannen en routines op het niveau van de organisatie, organisatieonderdeel en/of medewerkers. Wanneer innovatie deel uitmaakt van de plannen in de organisatie, wordt het een routine om te zoeken naar innovatieve manieren om problemen in de organisatie op te lossen. Op die manier wordt het gestimuleerd om innovatief te zijn en niet te snel terug te grijpen op bestaande procedures als zich problemen voordoen. Het vaststellen van duidelijke beleidslijnen en procedures voor innovatie kan ook helpen om een op innovatie gerichte cultuur te faciliteren.

Aanbeveling 14. Verbind reguliere en innovatieprocessen in de organisatie. Bij innovatie moet de organisatie ervoor zorgen dat ze de reguliere processen (wat de voornaamste taak van de organisatie is) niet stopt door zich volledig op de innovatie te richten. In plaats daarvan moeten de innovatie en reguliere processen naast elkaar bestaan en elkaar zo mogelijk versterken. Met andere woorden, de organisatie moet kunnen innoveren terwijl de reguliere processen worden voortgezet.

Innovatiecapaciteit (middelen)

Onze resultaten tonen aan dat de beschikbaarheid van voldoende 'innovatie' middelen in de organisatie leidt tot de ontwikkeling van alle soorten innovaties, een hogere tevredenheid en tot een hogere mate van testen hiermee. Daarom moet de organisatie ook voldoende innovatiecapaciteit hebben op het gebied van middelen. We raden het volgende aan:

Aanbeveling 15. Zorg ervoor dat HRM aandacht besteedt aan innovativiteit van medewerkers. Het is belangrijk dat de organisatie medewerkers heeft die bereid zijn om het initiatief te nemen om te innoveren, out-of-the-box denkers zijn of niet tegen verandering zijn. De human resources afdeling zou daarom bijzondere aandacht moeten besteden aan de innovativiteit van medewerkers en dit indien mogelijk stimuleren. Ze zouden dit in verschillende facetten van de HR-cyclus moeten doen: bij werving en selectie bij het aannemen van nieuw personeel, bij opleiding, bij loopbaanondersteuning, bij personeelsevaluatie, et cetera.

Aanbeveling 16. Wijs middelen zoals geld en tijd toe aan zowel reguliere taken als innovatie en zorg ervoor dat dit voldoende is om ze te vervullen. Net zoals vermeld in aanbeveling 14, moeten reguliere taken kunnen worden voortgezet terwijl een innovatie wordt ontwikkeld. Bijgevolg mag de organisatie niet alle middelen van de reguliere taak naar de innovatie verplaatsen en daarmee in feite de reguliere processen van de organisatie beëindigen. Aan de andere kant, de innovatie mag niet zomaar een zijproject zijn dat qua middelen weinig aandacht krijgt. Een goede balans is vereist.

Aanbeveling 17. Gebruik ICT en nieuwe technologieën om te innoveren. Het verdient aanbeveling dat de organisatie op de hoogte blijft van de laatste ICT-ontwikkelingen om te gebruiken bij de ontwikkeling van innovaties. Uitgangspunt van dit rapport is dat samenwerking wordt gestimuleerd door samenwerking met andere actoren. ICT biedt een efficiënte manier om in contact te komen met andere actoren buiten de eigen organisatie, maar ook om snel informatie te delen binnen de eigen organisatie. De organisatie moet de medewerkers in staat stellen om met de nieuwste e-middelen te werken om dit mogelijk te maken. Bovendien moet de organisatie open staan voor de snelle ontwikkelingen in ICT, zeker wanneer deze innovatie kunnen stimuleren.

Samenwerking

Aanbeveling 18. Versterk de samenwerking met verschillende soorten actoren. We raden aan om samen te werken met verschillende soorten actoren. Wanneer andere typen organisaties of

concepten niet in de statistische modellen zijn opgenomen, bleek dat samenwerking met bijna alle actoren een significant effect heeft op de ontwikkeling van de verschillende soorten innovaties. Het leidt ook vaak tot meer tevredenheid met de ontwikkelde innovaties.

Vooral belangrijk zijn samenwerkingen met private bedrijven en andere federale ministeries of agentschappen op hetzelfde beleidsterrein. Toen alle soorten organisaties aan het model werden toegevoegd, ontdekten we dat samenwerkingen met particuliere bedrijven leiden tot de ontwikkeling van technologische, service- en procesinnovaties. Innovaties die met federale ministeries of agentschappen op hetzelfde beleidsterrein zijn ontwikkeld, hebben een positief effect op de ontwikkeling van beleidsinnovatie, service-innovatie en procesinnovatie. Bovendien, wanneer innovaties worden ontwikkeld in actieve samenwerking met andere federale ministeries of agentschappen op hetzelfde beleidsterrein (en niet alleen geïnspireerd door of alleen intern ontwikkeld), leidt dit tot meer tevredenheid over deze innovaties.

Bovendien raden we aan om de samenwerking te vergroten met actoren waarmee de organisatie niet vaak samenwerkt. We stelden vast dat de samenwerking met bepaalde soorten actoren meer gestimuleerd zou moeten worden, aangezien de samenwerking met hen een effect heeft op de ontwikkeling van innovaties, maar in beperkte mate aanwezig is bij de federale overheid. Vooral de samenwerking met burgers, organisaties van verschillende overheidsniveaus, non-profitorganisaties en kennisinstellingen moet worden versterkt aangezien dit momenteel schaars is.

Organisatiefactoren

Aanbeveling 19. Ontwikkel een positieve houding ten opzichte van samenwerking en innovatie op het hoogste niveau van de organisatie en maak innovatie een prioriteit voor de organisatie. We vonden dat de ontwikkeling van innovaties, de tevredenheid en het experimenteren ermee positief gerelateerd is aan een positieve houding van de leidinggevende van de respondent ten opzichte van innovatie. Wij stellen dat het voor het proces gunstig is dat de managers op het topniveau een positieve houding ten opzichte van innovatie ontwikkelen of anderszins dat een medewerker zijn leidinggevende probeert te overtuigen van de behoefte aan innovatie. De ontwikkeling van de innovatie moet een prioriteit zijn. Maar natuurlijk mogen de reguliere taken van de organisatie niet (te veel) worden beïnvloed door de ontwikkeling van de innovatie (zie aanbeveling 16).

Aanbeveling 20. Zorg ervoor dat de medewerkers van de organisatie die actief zijn in samenwerkingsverbanden gericht op innovatie voldoende autonomie krijgen. Wanneer de vertegenwoordiger van de organisatie in het samenwerkingsverband gericht op innovatie merkt dat hij/zij voldoende autonomie krijgt om naar eigen inzicht te handelen in het innovatieproces, leidt dit tot een grotere mate van ontwikkelde innovaties van alle soorten, een hogere mate van tevredenheid en implementatie. Geef de vertegenwoordiger van de organisatie dus voldoende autonomie bij de ontwikkeling van innovaties.

Aanbeveling 21. Een minister die betrokken is bij de innovatie is nuttig. De resultaten laten zien dat wanneer respondenten inmenging van hun verantwoordelijke minister (of kabinet) ervaren, de ontwikkeling van alle verschillende soorten innovaties wordt gestimuleerd. Een aanbeveling zou zijn om te proberen de minister bewust te maken van de lopende innovaties, zodat hij of zij kan ingrijpen waar nodig. Bovendien wordt de ontwikkeling van beleidsinnovaties gestimuleerd wanneer de innovatie actief wordt besproken met de verantwoordelijke minister (of kabinet).

Kennisverwerving

Aanbeveling 22. Creëer een samenwerkingsomgeving die effectieve kennisuitwisseling tussen actoren ondersteunt. Kennisverwerving tijdens samenwerking is cruciaal voor de ontwikkeling van innovaties. Verschillende soorten kennis zijn nuttig en leiden tot innovatie:

- kennis over de beleidsinhoud, die verwijst naar kennis over de inhoud van een beleid/proces/methode (1);
- kennis van andere actoren die betrokken zijn bij het samenwerkingsverband voor innovatie, waaronder kennis over hun verwachtingen, hun manier van werken en hun middelen (2);
- kennis over de verwachtingen van gebruikers of de burger en (3);
- kennis van de prioriteiten van hun verantwoordelijke politieke leiding (4).

Al die soorten kennis zijn belangrijk voor de ontwikkeling van innovatie. Kennis over de inhoud zorgt ervoor dat de ontworpen innovatie gebaseerd is op wetenschappelijke inzichten en niet louter het product is van belangen die los staan van de realiteit. Kennis over de samenwerkende partners en innovatiegebruikers of burgers is belangrijk voor de ontwikkeling van innovaties die inspelen op de belangen en behoeften van alle belanghebbenden. Ten slotte zorgt kennis over de prioriteit van hun verantwoordelijke ministers ervoor dat de innovatie politiek wordt ondersteund.

We raden daarom aan om een samenwerkingsomgeving te creëren die effectieve kennisuitwisseling ondersteunt over deze diversiteit aan onderwerpen tussen actoren. Zorgvuldig luisteren naar iedereen, vertrouwen tussen partners opbouwen zodat ze vrij zijn om informatie te delen, informele communicatiekanalen ontwikkelen door informele activiteiten te organiseren zijn belangrijke elementen voor dergelijke kennisverwerving.

Om ervoor te zorgen dat deze kennis op lange termijn bruikbaar is, raden we aan interne mechanismen voor kennisbeheer in te stellen, zodat de organisatie de gecreëerde kennis kan beschermen en gebruiken. Zie ook de aanbevelingen betreffende lerende en innovatie capaciteiten.

Niet-administratieve cultuur

Onze resultaten laten zien dat een niet-administratieve cultuur de ontwikkeling van innovatie bevordert, wordt geassocieerd met een hogere mate van tevredenheid met de ontwikkelde innovatie en een positieve invloed heeft op het de mate van implementatie van de innovaties. Om deze niet-administratieve organisatiecultuur te stimuleren adviseren wij het volgende:

Aanbeveling 23. Stimuleer ondernemerschap in de organisatie. De bevindingen tonen aan dat een organisatie die een ondernemende, dynamische plek is, positief gerelateerd is aan innovatie. Werknemers moeten in staat zijn om eigen initiatieven te nemen en projecten of activiteiten op zich te nemen die mogelijk niet strikt deel uitmaken van hun werk/rol. Leidinggevenden moeten een open en veilig klimaat creëren dat de creativiteit van werknemers stimuleert. Vertrouwen en autonomie geven aan medewerkers maar ook open staan voor bottom-up ideeën zijn daarom belangrijke waarden die door elke leidinggevende moeten worden uitgedragen. Bovendien zou het organiseren van brainstormsessies onder werknemers en het geven van trainingen over ondernemingsgedrag ook het ondernemerschap kunnen vergemakkelijken.

Aanbeveling 24. De organisatie moet resultaatgericht zijn en gericht zijn op het bereiken van doelen. Onze bevindingen suggereren dat resultaatgerichtheid en het bereiken van doelen deel uitmaken van

de niet-administratieve cultuur die tot innovatieve resultaten leidt. Daarom wordt aanbevolen om een leiderschapsstijl aan te nemen die gebaseerd is op wederzijds vertrouwen en management door resultaten in plaats van commando en controle. Dit kan worden bereikt door in overleg met de medewerkers doelstellingen vast te stellen en daarmee voldoende werkautonomie te geven.

Aanbeveling 25. Verminder waar mogelijk de administratieve rompslomp (red tape). Red tape is nadelig voor de ontwikkeling van innovaties. Er moet op worden toegezien dat er in de organisatie geen red tape ontstaat, met name belastende regels die de samenwerking belemmeren en zoveel mogelijk wordt verminderd waar mogelijk. Op die manier kunnen innovaties worden ontwikkeld zonder al te veel beperkingen, wat essentieel is voor out of the box denken en het ruimte kunnen geven voor de implementatie van innovaties.

Synthèse

Cette partie résume les principales conclusions de cette étude concernant les moteurs de l'innovation, et présente plusieurs recommandations. Pour rappel, l'innovation est définie comme tout nouveau processus, service, technologie ou politique publique dans un contexte donné. Cette nouveauté peut déjà exister ou être appliquée ailleurs, mais elle doit être nouvelle dans le contexte dans lequel se trouve le répondant. Elle doit également impliquer une discontinuité avec les pratiques du passé. L'innovation est donc différente de l'optimisation, et concerne la mise en œuvre de politiques, de services, de technologies ou de processus vraiment nouveaux.

Ce rapport traite quatre aspects de l'innovation :

- **L'étendue de l'innovation**, qui est la mesure dans laquelle des innovations ont été développées dans les organisations au cours des trois dernières années. Nous distinguons quatre types d'innovations:
    - Les innovations en matière de politiques publiques, qui se rapportent à l'élaboration de nouvelles politiques ;
    - Les innovations technologiques, qui incluent la création ou l'utilisation de nouvelles technologies pour délivrer des services aux usagers ;
    - Les innovations en matière de services, qui réfèrent à de nouveaux services offerts par les organisations publiques aux usagers ou aux citoyens ;
    - Les innovations de processus, qui englobent les nouveautés qui visent à améliorer la qualité et de l'efficacité des processus organisationnels.
- **L'origine de l'innovation**, qui fait référence à la source de l'innovation, c'est-à-dire la manière dont les innovations ont été développées. Les innovations peuvent être développées :
    - Entièrement au sein des organisations ;
    - Au sein des organisations, mais en partie inspirées par des contributions externes ;
    - En collaboration avec des acteurs externes.
- **La satisfaction à l'égard des innovations développées** au sein de l'organisation, au sein de l'organisation, mais inspirée par d'autres, et en collaboration.
- **Le statut de l'innovation**, qui est la mesure dans laquelle les innovations développées ont été expérimentées ou mises en œuvre dans les organisations. Les innovations peuvent être :
    - Pilotées ou expérimentées dans l'organisation ;
    - Mises en œuvre par ou au sein de l'organisation.

En ce qui concerne le développement des innovations au cours des trois dernières années, toutes les organisations ont développé, en moyenne, des innovations politiques, technologiques, de services ou de processus dans une mesure relativement faible à modérée. Les répondants indiquent que les innovations liées aux processus organisationnels sont relativement plus développées que d'autres types d'innovations. On constate que les organisations fédérales (SPF/SPP) sont les plus impliquées dans le développement et/ou la mise en œuvre des innovations de processus. En outre, les établissements scientifiques fédéraux (ESF) et les petites organisations sont le moins souvent impliqués, en moyenne, dans le développement et / ou la mise en œuvre d'innovations.

L'origine de l'innovation varie selon le type d'organisations. Les innovations dans les institutions publiques de sécurité sociale (IPSS) sont principalement développées en interne. Les établissements scientifiques fédéraux (ESF) développent la plus grande partie de leurs innovations en collaboration

avec des acteurs externes. Les services publics fédéraux, les services publics fédéraux de programmation (SPF/ SPP), ainsi que les organismes d'intérêt public fédéraux (OIP), développent, en moyenne, autant d'innovations en interne que d'innovations en collaboration avec des acteurs externes. Par rapport à d'autres types d'organisations, les institutions publiques de sécurité sociale (IPSS) développent plus d'innovation en interne, et moins d'innovation en collaboration avec des acteurs externes.

La satisfaction à l'égard des innovations développées est, en moyenne, pour tous les types d'organisations, modérée à relativement élevée, et ce quelle que soit l'origine de l'innovation. Il existe par contre des différences entre les types d'organisations en matière de pilotage ou d'expérimentation des innovations. Le pilotage ou l'expérimentation est beaucoup moins fréquent dans les établissements scientifiques fédéraux (ESF). La mesure dans laquelle les innovations sont mises en oeuvre est, en moyenne, relativement élevée dans toutes les organisations. Dans l'ensemble, les innovations sont plus couramment mises en œuvre que pilotées.

Aperçu des conditions pour l'innovation

L'innovation dépend de plusieurs conditions. Ces conditions sont structurées autour de cinq catégories :

- **L'environnement organisationnel, qui** comprend les conditions liées à la culture de l'organisation, la présence de règles et de procédures associées au travail collaboratif, le degré de stress et l'engagement des employés ;
- **Les capacités organisationnelles, qui** réfèrent aux capacités que les organisations publiques doivent posséder pour pouvoir innover ;
- **Les caractéristiques de la collaboration,** qui incluent l'étendue, la taille et la composition des collaborations dans lesquelles les organisations sont impliquées ;
- **Les caractéristiques de l'échange d'information**, qui incluent le contrôle exercé sur les partenaires et le risque que les organisations prennent lorsqu'ils échangent de l'information, ainsi que les connaissances acquises suite à la collaboration ;
- **L'autonomie, le contrôle et la priorité de l'organisation, les intérêts et les interférences des politiques, qui regroupe**nt le degré d'autonomie des employés, le contrôle organisationnel auquel ils font face, la priorité accordée par les organisations à l'innovation, les interférences des responsables politiques et la mesure dans laquelle les innovations sont discutées avec eux.

Les sections suivantes discutent les principaux résultats descriptifs sur la présence de ces conditions dans l'organisation.

Environnement organisationnel

L'environnement organisationnel est composé de la culture organisationnelle, des règles et des procédures organisationnelles générales et associées au travail collaboratif, du niveau d'engagement de l'employé ainsi que du niveau de stress ressenti dans les organisations publiques fédérales.

Tant les cultures administratives que les cultures non administratives existent dans les organisations fédérales, mais cela n'implique pas nécessairement que deux types de culture coexistent au sein d'une même organisation. La culture administrative met l'accent sur le contrôle interne et les règles formelles, tandis que la culture non-administrative met l'accent sur la performance, les relations sociales et la créativité. Ce mélange indique que les organisations et organismes d'intérêt public fédéraux accordent, en moyenne, autant d'importance à la réalisation des objectifs, à la confiance et

à la créativité qu'à la stabilité et la continuité. En moyenne, les deux cultures différentes se retrouvent dans une mesure modérée à assez élevée au sein de toutes les organisations fédérales.

Les règles et procédures organisationnelles peuvent être subdivisées dans deux catégories : les règles budgétaires et les règles non budgétaires. En moyenne, les règles et procédures non budgétaires sont présentes dans une mesure plutôt faible à modérée, et ce dans tous les types d'organisations. Les règles budgétaires sont présentes dans une plus large mesure, et ce particulièrement au sein des établissements scientifiques fédéraux (ESF). Comparativement aux autres types d'organisations, les responsables des institutions publiques de sécurité sociale (IPSS) indiquent une plus faible présence de ces règles budgétaires - même si celle-ci reste présente dans une assez large mesure. Le résultat est similaire en ce qui concerne la présence de règles et procédures associées au travail collaboratif. La présence de ces règles est plus faible au sein des IPSS.

Les répondants des organisations fédérales indiquent que les employés de leur organisation ont en moyenne un engagement organisationnel élevé. Le niveau de stress, quant à lui, diffère entre les organismes d'intérêt public (OIP) et les autres types d'organisations. L'environnement dans les organismes d'intérêt public (OIP) est perçu comme beaucoup plus stressant.

Capacités organisationnelles

Ce rapport explore trois types de capacités organisationnelles:

- **Les capacités de connexion** sont les capacités nécessaires pour établir des liens et faciliter les échanges entre les différents acteurs. Elles existent à trois niveaux. Au niveau individuel, les capacités de connexions font référence à la capacité individuelle à établir des relations entre les acteurs et à relier leurs idées et leurs intérêts. Au niveau intra-organisationnel, les capacités de connexion font référence aux processus ou ressources qui facilitent l'échange d'informations et la collaboration au sein d'une organisation, entre différentes unités organisationnelles. Au niveau inter-organisationnel, les capacités de connexion font référence aux processus ou aux ressources qui facilitent l'échange d'informations et la collaboration avec des acteurs externes.
- **Les capacités d'apprentissage** sont les capacités dont les organisations doivent disposer afin d'utiliser les connaissances. Elles sont présentes à deux niveaux. Au niveau intra-organisationnel, les capacités d'apprentissage font référence à la capacité de l'organisation à ajuster les pratiques existantes en fonction des nouvelles connaissances. Au niveau inter-organisationnel, les capacités d'apprentissage réfèrent à la mesure dans laquelle les organisations expérimentent et apprennent avec des acteurs extérieurs à l'organisation.
- **Les capacités d'innovation** sont les capacités nécessaires au développement et la mise en œuvre des innovations. Ces capacités peuvent concerner les processus ou les ressources.

En ce qui concerne les capacités de connexion intra-organisationnelles, les processus et les ressources qui facilitent les échanges entre les unités d'une organisation sont, en moyenne, présents dans une mesure modérée au sein des organisations fédérales. Il existe cependant des différences significatives selon la taille de l'organisation. Les capacités qui facilitent la collaboration entre les unités organisationnelles sont présentes dans une plus grande mesure dans les grandes organisations comparées aux plus petites. Il existe également des différences entre les types d'organisation. Les capacités de connexion intra-organisationnelles sont nettement plus faibles dans les établissements scientifiques fédéraux (ESF).

Par rapport aux autres types de capacités, les organisations fédérales obtiennent un score assez faible en matière de capacité de connexion inter-organisationnelle. Les capacités de connexion inter-

organisationnelle sont présentes dans une assez faible mesure dans toutes les organisations. Des différences significatives existent entre les petites et les grandes organisations et les types d'organisations. Les capacités inter-organisationnelles facilitant la collaboration avec des acteurs externes sont, en moyenne, particulièrement faibles dans les petites organisations, ainsi que dans les établissements scientifiques fédéraux (ESF).

En ce qui concerne les capacités de connexion au niveau individuel, les répondants indiquent, en moyenne, que ces capacités sont présentes dans une mesure moyenne au sein de leur organisation. Une minorité de répondants indiquent que ces capacités sont présentes dans une mesure plutôt large à très large.

Les résultats montrent que les capacités d'apprentissage au niveau intra et inter-organisationnel ne sont pas fortement développées. Dans l'ensemble, les organisations possèdent des capacités d'apprentissage dans une mesure modérée. Les capacités qui facilitent l'apprentissage au sein de l'organisation ainsi qu'avec les organisations externes sont présentes à un degré nettement plus élevé dans les grandes organisations, par rapport aux petites. Ces capacités sont relativement peu présentes au sein des établissements scientifiques fédéraux (ESF), et légèrement plus présentes au sein des institutions publiques de sécurité sociale (IPSS).

Tant les capacités d'innovation en termes de processus (plans, politiques et procédures) qu'en termes de ressources ne sont pas très développées au sein des organisations fédérales. En moyenne, elles sont présentes dans une mesure plutôt faible à modérée. Cependant, tout comme pour les capacités d'apprentissage, des différences existent entre les types d'organisations. Les capacités d'innovation en termes de processus sont plus élevées dans les institutions publiques de sécurité sociale (OISZ/IPSS). Toutefois, dans ces organisations, seuls 40% des personnes interrogées déclarent que ces capacités sont présentes dans une mesure assez élevée à très élevée. Le résultat est similaire pour les capacités d'innovation en termes de ressources. Les institutions publiques de sécurité sociale (OISZ/IPSS) ont des capacités plus élevées en termes de ressources que les autres types d'organisations. Par opposition, les capacités d'innovation en termes de ressources sont moins élevées au sein des établissements scientifiques fédéraux (FWI/ESF). Pour toutes les organisations, les capacités d'innovation en termes de ressources sont moins présentes que les capacités en termes de processus.

Caractéristiques de la collaboration

Ce rapport explore trois caractéristiques de la collaboration :

- **Le type de collaboration** fait référence à l'objectif poursuivi par les organisations lorsqu'elles entament une collaboration. Une distinction est faite entre les collaborations dont l'objectif était à un moment donné de développer une innovation et les autres types de collaboration;
- **La taille de la collaboration** est le nombre d'acteurs avec lequel une organisation collabore habituellement ;
- **Le type d'acteur** avec qui une organisation collabore.

En ce qui concerne le type de collaboration, toutes les organisations collaborent tant pour développer des innovations que pour d'autres raisons. Les répondants indiquent que leur organisation (ou unité organisationnelle) collabore plus souvent dans le but de développer une innovation que pour d'autres raisons. Cependant, l'implication dans de telles collaborations diffère sensiblement entre les organisations, ainsi qu'au sein de celles-ci. Les organisations fédérales s'engagent, en moyenne, plus souvent dans des collaborations de petite taille afin de développer des innovations.

En ce qui concerne la collaboration avec d'autres organisations publiques du paysage institutionnel belge afin de développer ou de mettre en œuvre une innovation, plus de la moitié des répondants des IPSS et des SPF/SPP indiquent que leur organisation (ou unité) collabore dans une mesure assez large à très large avec d'autres services publics et organismes fédéraux appartenant au même domaine politique.

La collaboration avec des organisations fédérales appartenant à différents domaines politiques est moins courante. Les établissements scientifiques fédéraux (ESF) sont le type d'organisations qui collaborent le moins avec des organisations fédérales appartenant à différents domaines politiques. Comparés aux autres types d'organisations, les SFF-SPP collaborent un peu plus avec des organisations fédérales appartenant à d'autres domaines politiques, bien qu'ils ne s'engagent, en moyenne, que dans une mesure modérée dans de telles collaborations.

La collaboration afin de développer ou de mettre en œuvre une innovation avec des organisations appartenant à des niveaux de pouvoir différents est plutôt limitée, en particulier pour les institutions de sécurité sociale (IPSS). Le niveau de collaboration avec les instituts de recherche est plus élevé, mais il existe d'importantes disparités entre les organisations. Les collaborations avec des instituts de recherche sont particulièrement élevées pour les établissements scientifiques fédéraux (ESF), et particulièrement faibles pour les institutions de sécurité sociale (IPSS). Elles sont également plus fréquentes pour les organisations de petite taille.

En ce qui concerne la collaboration avec des organisations et acteurs non-gouvernementaux, la collaboration avec les citoyens et les organisations à but non lucratif est assez peu pratiquée au sein des organisations fédérales. Une grande majorité des répondants déclarent que ces collaborations sont inexistantes ou très limitées. Cela vaut pour tous les types d'organisations fédérales. La collaboration avec des entreprises privées est en moyenne relativement plus fréquente que la collaboration avec des citoyens et des organisations à but non lucratif. Ces collaborations restent cependant limitées, bien que la variété entre et au sein des organisations soit importante.

La collaboration avec les institutions européennes ou internationales varie selon le type d'organisations. Les organismes d'intérêt public (OIP) sont les organisations qui collaborent le plus souvent avec des organisations européennes ou internationales, à l'inverse des institutions de sécurité sociale (IPSS), qui sont en moyenne engagée dans une plus faible mesure dans de telles collaborations.

Caractéristiques de l'échange d'information

Les caractéristiques de l'échange d'information incluent le niveau de contrôle exercé par les organisations fédérales sur les acteurs extérieurs à l'organisation, le risque qu'elles acceptent de prendre lors de l'échange d'information et l'acquisition de connaissances à la suite de la collaboration. Les connaissances acquises incluent des connaissances sur (1) le contenu des politiques (2) les partenaires de collaboration (3), les utilisateurs externes ou les citoyens et (4), les priorités de leurs ministres responsables.
En moyenne, toutes les organisations fédérales indépendamment de leur type ou de leur taille contrôlent les informations données et le comportement des autres organisations avec lesquelles elles collaborent dans une mesure modérée. Les organisations sont pour autant prêtes, dans une moyenne mesure, à prendre un risque et à donner toutes les informations nécessaires à l'organisation avec laquelle elles collaborent, même si le fait de donner ces informations pourrait être préjudiciable. Lorsqu'elles collaborent avec des acteurs extérieurs, toutes les organisations fédérales acquièrent, en moyenne, des connaissances dans une mesure modérée sur le contenu de la politique, l'intérêt des

partenaires de collaboration, l'intérêt des utilisateurs et des citoyens ainsi que la priorité de leurs ministres responsables,

Autonomie, contrôle et priorité de l'organisation, intérêt et interférence politiques

Cette catégorie regroupe cinq éléments:

- L'autonomie dont dispose l'employé dans son organisation;
- Le contrôle exercé par l'organisation sur son employé;
- La priorité accordée par les organisations à l'innovation par la collaboration;
- La mesure dans laquelle le ministre responsable est intéressé par le processus d'innovation;
- L'interférence du ministre responsable lors du développement de l'innovation;

En ce qui concerne la sphère organisationnelle, les employés de toutes les organisations fédérales ont en moyenne un niveau modéré d'autonomie, et perçoivent un niveau modéré de contrôle organisationnel. En moyenne, les répondants indiquent que l'innovation est considérée comme une priorité par leur organisation dans une moyenne mesure. En ce qui concerne la sphère politique, les discussions à propos des innovations collaboratives avec le ministre responsable sont présentes, en moyenne, dans une plutôt faible mesure. Cependant, des différences significatives existent en fonction de la taille et du type d'organisation. Les discussions concernant l'innovation sont moins fréquentes pour les petites organisations et les établissements scientifiques fédéraux (ESF), et sont plus fréquentes pour les organismes d'intérêt public (OIP). Dans ce dernier type d'organisation, l'interférence du ministre responsable est également modérée. Les ministres responsables accordent, dans l'ensemble, un niveau de priorité modéré à l'innovation collaborative. Là encore, des disparités existent en fonction de la taille et du type d'organisations. La priorité accordée à l'innovation collaborative est plus faible dans les organisations de petite taille ainsi que pour les établissements scientifiques fédéraux (ESF). L'intérêt des ministres responsables est, par contre, plus élevé pour les services publics fédéraux et les services publics de programmation (SPF/SPP).

Effet sur l'innovation

Dans quelle mesure les conditions présentées ci-dessus influencent l'innovation? Cette section développe les conditions principales qui influencent (1) la mesure dans laquelle des innovations en matière de politiques publiques, de processus, de service et des innovations technologiques ont été développés (2) l'origine de ces innovations (3) la satisfaction du répondant par rapport aux innovations développées et (4), la mesure dans laquelle elles ont été mises en œuvre.

Étendue des innovations développées

Pour le développement de tous types d'innovation, l'environnement organisationnel est important. Le développement de l'innovation est positivement influencé par la mesure dans laquelle les organisations ont une culture non administrative. Les organisations qui accordent de l'importance à la réalisation des objectifs, à l'établissement de relations et à la créativité développent davantage d'innovations.

Le développement d'innovations en matière de politiques publiques, de technologie, de processus et de services est lié de manière positive et significative à tous les types de capacités organisationnelles : les capacités de connexion, d'apprentissage et d'innovation.

Si l'on examine les caractéristiques de la collaboration, la mesure dans laquelle les organisations participent à une collaboration visant l'innovation influence positivement la mesure dans laquelle ces organisations développent des innovations de politiques publiques, technologiques, de services et de

processus. Lorsque les acteurs collaborent dans le but précis d'innover, ils ont tendance à développer davantage d'innovations. En outre, la participation à des collaborations de petite et de grande taille favorise le développement d'innovations de tout type. La collaboration avec certains acteurs est plus importante pour certains types d'innovation que pour d'autres, mais la collaboration avec tous les différents types d'acteurs entraîne le développement d'un plus grand nombre d'innovations.

En ce qui concerne le processus d'échange d'informations, le développement de tous types d'innovation est déterminé par la mesure dans laquelle les organisations acquièrent de nouvelles connaissances. Il est donc important pour le développement d'innovations que les organisations acquièrent des connaissances sur le contenu des politiques, l'intérêt de leurs partenaires, l'intérêt de leurs utilisateurs ou du citoyen, ainsi que les priorités politiques de leurs ministres responsables lorsqu'elles collaborent.

Enfin, nous constatons que la mesure dans laquelle l'innovation collaborative est une priorité pour l'organisation influence positivement la mesure dans laquelle les organisations développent tous types d'innovation. Le degré d'autonomie des employés ainsi que le degré d'interférence politique en matière d'innovation ont également une influence positive sur la mesure dans laquelle les organisations développent des innovations. Il est intéressant de noter qu'outre la priorité organisationnelle, le développement d'innovations de politique publique dépend également de la mesure dans laquelle le ministre est intéressé par l'innovation.

Origine des innovations

Dans l'ensemble, peu de conditions expliquent l'origine ou la source des innovations, et la proportion relative d'innovations développées entièrement au sein des organisations, au sein des organisations, mais en partie inspirées par des contributions externes, ou en collaboration avec des acteurs externes. L'environnement organisationnel n'a aucune influence sur l'origine des innovations.

Étonnamment, en ce qui concerne les capacités organisationnelles, il semble que les capacités d'apprentissage individuelles, qui est la mesure dans laquelle une organisation dispose d'un personnel capable d'établir des relations et de relier des idées, influencent négativement la proportion d'innovations que les organisations développent au sein de leur propre organisation.

Si l'on creuse les caractéristiques des innovations, la proportion d'innovation développée en interne ou inspirée par des contributions externes est influencée négativement par la collaboration avec des entreprises privées. Au contraire, la collaboration avec les entreprises privées influence positivement la proportion d'innovations développées en collaboration avec d'autres organisations : les organisations fédérales qui collaborent avec des partenaires privés ont tendance à développer plus d'innovations en collaboration avec des acteurs externes, par rapport aux innovations développées en interne ou inspirées par des contributions externes.

Les caractéristiques du processus d'échange d'informations (contrôle, risque et acquisition de connaissances) n'ont aucune influence sur l'origine de l'innovation.

Satisfaction à l'égard des innovations

Le fait d'avoir une culture non administrative est un bon indicateur de la satisfaction à l'égard des innovations développées. Elle est positivement liée à la satisfaction des innovations développées entièrement au sein des organisations, au sein des organisations, mais en partie inspirées par des contributions externes ou en collaboration avec des acteurs externes. Cela signifie que les organisations qui accordent de l'importance à la réalisation des objectifs, à l'établissement de relations et à la créativité sont plus satisfaites des innovations qu'elles ont développées. Au contraire,

les règles et procédures budgétaires ont un effet négatif sur la satisfaction à l'égard des innovations développées en collaboration avec des acteurs externes.

Concernant les différentes capacités qu'une organisation peut posséder, on constate que la satisfaction s'explique par tous les types de ces capacités, quelle que soit la manière dont les innovations sont développées. Les capacités de connexion (intra, inter et individuelle), les capacités d'apprentissage (intra et inter) et les capacités d'innovation (concernant les procédures et les ressources) influencent toutes positivement la satisfaction à l'égard des innovations développées. C'est également le cas pour l'attitude du supérieur à l'égard des innovations. Plus l'attitude est positive, plus la satisfaction à l'égard des innovations développées est grande, quelle que soit l'origine de l'innovation.

Les conditions relatives aux caractéristiques des collaborations ont également une influence positive sur le niveau de satisfaction. Les collaborations visant à créer une innovation, la collaboration avec des acteurs fédéraux (du même domaine politique ou d'un autre), autonomie et l'acquisition de connaissances, influencent toutes positivement la satisfaction à l'égard des innovations, quelle que soit l'origine de l'innovation. La collaboration avec d'autres types d'acteurs entraîne également une plus grande satisfaction, mais cette influence varie en fonction de l'origine de l'innovation. Par exemple, la collaboration avec les citoyens influence uniquement la satisfaction à l'égard des innovations développées en collaboration avec des acteurs extérieurs. Seule la collaboration avec des entreprises privées ne conduit pas à une plus grande satisfaction. Enfin, tant la participation à de petites qu'à de grandes collaborations améliore la satisfaction à l'égard des innovations développées au sein des organisations, mais en partie inspirées par des contributions externes et celles développées en collaboration avec des acteurs externes.

En ce qui concerne les caractéristiques liées à l'autonomie, aux priorités organisationnelles et aux priorités politiques, le degré d'autonomie ainsi que la priorité organisationnelle accordée à l'innovation par la collaboration influencent positivement le niveau de satisfaction à l'égard de tous les types d'innovation. L'interférence du responsable politique n'influence que la satisfaction à l'égard des innovations développées au sein des organisations, mais en partie inspirées par des contributions externes.

Pilotage et mise en oeuvre des innovations

Ce rapport fait une distinction entre la mesure dans laquelle les innovations ont été pilotées ou expérimentées par les organisations fédérales et la mesure dans laquelle les innovations ont été mises en œuvre par ou au sein des organisations fédérales. Dans les deux cas, la culture organisationnelle a un effet important. Les organisations fédérales ayant une culture non-administrative ont tendance à piloter ou à mettre en œuvre les innovations dans une plus large mesure. Une culture non-administrative est donc très importante pour l'innovation, car celle-ci soutient également le développement des innovations et la satisfaction à l'égard des innovations.
Les capacités organisationnelles importantes pour le pilotage ou l'expérimentation des innovations sont les capacités d'apprentissage (tant inter qu'intra) et d'innovation (tant en ce qui concerne les processus que les ressources). Leur présence est liée à un plus haut niveau d'expérimentation ou de pilotage des innovations au sein des organisations. Une attitude positive du supérieur est également importante. Cependant, nous constatons qu'en ce qui concerne la mise en œuvre des innovations, seuls l'apprentissage intra-organisationnel et les capacités d'innovation en termes de processus ont une relation positive significative avec le niveau de mise en œuvre des innovations. Le pilotage et la mise en œuvre semblent donc dépendre de la mesure dans laquelle les organisations disposent de

processus organisationnels internes orientés vers l'apprentissage avec des partenaires externes et l'innovation.

Au niveau des caractéristiques de la collaboration, le pilotage et la mise en œuvre des innovations sont positivement influencés par la mesure dans laquelle les organisations collaborent dans le but d'innover. En d'autres termes, les organisations engagées dans une collaboration qui vise délibérément au développement d'innovations pilotent ou mettent en œuvre ces innovations dans une plus large mesure. Nous constatons également une influence positive des collaborations de petite taille, qui tendent à être un contexte plus favorable au pilotage et à la mise en œuvre des innovations. En ce qui concerne la collaboration avec différents types d'acteurs, seule la collaboration avec d'autres acteurs fédéraux dans un autre domaine politique conduit à un degré plus élevé de mise en œuvre. La collaboration avec d'autres types d'acteurs n'a pas d'influence sur la mesure dans laquelle les organisations pilotent ou expérimentent des innovations.

La mesure dans laquelle les organisations acquièrent des connaissances utiles sur le contenu des politiques, les intérêts de leurs partenaires et des usagers, ainsi que sur les intérêts des responsables politiques influencent positivement tant le pilotage que la mise en œuvre des innovations.

Enfin, l'autonomie des employés et le niveau de priorité organisationnelle accordé à l'innovation collaborative ont une influence positive significative sur la mesure dans laquelle les organisations mettent en œuvre des innovations.

Recommandations clefs

Sur base des résultats, nous formulons les recommandations suivantes :

Capacités

Les résultats montrent que les capacités de connexion, d'apprentissage et d'innovation sont toutes positivement liées au développement d'innovations en matière de politiques publiques, technologies, de services et de processus. La présence de ces capacités conduit également à un degré plus élevé de satisfaction à l'égard des innovations développées. Nous recommandons donc de prêter attention au développement de toutes ces capacités. Nous donnons ci-dessous des recommandations sur la manière de le faire.

Capacités de connexion intra-organisationnelles

Nos résultats montrent que l'organisation devrait posséder des capacités de connexion intra-organisationnelles suffisantes. En effet, cela conduit au développement d'innovations et à une plus grande satisfaction à leur égard. Les capacités de connexion intra-organisationnelles réfèrent aux ressources et aux processus organisationnels qui facilitent les échanges entre les employés au sein d'une même organisation. Pour ce faire, nous recommandons ce qui suit :

Recommandation 1. Organiser régulièrement des activités sociales liées au travail. Les activités sociales sont un excellent moyen de permettre aux employés d'apprendre à se connaître. Lorsque les employés se connaissent mieux, il devient plus facile pour eux de travailler ensemble et de partager des informations. En effet, cela réduit le coût de voir quelqu'un qu'ils ne connaissent pas, et permet d'identifier les personnes qui ont une certaine expertise ou responsabilité au sein de l'organisation.

Recommandation 2. Stimuler la collaboration entre les différentes unités de l'organisation. La collaboration est le moteur de l'innovation. Il est donc recommandé que les différentes unités organisationnelles travaillent ensemble pour acquérir de nouvelles connaissances et apprendre les unes des autres. De cette façon, l'unité organisationnelle peut s'affranchir d'une certaine « pensée de

groupe » qui contraint la créativité individuelle. Les membres peuvent être inspirés par des collègues d'autres unités qui peuvent apporter de nouvelles idées.

Recommandation 3. Offrir des possibilités suffisantes d'échange informel d'informations au sein de l'organisation. Parfois, les meilleures idées ne sont pas créées lors de réunions formelles, mais lors de discussion informelles entre collègues autour de la machine à café. C'est pourquoi il est important que l'organisation investisse pour créer un environnement où les employés peuvent se réunir de manière informelle pour discuter de certaines questions. De cette façon, les questions qui ne sont pas abordées dans les réunions formelles ou qui ne sont pas adaptés aux séances plénières peuvent toujours être traitées et un cadre informel.

Recommandation 4. Développer des systèmes ou des procédures qui permettent de partager efficacement les informations et les connaissances au sein de l'organisation. Afin de faciliter le partage d'informations et de connaissances entre collègues, il est important de mettre en place des systèmes ou des procédures au sein de l'organisation. Il peut s'agir de systèmes simples comme la mise en place de réunions hebdomadaires entre les responsables des différentes unités organisationnelles afin qu'ils partagent leurs projets en cours. Un autre exemple est l'intra-web où les employés peuvent facilement être tenus au courant de ce qui se passe dans l'organisation, sur lequel ils peuvent communiquer entre eux ou sur lequel ils peuvent collaborer sur un projet commun. Les possibilités sont infinies, tant qu'elles stimulent la circulation des informations et des connaissances au sein de l'organisation.

Capacités de connexion inter-organisationnelles

Ensuite, le fait de disposer de capacité de connexion inter-organisationnelles est bénéfique pour le développement d'innovations et la satisfaction à leur égard. Les capacités de connexion inter-organisationnelles organisationnelles réfèrent aux ressources et aux processus organisationnels qui facilitent la connexion avec d'autres personnes en dehors de sa propre organisation. Il est recommandé de procéder comme suit :

Recommandation 5. Établir des politiques et des procédures pour la gestion des arrangements collaboratifs et la mise en réseau. Il est important que l'organisation soit en mesure de participer efficacement aux arrangements collaboratifs et d'identifier les possibilités de s'impliquer dans un réseau en dehors de sa propre organisation. Il est donc recommandé que l'organisation dispose de politiques et de procédures telles que, par exemple, la gestion des parties prenantes, afin d'utiliser son environnement de manière optimale.

Recommandation 6. Investir dans des rôles ou des fonctions de gestion des arrangements collaboratifs et la mise en réseau. Il est recommandé que les employés de l'organisation soient en mesure d'entrer en contact avec des personnes extérieures à la propre organisation. Il est important de créer des postes où les employés doivent collaborer avec des acteurs extérieurs à l'organisation, et d'engager des personnes compétentes dans la gestion des arrangements collaboratifs et la mise en réseau d'acteurs.

Recommandation 7. Faciliter l'accès à des formations consacrées à la gestion efficace des arrangements collaboratifs. Il est important que les employés reçoivent une formation sur la gestion des arrangements collaboratifs afin qu'ils puissent y participer efficacement. Cela rendra la collaboration plus efficace et augmentera la probabilité que l'employé soit en mesure de tirer le meilleur parti de la collaboration pour l'organisation. Il est possible, par exemple, de former les employés à la négociation ou à l'analyse des parties prenantes.

Capacités de connexion individuelles

En plus de se concentrer sur les processus et les procédures de l'organisation dans son ensemble, il est également important que l'organisation dispose de certains membres du personnel qui peuvent facilement développer des liens avec d'autres acteurs. En effet, nos résultats montrent que c'est un moteur pour le développement des innovations et la satisfaction à leurs égards. Nous formulons la recommandation suivante :

Recommandation 8. L'organisation devrait investir dans du personnel capable d'établir des liens (avec) d'autres personnes et d'échanger des idées. Comme le processus d'innovation collaborative dépend de la synergie entre différentes idées et points de vue, il est important que l'organisation dispose de personnes compétentes capables d'établir des liens entre ces points de vue et de les utiliser pour faire avancer le processus. L'organisation doit soutenir et former son personnel pour qu'il acquière les compétences nécessaires. Il est également important de permettre à ses personnes de concilier les intérêts des différentes parties. Presque tous les participants à un arrangement collaboratif ont des intérêts différents. Il est important que l'organisation forme ou sélectionne du personnel capable de concilier des intérêts opposés et de créer une situation *win-win*, ou du moins d'éviter que les acteurs se désinvestissent de la collaboration.

Il est également important que l'organisation sélectionne ou forme des personnes capables d'établir et d'entretenir des relations de confiance avec des acteurs extérieurs à l'organisation, afin de faciliter la collaboration avec ceux-ci. De même, il convient de veiller à ce que ces personnes ne soient pas totalement novices en matière de collaboration avec des acteurs extérieurs à la propre organisation. En effet, le personnel expérimenté peut plus facilement éviter les pièges courants de la collaboration et développer une méthode de travail efficace. Cependant, l'organisation ne doit pas oublier de former et de soutenir le personnel novice dans le domaine de la collaboration, afin de ne pas créer une dépendance vis-à-vis de quelques collaborateurs expérimentés.

Ces points doivent faire l'objet d'une attention particulière lors de la définition du plan de formation ou lors des processus d'engagement et recrutement.

Capacités d'apprentissage intra-organisationnelles

L'organisation doit également prêter attention aux capacités d'apprentissage, tant intra qu'inter-organisationnelles. Nous présentons tout d'abord des recommandations visant à accroître les capacités d'apprentissage intra-organisationnelles. Il s'agit de processus, pratiques ou ressources dont dispose l'organisation et qui facilitent l'apprentissage au sein de l'organisation. Nous avons constaté que ces capacités sont positivement liées au développement d'innovations, à la satisfaction à leur égard et au degré d'expérimentation et de mise en œuvre. Nous recommandons donc ce qui suit :

Recommandation 9. Élaborer des processus pour réfléchir à la signification de nouvelles connaissances pour l'organisation et adapter régulièrement les plans et les habitudes de travail aux nouvelles connaissances et techniques. Il semble parfois plus facile d'ignorer les nouvelles idées et de continuer à utiliser les anciennes pratiques. Pour pouvoir intégrer les nouvelles connaissances et adapter les pratiques en fonction, il est recommandé que l'organisation élabore des processus lui permettant d'y réfléchir de manière structurelle. Par exemple, cela peut passer par la mise en place de cycles de planification dans l'organisation. De cette façon, l'organisation peut évaluer structurellement comment les nouvelles idées peuvent être utilisées dans l'organisation. Il est important que les plans et les habitudes de travail soient fréquemment mis à jour. Les organisations qui sont ouvertes aux nouvelles idées ou techniques ont de plus grandes capacités d'apprentissage intra-organisationnelles et sont donc plus à même de développer des innovations.

Recommandation 10. Se demander si l'organisation apprend de manière optimale à partir des expériences de son personnel. La taille des organisations étudiées varie de petite (moins de 250 personnes) à très grande taille (plus de 1000 personnes). Quelle que soit leur taille, elles disposent toutes d'employés qui apprennent des choses au fil des heures, qui se développent et qui acquièrent de l'expérience. Ces expériences peuvent être bénéfiques pour l'organisation : pour innover, il est important que l'organisation soit capable d'apprendre des expériences de son personnel qui travaille dans le domaine de l'innovation.

Capacités d'apprentissage inter-organisationnelles

L'autre type d'apprentissage qui doit être stimulé est l'apprentissage inter-organisationnel. L'apprentissage inter-organisationnel est la mesure dans laquelle l'organisation apprend d'acteurs extérieurs à sa propre organisation. Cette capacité est positivement liée au développement des innovations, à sa satisfaction et au degré d'expérimentation. Pour développer cette capacité, nous recommandons ce qui suit :

Recommandation 11. Stimuler l'apprentissage de et avec des acteurs extérieurs à votre organisation. L'innovation collaborative repose sur la combinaison de différents points de vue provenant de différents acteurs. Par conséquent, l'organisation doit favoriser les discussions avec des acteurs en dehors des frontières organisationnelles et l'apprentissage mutuel. Ce n'est qu'alors que l'innovation collaborative peut être développée.

Recommandation 12. Mettez en place des expériences et des projets pilotes pour tester de nouvelles solutions avec des acteurs extérieurs à votre organisation. L'expérimentation des innovations développées est un bon moyen d'évaluer son efficacité de l'innovation et de l'adapter. Mettre en place des expérimentations est un signe d'une bonne capacité d'apprentissage, car l'organisation est prête à tester ce qu'elle a développé et est ouverte aux commentaires d'acteurs extérieurs afin de l'améliorer.

Capacités d'innovations (processus)

Nous avons constaté que les capacités d'innovation en termes de processus sont positivement liées au développement d'innovations, à la satisfaction, à l'expérimentation et à la mise en œuvre de ces innovations. Nous donnons deux recommandations pour améliorer les capacités d'innovation en termes de processus.

Recommandation 13. Intégrer l'innovation dans les plans et routines au niveau de l'organisation, des unités organisationnelles ou du personnel. Lorsque l'innovation fait partie des plans de l'organisation, il devient habituel de chercher des moyens novateurs de résoudre les problèmes de l'organisation. De cette façon, on encourage l'innovation et on évite de se rabattre sur les procédures existantes lorsque des problèmes surviennent. L'établissement d'orientations stratégiques et de procédures claires en matière d'innovation peut également contribuer au développement d'une culture axée sur l'innovation.

Recommandation 14. Connecter les processus élémentaires et d'innovation dans l'organisation. Lorsqu'elle innove, l'organisation doit veiller à ne pas interrompre ses missions et processus élémentaires (pour lesquels l'organisation a été créée) en se concentrant uniquement sur l'innovation. Les processus d'innovation et élémentaires devraient coexister, et, si possible, se renforcer mutuellement. En d'autres termes, l'organisation doit être capable d'innover tout en poursuivant ses missions élémentaires.

Capacités d'innovations (ressources)

Nos résultats montrent que la disponibilité de ressources dédiées au développement d'innovations au sein d'une organisation conduit au développement de tous types d'innovations, à une plus grande satisfaction et à plus d'expérimentation. Par conséquent, l'organisation doit également avoir une capacité d'innovation suffisante en matière de ressources. Nous recommandons ce qui suit:

Recommandation 15. Veiller à ce que le management des ressources humaines prête attention à la capacité d'innovation du personnel. Il est important que l'organisation dispose de personnes qui sont prêtes à prendre l'initiative d'innover, qui sont créatives et qui ne sont pas résistants au changement. La DRH doit donc accorder une attention particulière à la capacité d'innovation des employés et, si possible, la stimuler. Cela peut se faire à différent moment du cycle RH : lors du recrutement et de la sélection du personnel, dans la formation, dans l'accompagnement de carrière, dans l'évaluation du personnel, etc.

Recommandation 16. Affecter des ressources financières et de temps suffisantes aux tâches élémentaires et dédiées l'innovation. Comme indiqué dans la recommandation 14, les tâches élémentaires doivent se poursuivre lors du développement d'une innovation. Par conséquent, l'organisation doit dédier suffisant de ressources tant aux tâches élémentaires qu'au développement d'innovation, en tenant compte du fait que l'innovation ne doit pas être un simple projet secondaire, qui ne reçoit que peu de ressources. Il est indispensable de trouver un juste équilibre.

Recommandation 17. Utiliser les TIC et les nouvelles technologies pour innover. Il est recommandé aux organisations de se tenir informé des derniers développements en matière de TIC afin de les utiliser lors de l'élaboration d'innovations. Le présent rapport part du principe que l'innovation est stimulée par la collaboration. Les TIC offrent un moyen efficace d'entrer en contact avec des acteurs extérieurs à l'organisation, mais aussi de partager rapidement des informations au sein de l'organisation. Pour ce faire, l'organisation doit permettre aux employés de travailler avec les dernières technologies. En outre, l'organisation doit être ouverte aux développements rapides des TIC, en particulier lorsque ceux-ci peuvent stimuler l'innovation.

Collaboration

Recommandation 18. Accroître la collaboration avec différents types d'acteurs. Nous recommandons de collaborer avec différents types d'acteurs. En effet, la collaboration avec presque tous les types d'acteurs à un effet significatif sur le développement des différents types d'innovations. Elle conduit également souvent à une plus grande satisfaction à l'égard des innovations développées.

Les collaborations avec des acteurs privés et d'autres organisations fédérales dans le même domaine politique sont particulièrement importantes. En effet, lorsque tous les types d'organisations ont été ajoutés au modèle, nous avons constaté que les collaborations avec des entreprises privées conduisent au développement d'innovations technologiques, de services et de processus. Les innovations développées avec des organisations fédérales dans le même domaine politique ont un effet positif sur le développement d'innovation de politique publique, de service et de processus. De plus, lorsque les innovations sont développées en collaboration active avec d'autres organisations fédérales dans le même domaine politique cela conduit à une plus grande satisfaction à l'égard de ces innovations.

Enfin, nous recommandons d'accroître la collaboration avec les acteurs avec lesquels les organisations ne collaborent pas fréquemment. La collaboration avec certains types d'acteurs favorise l'innovation, mais est très peu développée au sein des organisations fédérales. Nous recommandons de développer la collaboration avec les citoyens, les organisations de différents niveaux de gouvernement, les

organisations à but non lucratif et les institutions de recherche, car celles-ci sont particulièrement rares, mais bénéfiques pour le développement d'innovations.

Facteurs organisationnels

Recommandation 19. Développer une attitude positive envers la collaboration et l'innovation au plus haut niveau de l'organisation et faire de l'innovation une priorité. Nous avons constaté que le développement des innovations, la satisfaction et l'expérimentation de celles-ci sont positivement liés à une attitude positive des supérieurs hiérarchiques à l'égard de l'innovation. Pour le développement d'innovation, il est donc important les cadres supérieurs développent une attitude positive à l'égard de l'innovation, ou que le personnel tente de convaincre les cadres de la nécessité d'innover. Le développement de l'innovation devrait être une priorité. Bien entendu, les tâches élémentaires de l'organisation ne doivent pas être (trop) affectées par le développement d'innovations (voir recommandation 17).

Recommandation 20. Assurez-vous que le personnel de votre organisation qui participe activement aux arrangements collaboratifs dédiés au développement d'innovations bénéficie d'une autonomie suffisante. Le sentiment d'autonomie chez le représentant d'une organisation au sein d'un arrangement collaboratif visant le développement d'innovations conduit à un plus grand nombre d'innovations développées, à une plus grande satisfaction et un plus grand degré de mise en œuvre. Il est nécessaire d'accorder au représentant de votre organisation suffisamment d'autonomie dans le développement des innovations.

Recommandation 21. Un ministre concerné par le développement d'innovations est un soutien. Les résultats montrent que lorsque le ministre (ou le cabinet) interfère dans le processus de développement d'innovations, cela favorise le développement de tous types d'innovations au sein d'une organisation. Une recommandation est de sensibiliser le ministre aux innovations en cours, afin qu'il ou elle puisse intervenir si nécessaire. En outre, les discussions actives avec le ministre (ou le cabinet) autour de l'innovation favorisent le développement d'innovations de politiques publiques.

Acquisition de connaissances

Recommandation 22. Créer un environnement collaboratif qui favorise l'échange de connaissances efficace entre les acteurs. L'acquisition de connaissances au cours de la collaboration est cruciale pour le développement des innovations. Différents types de connaissances sont utiles et conduisent à l'innovation :

- Les connaissances sur le fond, qui renvoie aux connaissances sur le contenu d'une politique publique, d'un processus ou d'une méthode (1) ;
- Les connaissances sur les partenaires impliqués dans l'arrangement collaboratif visant à l'innovation, qui comprend les connaissances sur leurs attentes, leurs méthodes de travail et leurs ressources (2) ;
- Les connaissances sur les attentes des usagers et des citoyens (3) ;
- Les connaissances sur les priorités des responsables politiques (4).

Tous ces types de connaissances sont importants pour le développement de l'innovation. Les connaissances sur le fond garantissent que l'innovation conçue est basée sur des connaissances scientifiques et n'est pas simplement le produit d'intérêts déconnectés de la réalité. Les connaissances sur les partenaires au sein de l'arrangement collaboratif et des usagers de l'innovation ou des citoyens sont importantes pour le développement d'innovations qui répondent effectivement aux intérêts et aux besoins de toutes les parties prenantes. Enfin, les connaissances sur les priorités des responsables politiques garantissent que l'innovation bénéficie d'un soutien politique.

Nous recommandons donc de créer un environnement collaboratif qui favorise un échange efficace de connaissances sur cette diversité de sujets entre les différents acteurs. L'écoute attentive de chacun, le développement de la confiance entre les partenaires afin qu'ils se sentent libres de partager des informations, la mise en place de canaux de communication informels au travers l'organisation d'évènements sociaux sont des éléments importants pour cette acquisition de connaissances.

Afin que ces connaissances soient utiles à long terme, nous recommandons la mise en place de mécanismes internes de gestion des connaissances permettant à l'organisation de conserver et d'utiliser les connaissances acquises. Voir également les recommandations concernant les capacités d'apprentissage et d'innovation.

Culture non-administrative

Nous avons constaté qu'une culture non administrative favorise le développement de l'innovation, est associée à un niveau de satisfaction plus élevé à l'égard des innovations développées et influence positivement le degré de mise en œuvre des innovations. Les valeurs d'une culture non-administrative doivent compléter plutôt que concurrencer les valeurs associées à une culture administrative, telles que le contrôle. Pour stimuler cette culture organisationnelle non-administrative, nous recommandons ce qui suit:

Recommandation 23. Encourager l'esprit d'entreprise au sein de l'organisation. Les résultats montrent qu'une organisation dynamique et entrepreneuriale favorise l'innovation. Les membres du personnel doivent pouvoir prendre des initiatives et entreprendre des projets ou des activités qui ne font pas strictement partie de leur fonction. Les superviseurs doivent créer un climat ouvert et sûr qui stimule la créativité du personnel. Accorder de la confiance et de l'autonomie aux membres du personnel et être réceptif à leurs idées sont donc des valeurs organisationnelles importantes qui devraient être propagées par chaque superviseur. L'organisation de séances de réflexion entre les employés et de formations à l'entrepreneuriat pourraient également encourager cet esprit d'entreprise.

Recommandation 24. L'organisation doit être axée sur les résultats et viser la réalisation des objectifs. Nos conclusions suggèrent qu'une orientation axée sur les résultats et la réalisation des objectifs, ce qui fait partie de la culture non administrative, conduit à l'innovation. Il est donc recommandé d'adopter un style de leadership fondé sur la confiance mutuelle et la gestion par les résultats plutôt que sur le commandement et le contrôle. Cela peut être réalisé en fixant des objectifs coconstruits avec les employés, leur garantissant ainsi suffisamment d'autonomie professionnelle.

Recommandation 25. Réduire les formalités administratives dans la mesure du possible. Des règles et procédures trop lourdes sont préjudiciables pour le développement des innovations. Il convient d'éviter de créer des règles et procédures supplémentaires qui entravent la collaboration et de réduire les règles autant que possible au sein de l'organisation. De cette façon, les innovations peuvent être développées sans trop de restrictions, ce qui est essentiel pour sortir des sentiers battus et avoir une marge de manœuvre suffisante pour la mise en œuvre des innovations.

Introduction

Goal of the PSI-CO project on public sector innovation through collaboration

Public Sector Innovation (PSI) is high on government agendas across OECD countries. Wicked problems, such as climate change, an aging population and the refugee crisis, have governments realizing that traditional approaches are insufficient in dealing with these issues. An answer to this could be collaboration (CO) with citizens, interest groups, private partners or other government organizations. 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. On top of that, it is unclear which organisational and individual conditions need to be present within administrations to foster collaborative governance arrangements.

The project Public Sector Innovation trough Collaboration (PSI-CO), wants to add to existing scientific knowledge and wants to formulate validated and tested recommendations and guidelines for policy and practice in this matter. The project uses multiple methods to address the research questions. 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 (WP3). 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 (WP4) 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 (WP4). In addition, two living labs are ongoing (WP5), in which interventions in processes of collaborative innovation are actively tried, studied, and adjusted at the same time. In the meantime, preparations are being made for the delivery of work packages 7 and 8 in which respectively 'New Ways of Working' and the 'innovation architecture' are studied. Case studies and interviews serve as a basis in these two WPs to see how (aspects of) News Ways of Working (teamwork, teleworking, time independent working, management by results, …) affect collaborative innovation (WP7); and which instruments, technologies and processes can stimulate radical innovation and co-creation (innovation architecture – WP8).

Goal and approach of work package 6 in the broader PSI-CO project

Work package 6 (WP6) of the PSI-CO project entails a gap analysis through a survey in the Federal government organizations. In this work package we examine the following research question: "**To what extent do the meta-governance, individual and organizational conditions for collaborative innovation present in the federal ministries and agencies of Belgium lead to more innovation and how can these be strengthened?**" To answer this question we have distributed an online survey to the three highest managerial levels of the federal ministries and agencies. The survey measures the different variables in the conceptual model of the PSI-CO project. The operationalization of these concepts is supported by the current state of the literature and the in-depth knowledge gathered in the case studies (WP3).

The federal survey is important in order to assess the experiences and the potential for innovation through collaboration in the different ministries and agencies of the federal government. This analysis enables us to formulate more precise recommendations to federal governments on how to optimize

their capacity for collaborative innovation. For scientific research, the survey makes it possible to do explanatory analyses to check the explanatory power of each of the capacities and characteristics on the degree of innovation or the degree of participation in collaborations to innovate. It allows existing and new theories to be tested.

Part 1 and part 2 of the survey asks respondents about several factors that enable governments to innovate (through collaboration). Parts 3 and 4 measure the extent to which government organizations are active in collaborations (with public, private actors and citizens) with the aim of developing or implementing an innovation. In part 5 we inquire about the extent to which government organizations have actually innovated in the last three years and whether they are satisfied with those innovations. Lastly, part 6 contains a number of questions about individual attitudes and characteristics (age, gender…). Data stemming from part 6 is necessary as control variables.

Structure of this report

The report starts with Part One which provides a general introduction to the theoretical and conceptual framework of PSI-CO to clarify how the three different levels (individual, organizational and network) which are studied in this report relate to each other and how they can be placed in the broader PSI-CO project. After a short introduction to the project, the main concepts of the study are introduced with a short theoretical description. These include concepts related to innovation, collaboration, conditions for innovation of the individual, organizational and network level, and personal characteristics.

Part Two contains the strategy for data collection and analysis. It describes the development of the survey design, the distribution and administration, the target audience and the measures taken to guarantee the privacy of the respondents. Next, the descriptive statistics of the control variables are given (such as age, gender, and hierarchical position) to gain insight in the characteristics of the respondents. Part Two end with a description of the ways of analysis.

Part Three contains the analysis for innovation. It provides tables for the concepts related to innovation and an explanatory analysis to explain which innovations are established, with what origin and with what satisfaction.

Part Four, Part Five, and Part Six follow the same structure: first, descriptive tables are given for the studied concepts for that part, after which the concepts are taken together to see how they explain innovation. Part Four looks at the influence of red tape and organizational culture on innovation. Part Five focuses on the connective, learning and innovative capacities for innovation, and Part Six discusses the effect of working through collaborative arrangements, and related aspects like control, autonomy, priority, information sharing, and knowledge acquisition on innovation.

Part Seven combines all these concepts and comes to a conclusion to come to an answer on the research question.

Part One: Theoretical and conceptual framework of the PSI-CO survey

1.1 Theoretical and conceptual framework

The main premise behind this report (and the PSI-CO project in general) is that public sector innovation is enhanced by collaboration between different actors. The complexity of many societal problems cannot be solved if governmental organizations do not collaborate with others, since these governmental organizations do not have all the resources or expertise needed. Furthermore, citizens have increasingly higher demands for government services and expect to have a say in the development of public sector innovations. In sum, public sector innovation is increasingly a process in which different actors bring together different resources that are necessary for the development of such innovations, such as technical competencies, knowledge, financial resources and/or legitimacy.

Concerning the conditions influencing the process of collaborative innovation, three different levels of variables are studied in the PSI-CO project: the individual, the organizational and the network level.

Figure 1 shows how these concepts are linked with each other.

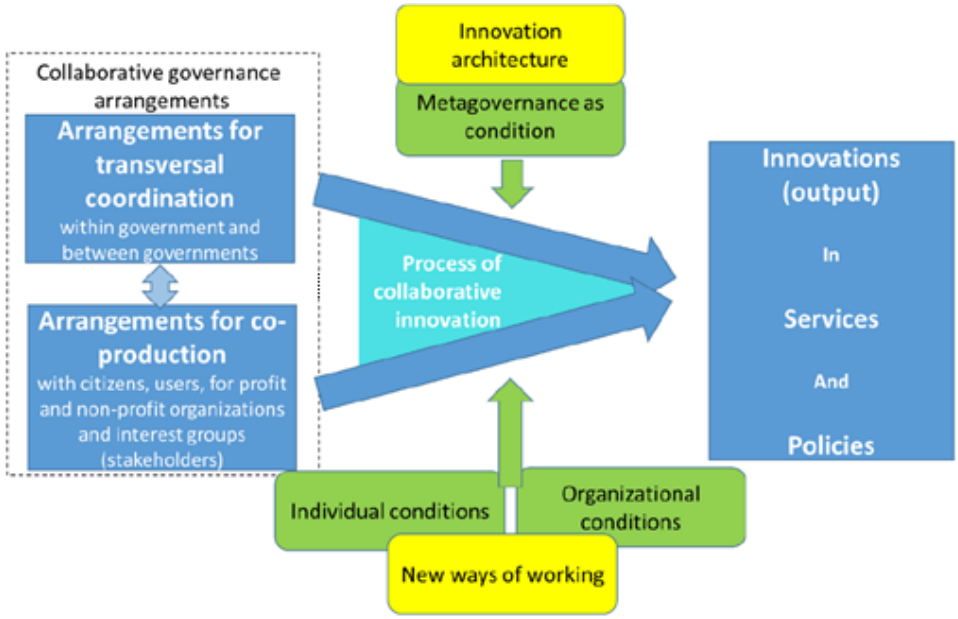

Figure 1. conceptual scheme of PSI-CO

The aim of the research project is to study how conditions at the network-, organizational and individual level lead to public sector innovation through collaboration. On the one side there are the arrangements for collaborative governance, both within and between governments as between governments with citizens, users, for profit and non-profit organizations and interest groups. On the other side there is the innovative output in services and policies. This research project tries to unravel the black box in between: the process of collaborative innovation. In other words: To what extent do individual, organizational and network conditions lead to a process in which different (public and private) actors jointly develop new services, policies, technologies or processes and put them into operation.

Network-level conditions are in this scheme referred to as 'metagovernance'. Metagovernance means the management of the collaborative arrangements. Even though the PSI-CO project has a strong emphasis on metagovernance, the network-level conditions are not limited only to the

management of the network. As this report will show the capacities of the partners to participate in a network, the variety of actors in the network, the size of the network and so on are part of study on the network level of collaborative innovation.

1.2 Main dependent variables

1.2.1 Conceptualization of innovation

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 et al. (2015) 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 et al., 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.

1.2.3 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. (2015). 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?*

- *Really new policies (really new, different from existing policies)*
- *Really new technologies (really new, different from existing technologies)*
- *Really new services (really new, different from existing services)*
- *Really new processes (really news, different from existing processes)*

1.2.4 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 et al., 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. This question is:

These innovations were...

- *Developed purely within our own organization without input from or collaboration with other parties outside our organization*
- *Developed within our own organization but inspired by input or innovations from other parties outside our organization*
- *Developed in collaborative arrangements/collaboration jointly with other parties outside our organization*

1.2.5 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 (Sørensen and Torfing 2012; Meijer,2014). 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 measures with this question:

Overall, to what extent were you satisfied with these innovations developed in the last three years…

- *Developed purely within our own organization without input from or collaboration with other parties outside our organization*
- *Developed within our own organization but inspired by input or innovations from other parties outside our organization*
- *Developed in collaborative arrangements/collaboration jointly with other parties outside our organization*

1.2.6 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 and 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, we also included a question about what share of the innovations developed in the last three years were (1) tested and (2) implemented in the own organization. This is:

To what extent were these innovations:

- *Piloted or experimented in my own organization?*
- *Implemented by/in my own organization?*

1.3 Main independent variables

1.3.1 Organizational culture

A multitude of studies has shown the link between the culture of an organization and the organization's willingness and ability to engage in innovation (Büschgens et al., 2013; Bekkers et al., 2013). The key message put forward in the literature is that there are different kinds of organizational cultures with some promoting innovation while other cultures hamper it. The different types of organizational cultures which we surveyed are defined based on the Competing Values Framework of Quinn and Rohrbaugh (1983). According to them, organizations deal with competing values. On the one hand, they can be in favor of **controlling** the actions of their employees in as many ways as possible, on the other hand, they can allow **flexibility** and responsibility. The other competing value is the choice between an **internal focus** or an **external focus**. Organizations with an internal focus are oriented towards their own processes and dynamics, whereas externally focused organizations are oriented towards their environment (like their users and their peer organizations).

The combination of these competing values lead to four different types of organizational culture. The combination of an internal focus and a high degree of flexibility results in a clan culture or **family culture**, in which employees have close and personal relationships within the work environment. An internal focus combined with a high degree of control is considered to refer to an **administrative culture**, in which the emphasis is put on maintaining the systems that are in place and continuingly providing public services in a predictable and stable way. Such a culture is found in organizations with strong internal control and in which formal procedures and regulations are deemed very important. Thirdly, a high degree of control, combined with an external focus, is referred to as a **result-driven culture**. In such a culture, deliverables, deadlines and targets are considered to be the most important. Lastly, a culture marked by flexibility and an external orientation is referred to as a **developmental culture**. This type of culture generally promotes learning and adaptation, providing a free and protective environment in which employees have the opportunity to experiment (Büschgens et al., 2013).

Literature on public sector innovation mostly focuses on researching the effects of a developmental culture (Chen & Williams, 2012). This type of organizational culture is found to promote innovation by giving staff the flexibility to try out new ideas and by promoting the attitude to look outside the organization. In this research we would like to see if these findings are transferable to collaborative innovation (Büschgens et al., 2013).

In the literature, organizational culture is most often measured quantitatively in surveys, using Likert-scale type questions. In our study we do the same, using two items per type of culture. These items are adapted from the original items by Zammuto and Krakower (1991) but are still commonly used today (Chen & Williams, 2012). This operationalization enables us to analyze how each type of organizational culture affects innovation through collaboration. The items include:

- *The organization is a very personal place (family culture)*
- *The glue that holds the organization together is loyalty and mutual trust (family culture)*
- *The organization is a very dynamic entrepreneurial place (developmental culture)*
- *The glue that holds the organization together is commitment to innovation and development (developmental culture)*
- *The organization is very results oriented (result-driven culture)*
- *The glue that holds the organization together is the emphasis on achievement and goal accomplishment (result-driven culture)*
- *The organization is a very controlled and structured place (administrative culture)*
- *The glue that holds the organization together is formal rules and policies (administrative culture)*

1.3.2 Organizational red tape

Red tape has long been an important variable in innovation literature, yet little is known about red tape's effects on collaborative innovation. Bozeman described red tape as burdensome rules and procedures that negatively affect performance (Bozeman, 1993). This sets red tape apart from effective rules (green tape). Whereas green tape ensures the effective functioning of an organization, red tape is burdensome since those rules and procedures are not considered to be useful (DeHart-Davis, 2009). Mostly this is because the rules outgrew their original purpose or had adverse effects once implemented.

In theory, red tape's effects on innovation are not necessarily negative. Frustration as a result of red tape can also encourage organizations to innovate (Moon & Bretschneiber, 2002). Yet, red tape is known to slow down change and thus the ability to innovate. Moreover, the administrative burden makes civil servants less willing to engage in innovations because it creates risk-averseness (Ljungholm, 2014). In terms of collaborative innovation it can be assumed that red tape can form a barrier hindering people from setting up collaborative projects, for one because of rules limiting organizations to do so. Secondly, red tape can also create the reputation that an organization is difficult to effectively work with, inhibiting potential collaborators (Bommert, 2010; Tuurnas, 2015).

In the literature, different types of red tape are distinguished. A first division is the one **between internal and external red tape** (Bozeman, 1993). Both internal and external red tape are about bureaucratic procedures, regulations and routines that make functioning more difficult. The difference between the two is who they make it more difficult for. Essentially this differentiation is hence based on the red tape effects when the government interacts with stakeholders, for example

when engaging in collaborative innovation. Internal red tape negatively affects the internal operations of a public agency and is hence burdensome for the agency itself when it wants to collaborate or innovate, while external red tape burdens citizens and other stakeholders in their dealings with the agency for example when they want to engage in collaborative innovation and have to comply with legal mandates (Walker & Brewer, 2008).

Another way to differentiate is between **dimensions of red tape (**Pandey et al., 2007). A first dimension is budgetary red tape. These are rules and procedures that limit a manager's ability to reallocate budgetary funds in accordance with the agency's mission. They also limit a manager's ability to deal with the unexpected program/project cost overruns (Chen & Williams, 2007). Red tape with respect to personnel management, a second dimension, are the rules and procedures limiting a manager's ability to reward employees in a flexible way, to have authority over personnel actions and to execute HR measures in a timely fashion (Moon & Bretschneider, 2002). The third dimension, procurement red tape, are rules and procedures that make it unnecessarily more difficult for managers to purchase goods and services. They are standard procedures that make procurement more based on the vendor's ability to comply with rules than on the quality of goods and services. When the rules governing procurement make it hard to expedite the purchase of goods and services for critical projects, the procurement red tape in an organization is high (Stazyk, Pandey & Wright, 2011). The fourth and fifth are information and communication red tape. Information red tape or information systems red tape, are rules and procedural requirements for the information system in an organization, that make it more difficult for managers to obtain relevant information and do so in a timely fashion. Communication red tape are the rules and procedures that hamper or unnecessarily restrict the communication of information. This can concern communication within a government organization, among government organizations or between a government organization and the outside world (e.g. through the press) (Bozeman & Feeney, 2011).

In terms of measurement, red tape is most often quantitatively measured by using Likert-type scales in surveys. In our research we opt to do so as well. For a baseline on the concept, we use the items by Van Loon, Leisink, Knies and Brewer, created in 2016. They ask about the functionality of rules in organizations and the related compliance burden. From their study we include:

- *The rules with which I have to comply in core activities have a clear function for my job activities (reversed) (compliance burden) (functionality)*
- *The rules with which I have to comply in core activities take a lot of my time to comply with (compliance burden)*
-

Next, we included items created by Pandey, Coursey and Moynihan (2007) in order to inquire about each separate red tape dimension (except for procurement red tape which is indirectly measured by collaborative red tape).

- *Even if an employee is a poor performer, formal rules make it difficult to remove him/her from the organization (personnel red tape)*
- *The administrative procedures to arrange basic HR-issues (requesting vacation, arranging financial compensation for transport on the job, …) take a lot of time to comply with (personnel red tape)*
- *Communication with other government bodies is restricted by procedures (communication red tape)*

- *Procedural requirements make it difficult for me to obtain relevant information (information red tape)*
- *The budgetary rules and procedures limit my ability to deal with unexpected program/project cost overruns (budgetary red tape)*
- *Rules and procedures limit my ability to reprogram funds in accordance with the mission of my organization/organizational division (budgetary red tape; Chen & Williams, 2007)*

1.3.3 Collaborative red tape

In addition to the organizational red tape, we also measure collaborative red tape in this study. This is a new concept (Van Dijck & Steen, 2017) that arose from the realization that in collaborative innovation there are specific burdensome rules and procedures that do not fit the currently available red tape categorizations such as the red tape dimensions by Pandey and others (2007). Collaborative red tape includes specific collaborative innovation-related administrative burdens such as rules restricting government organizations to freely choose their partners in a project, but rather being forced to pick whoever is best at complying with pre-set requirements. In addition to this it addresses inflexibility issues specific to collaborations, such as rules which makes it hard to change partners, to end or adjust projects if needed, or to make commitments towards other partners in a collaboration etc.

The items that were used in the survey to measure collaborative red tape are:

Rules which apply for my organization make it hard in collaborations with the aim to develop and /or implement an innovation with other parties outside my organization to….

- *…select the best partner for a project*
- *…shut down a project early when it is failing*
- *…provide flexibility to change partners during a project*
- *…commit ourselves in a collaboration with other parties to perform certain actions*

1.3.4 Connective, learning, and innovation capacities

A main framework which is used to measure the different capacities that actors need to possess in order to be able to innovate was inspired by the work of Gieske et al (2016, 2019). This framework consists of three different capacities: connective, learning, and innovating (ambidextrous) capacities.

Connective capacities

'Connective capacities' is an important concept as the focal point of the survey is innovation through collaboration. Connective capacities can be defined as *"the capabilities of individuals, organizations, and networks to counter fragmentation by crossing boundaries and establishing linkages between different actors at various levels, scales, and domains"* (Gieske et al, 2019: 435). This definition shows that the connective capacity can be measured on three different levels. Connective capacities on the individual level encompass the ability to link different ideas or actors to each other and thus creating synergies that may result in the generation and implementation of new ideas. The connective capacity on the intra-organizational level emphasizes the extent to which the organization facilitates and supports the creating of exchange and collaborations between units and teams within the organization. The connective capacity at the inter-organizational level measures if and how the organization supports engagement in external networks. For example, organizations may provide training for employees to develop their networking skills. They include the capacities to create and

maintain collaborative arrangements such as networks and cooperative alliances, on the one hand. On the other hand, it entails the ability to create social capital, for example by establishing trust, collaborative dialogue and reciprocity.

Connective capacities at network level are measured by asking respondents to what extent their organizational unit is involved in collaborative arrangements (see below).

The connective capacities are measured with the following items.

- ***Individual connective capacity***

- *We have staff (e.g. project leaders, program managers) who can connect different ideas, policy areas and disciplines*
- *We have staff (e.g. project leaders, program managers) who can effectively build and maintain trusting relations with other parties outside our organization*
- *We have staff (e.g. project leaders, program managers) who can connect interests of different parties*
- *We have staff (e.g. project leaders, program managers) with much experience in effectively working across organizational boundaries*

- **Intra-organizational connective capacity**

- *There are regular work-related social activities*
- *In our organization collaboration between different organizational divisions is stimulated*
- *There is sufficient opportunity for informal information exchange within our organization*
- *Our organization has systems or procedures to effectively share information and knowledge*

- **Inter-organizational connective capacity**

- *There are policies and routines for management of collaborative arrangements and network activities (think of e.g. stakeholder management, strategic environment management)*
- *There is training about how to act effectively in collaborative arrangements (e.g. negotiation, stakeholder analysis, environment management)*
- *There are roles or functions for management of collaborative arrangements and network activities*

Learning capacities

Next to connective capacities, the capacity to learn is also regarded as a strong indicator for the ability to innovate (Gieske et al, 2019). In this study we focus mainly on the intra-organizational and inter-organizational level of learning. The capacity to learn is closely linked to the organization's ability to utilize its knowledge resources. The capacity of the organization to learn can be determined by the support of learning processes related to exploitation and exploration. Exploitation concerns the expansion of current knowledge to enable incremental innovation. Contrary, exploration concerns the development of the new knowledge in order to facilitate more radical innovation (Andriopoulos & Lewis, 2009).

Intra-organizational learning capacity is measured by looking at the way the organization deals with new knowledge. This can be new knowledge that is brought into the organization based on the experiences of an individual, but also more systematic in the sense that the organizations' policies and

processes are regularly adjusted to new insights. Learning capacities on the network (or: inter-organizational) level refer to the ways that learning is facilitated in the networks in which the organization takes part. This is measured among others by asking respondents about the extent to which their organization use pilots and experiments to test new solutions with other actors or to which extent the organization stimulates joint learning with other actors outside of the organization.

Learning capacities are measured with the following items:

- **Intra-organizational learning capacity**

- *Our policies and routines are regularly adjusted to new insights or techniques*
- *There are routines (e.g. like in planning cycles) to reflect on what new insights and knowledge mean for the organization*
- *My organization learns optimally from my experiences*

- **Inter-organizational learning capacity**

- *My organization stimulates joint learning with and from other parties outside our organization*
- *We use pilots and experiments to test new solutions with other parties outside our organization*
- *My organization learns from the collaboration with other parties*

Innovation capacities

Lastly, the innovation (or ambidextrous) capacity refers to the ability to innovate, while maintaining the other recurrent operations which are needed to fulfill the organizations' mandate. The principal idea behind this concept is that the ability to continue with the regular work processes, on the one hand, is balanced by the ability to implement new ideas in the organization, on the other hand. It is often referred to as the balance between the ability to explore new things and at the same time to exploit existing products or services (e.g. Gibson & Birkinshaw, 2004; Choi & Chandler, 2015). A balance between the two abilities ensures that organizations can still function properly while they enter the uncertain process of innovating. In line with Gieske et al. (2019) we make a distinction between the innovation capacities concerning the available processes in the organization to innovate and the available resources in the organization to innovate.

The items used to measure this are:

- **Innovation capacity (processes)**

- *Innovation is part of our plans at the level of the organization, organizational divisions or staff*
- *We have clear policies and procedures for innovation*
- *Regular and innovation processes are well connected in our organization*

- **Innovation capacity (resources)**

- *Our human resources management (HRM) values innovativeness of the employees (in selection, training, career support, personnel evaluation)*
- *Resources (money/time) are allocated well to regular tasks and innovation*

- *ICT and new technologies are a strong enabler for innovation*[1]
- *There are enough resources (money/time) for innovation*

1.3.5 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 (Lasker,2001; Ansell and Torfing, 2013). 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 actors **at a certain point** collaborated on the development and/or implementation of an innovation (such as new services, policies, technologies or processes).*
- *Where actors did not collaborate on an innovation, but with other purposes.*

1.3.6 Size of arrangements for collaborative innovation

Related to the previous concept, we do not only look at the type of actors in the collaborative arrangements, but we also look at the size of these arrangements. As mentioned, an important factor that makes collaboration successful is the extent to which different actors bring in different viewpoints and resources in the collaborative arrangement (Sørensen, et. al, 2012). So, the number of actors involved in the arrangements, and hence the size of these arrangements matters. However, both

[11] This item is not included in the original scale of Gieske et al. (2019).

small-sized networks as larger-sized networks have their benefits but also their disadvantages. Information flows are quicker in small-sized networks, making them more effective. Actors are connected more tightly and can therefore act faster. Furthermore, because actors get to know each other better when having fewer actors in the network, the involved actors can establish more trust. Strong ties can also be seen as necessary for innovation, especially because it can establish trust (Klijn and Koppenjan,2010). Trust is crucial in collaborative innovation arrangements, because the actors enter a process with a lot of uncertainty about the outcomes. However, strong ties can create group thinking and exclude relevant actors which is bad for the innovation process. Larger-sized networks are usually characterized by having weaker ties, because the collaborative arrangements are simply too large to have close contact with every actor. Having weak ties with the other actors provides other resources and allow actors to break out of the 'groupthink' that closed small-sized networks have (Lewis and Ricard, 2014). In this study, we make a distinction between small-sized collaborative arrangements of four actors or less, on the one hand, and larger-sized collaborative arrangements of five actors or more, on the other hand.

1.3.7 Characteristics of the information exchange process in collaborative innovation arrangements

The characteristics of the information exchange process is also an important element that can facilitate the development of innovation. In this study, we look at two characteristics: inter-organizational trust, which is the extent to which organizations trust their partner organizations and knowledge acquisition, which is the extent to which organizations have acquired useful knowledge as a result of the collaboration.

Information sharing as sign of inter-organizational trust

Research on public sector innovation consistently point to inter-organizational trust as an important element that influence organizational capacity to innovate (Hartley et al., 2013). Defined as "the extent of trust placed in the partner organization by the members of a focal organization" (Zaheer et al. 1998: 142), trust encourages the free circulation of information and constructive dialogue. It ensures the access to a larger pool of information, which increase the opportunities to develop new ideas. It also limits the cost associated with controlling others' activities. Inter-organizational trust is hence a relational concept that implies someone who trust someone else.

In this study, we focus on inter-organizational trust as risk-taking behavior (Oomsel, 2016). We look at the information-sharing behavior adopted by a given organization (or organizational unit) when they collaborate and share information with external actors. On the one hand, we are interested in the surveillance organizations maintain over their partners. On the other hand, we look at the risk organizations are ready to take in order to share relevant information to their partners. We assume that the extent to which an organization surveils or controls their partner influence the extent it develops innovations.

To measure inter-organizational trust, we ask the behavior organizations adopt when they collaborate with external actors. We use four items adapted from Oomsel's (2016) research:

- *We check the correctness of the information given by these other parties;*
- *We keep a close eye on these other parties to ensure they won't do something detrimental;*
- *We give all the relevant information on important matters to these other parties, even if it could be detrimental;*
- *We carefully consider which information to share with these other.*

Knowledge acquisition

One core assumption of innovation through collaboration is that innovations depends on the extent to which organizations acquire new knowledge as they exchange information and collaborate with external actors, and hence, effectively learn (Hartley and al., 2013). While our abovementioned survey questions about learning capacities evaluate the extent to which organizations possesses rules or processes facilitating learning, in this section we focus on the type of knowledge that an organization has acquired as a result of collaboration with external actors. By acquiring new knowledge, organizations develop a new understanding of the problem at stake are able to develop new policies, technologies, services or processes. The extent to which an organization learns should hence improve its ability to innovate. Different types of knowledge may lead to innovations (Klijn & Koppenjan, 2016). In this study, we distinguish:

- knowledge about the policy content, which refers to knowledge about the content of a policy/process/method (1);
- knowledge about other actors involved in the collaborative innovation arrangement, which includes knowledge about their expectations, their ways of working and their resources (2);
- knowledge about the expectations of users or the citizens and (3);
- knowledge about the priorities of their responsible political principals (4).

Knowledge about the policy content ensures that the innovation designed is based on scientific insights and is not merely the product of interests disconnected from the reality. Knowledge about the collaborative partners as well as innovation users or citizens is important for the development of innovations that addresses all stakeholders' interests and needs. Finally, knowledge about the priority of their responsible ministers ensures the innovation is politically supported (Klijn & Koppenjean, 2016; May, 1992).

In this study, we assess the extent an organization has acquired those different types of knowledge. We adapted existing Likert-type scales (see for instance, Leach et al. 2014), and developed 6 items:

Collaboration with other parties outside my organization with the aim to develop and /or implement an innovation results in new and useful knowledge for my organization about…

- *Technical information about the policy issue(s) the collaboration deals with;*
- *Other parties' goals and expectations;*
- *Other parties' way of working;*
- *Other parties' resources (human, finance, time, etc.);*
- *Citizen or users' expectations;*
- *The priorities of the responsible political leaders of other organizations.*

1.3.8 Autonomy, priority control, ministerial interest and ministerial interference in collaborative innovation arrangements

The main focus of this study is innovation. As organizations are more and more dependent on other actors to create an innovation, they will have to interact with other organizations. This is a trend that is not only the case for innovation processes but is a common trend in the field of public administration in general. Literature on forms of governance in the public sector has shifted from the traditional bureaucratic way of steering to network steering. Whereas the traditional bureaucratic form of

governance only has a vertical accountability towards the senior management and politicians, network governance also has a horizontal accountability towards the other actors with whom the public organization collaborates and a downwards accountability to citizens (Christensen and Laegreid,2016: 295). Nevertheless, although innovations are increasingly made in networks, actors still need to take their own organization into account while interacting with other actors. For example, working in collaborative arrangements leads to additional forms of accountability. Hence, the autonomy given by the home organization to their representatives in such collaborative innovation arrangements, the control of the home organizations towards their representatives in these arrangements, and the priority that senior management of the home organization gives to organizational engagement in such arrangements also matters to explain the emergence of innovation through collaboration. Moreover, interactions between the organizational representatives in such collaborative arrangements are enabled or limited by the extent of control by their home organization that each of the representatives experiences. Moreover, research suggests that employee autonomy has a positive effect on innovative work behaviors (Ramamoorthy et al., 2005). More autonomy for employees and lesser control of the management leads to employees being better able to come up with new methods for doing their work. Indeed, too much control from the manager can lead to risk averse behavior and stifle innovation (Borins, 2000). This may also apply to the organizational staff which is representing the organization in such collaboration innovation arrangements. Moreover, two items to measure the interference of the politics on the innovation process and the extent to which the process is discussed with the responsible minister were included as this is regarded to be an important indicator for the development of innovations.

The items to measure the above mentioned concepts are:

The staff that represents our organizational division in collaborations with the aim to develop/implement an innovation ……..

- *…receives the autonomy to act as they see fit in these collaborations.*
- *…is strongly controlled by our organization.*

Collaborations with the aim to develop and/or implement an innovation in which our organizational division participates….

- *…is a priority for our organization.*
- *…experiences interference from our responsible minister (or cabinet). (measures 'ministerial interference')*
- *…is discussed with our responsible minister (or cabinet). (measures 'ministerial interest')*

1.4 Main additional variables

As is common practice in any scientific survey, our questionnaire includes several additional variables, some of which are used as control variables in the regression analyses in this report. 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).

1.4.1 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 & Ashfort 1992: 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 control for organizational identification.

Organization identification is measured with these items:

- *When someone criticizes the organization, it feels like a personal insult.*
- *I am very interested in what others think about the organization.*
- *The organization’s successes are my successes*

1.4.2 Experience in collaborations with external actors of the respondent

A factor that also could affect a respondent’s perception or reporting on collaborations might be the experiences an individual has accumulated in this respect. If respondents have only had one or two collaborations with external actors for example, their opinions and perceptions in this respect might be very shaped by them, as they only have limited experience. Respondents with ample experiences in terms of collaborations with external actors will have a more nuanced perception in this respect. Other respondents might have no experience at all in such collaborations and also their perception and answers will be influenced by the lack of own experience.

As this study is about collaborative innovation, we asked a question to gain more insight in the experience that the respondent already has with collaboration with external actors. Respondents had to indicate on a seven-point scale to what extent they agree with the following statement.

- *How much experience do you personally have in collaborative arrangements with other parties outside your own organization which focus on designing/implementing new services and policies?*

1.4.3 Socio-demographic data

Lastly, it is common in scientific surveys to include some socio-demographic variables to control for such as age, gender, tenure… 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-aversive. Similarly, women tend to be slightly more risk-aversive than men (Borghans et al.,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).

Part Two: Strategy of data collection and analysis

2.1 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 more complete and 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 BOSA[2] 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, the same 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 April till September (due to a delay because of the Corona crisis).

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

2.2 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/SPF (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 KULeuven.

2.3 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 government, a chi-square goodness-of-fit test for the type of organization and the size of organization was executed (tables 1 and 2).

Type of organization	Respondents who received the survey	Actual response	Expected response[3]
FOD-POD/SPF-SPP	810	309	285
FWI/ESF	227	83	80
ION/OIP	149	42	53
OISZ/IPSS	596	194	210
Total	1782	628	

Chi square=5.636 p=0.131, three degrees of freedom

Table 1. Goodness of fit data type of organization

[3] The expected response is calculated by taking the percentage of respondents who received the survey per group and applying this percentage on the total number of responses: e.g. (810/1782)*628 in case of the FOD-POD/SPF-SPP.

Size of organization	Respondents who received the survey	Actual response	Expected response
<250 employees	185	55	65
250-1000 employees	539	201	190
>1000 employees	1058	372	373
Total	1782	628	

Chi square= 2.178; p=0.337, two degrees of freedom

Table 2. Goodness of fit data size of organization

The actual response concerning both the type as the size of the organization turns out to be a very good representation of the studied population. The p-values which are above 0.05 indicate that the actual response is not significantly different from the expected response, indicating a good fit of the data.

See Appendix A for a detailed overview of the responses per management level.

2.4 Information on characteristics of respondents for the overall sample and per type of organization

2.4.1 Gender

Looking at our sample, we see that the majority of the sample is male (see figure 2). Of the 318 respondents who indicated their gender 59.22% is male and 40.61% is female. Only 0.16% of the respondents identifies itself as non-binary which is too low to be included as a category in the figures below. In all different types of organizations the majority of respondents is male. The difference is largest in the FOD-POD/SPF-SPP (63.09% male versus 37.91% female) and smallest at the IOSZ/IPSS (54.45% male versus 45.55% female).

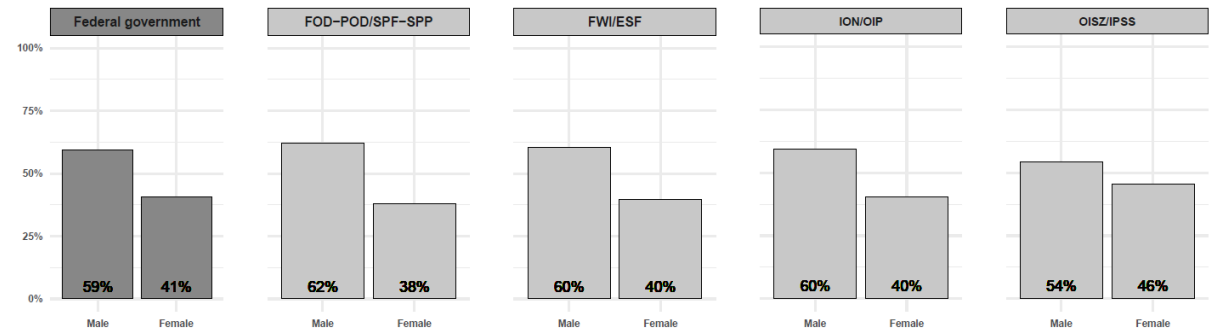

Figure 2. Gender

2.4.2 Age

In figure 3 we see that most of the respondents in our sample are between the ages of 40-49 years and 50-59 years. The number of respondents in our sample younger than 30 years old is close to zero. The FOD-POD/SPF-SPP is the only type of organizations where the category 40-49 years is the larger than the 50-59 years category, even though this difference is very small (35.20% versus 34.87%). In all other types of organizations is the 50-59 category largest. This difference is most prominent in the FWI/ESF organizations.

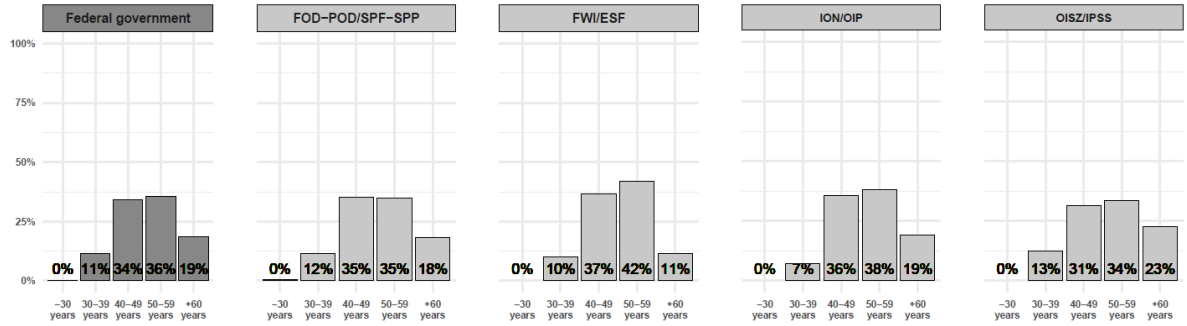

Figure 3. Age

2.4.3 Hierarchical position

The majority of the respondents in our sample has a managerial position on the third highest level of their organization (see figure 4). This is the case for all types of organizations. This is not surprising as the majority of the ascribed actors works on the third highest level. Every organization has only one person (or in very few cases two persons) working at the highest level of the organization, and the number of respondents increases if one moves to the second and third highest level of the organization. The distribution of the respondents on the different management levels is therefore as one can expect: the least number of respondents on the highest level and most respondents on the third highest levels.

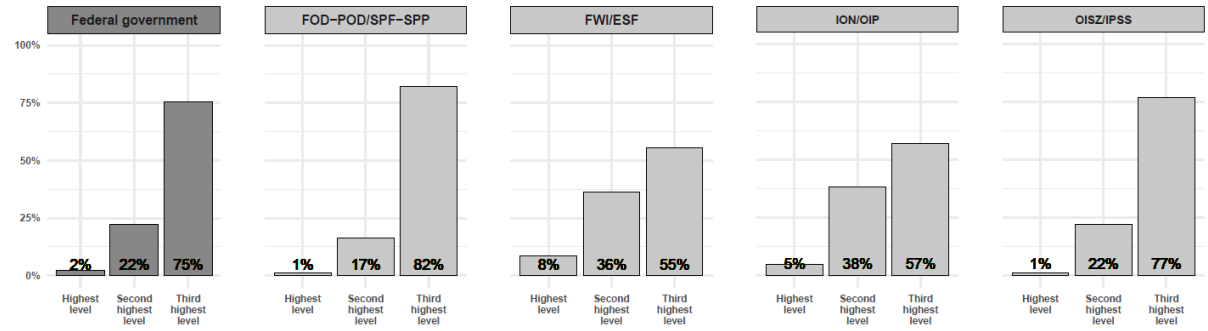

Figure 4. Hierarchical level

2.4.4 Highest level of education

Figure 5 shows the highest obtained level of education. The vast majority (72.96%) of the respondents has a master's degree as their highest level of education. All other levels of education are much less present in our dataset. PhD (8.74%) and bachelor's degree (7.93%) are the second and third most prevalent levels of educations. Only 6.47% have secondary education as their highest level of education and 3.88% 'other'. Respondents could indicate what they meant by 'other'. They usually mentioned a 'master after master (MaNaMa)' .

The only exception to the abovementioned observed education levels are the FWI/ESF where 46.84% has a master's degree and 40.51% a PhD. This was to be expected given the nature of these organizations being scientific institutions.

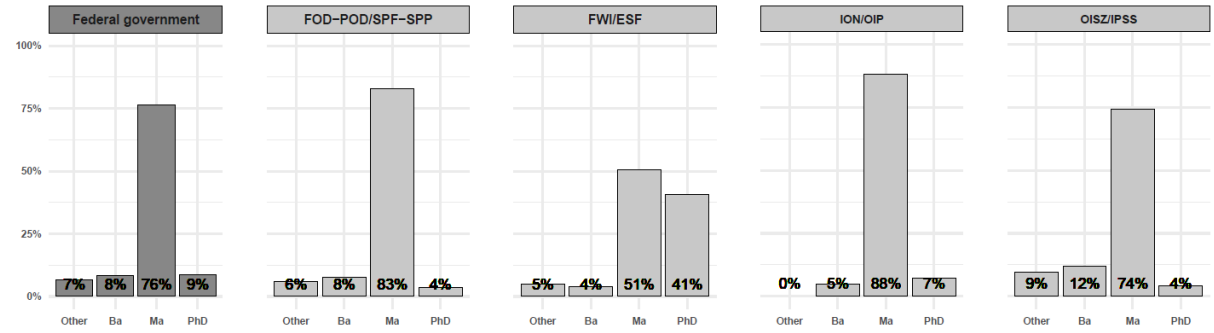

Figure 5. Highest level of education

2.4.5 Active in public sector

Figure 6 shows that the vast majority of respondents has been working for more than 10 years in the public sector. 45.87 % of the total number of respondents indicate that they have been working for 11 to 25 years in the public sector, making this the largest category. 39.71% has been working more than 25 years in the public sector, making it the second largest category. Far fewer respondents have only been working for less than 10 years in the public sector (0-2 years: 0.81%; 2-5 years: 2.76%, 6-10 years: 10.86%). A similar pattern can be found in the other types of organizations, although none of the respondents of both FWI/ESF and ION/OIP have been working 3-5 years in the public sector. The OISZ/IPSS are the only types of organizations in which the group of respondents that have been working for more than 25 years is the largest category (47.64% compared to 36.13% for 11-25 years).

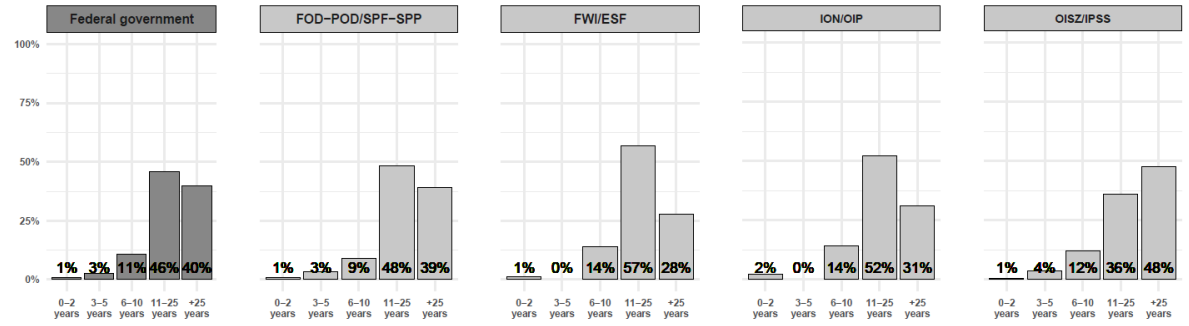

Figure 6. Amount of years active in the public sector

2.4.6 Active in current organization

As figure 7 shows, of all the respondents 45% has been working for 11 to 25 years in their current organization, making this the largest group of the total sample. Interesting to see is that the distribution of tenure in the organization is different per type of organization. '11 to 25 years' is the largest category in FOD-POD/SPF-SPP (48.85%), FWI/ESF (53,16%) and ION/OIP (59.52%). This is the second largest category in OISZ/IPSS (33.16%). Unlike the other types of organizations the largest category in OISZ/IPSS is the respondents who have been working for more than 25 years in their organization (38.42%). This is substantially higher than in the other types of organizations (FOD-POD/SPF-SPP: 21.31%; FWI/ESF: 20.25%; ION/OIP: 11.90%). Especially few respondents in ION/OIP have been working longer than 25 years in the current organizations. It can be concluded, however, that in all types of organizations more than 50% of the respondents have been working there already for more than 11 years.

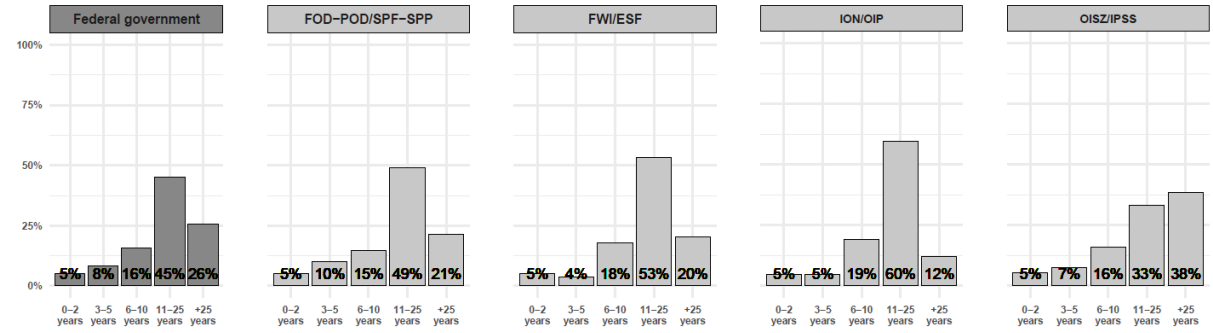

Figure 7. Amount of years active in current sector

2.4.7 Active in current position

The time the respondents are active in their current position is fairly equally distributed among the categories with the exception of ' more than 25 years' which scores by far lower (2.43%) than the other categories. In the FWI/ESF and ION/OIP even none of the respondents have been working longer than 25 years in their current position. In some types of organizations most of the respondents have been working between 3 to 5 years in the current position (FOD-POD/SPF-SPP and OISZ/IPSS) and in others 6 -10 years (FWI/ESF) or 11-25 years (ION/OIP), but the differences between the different categories are not that large.

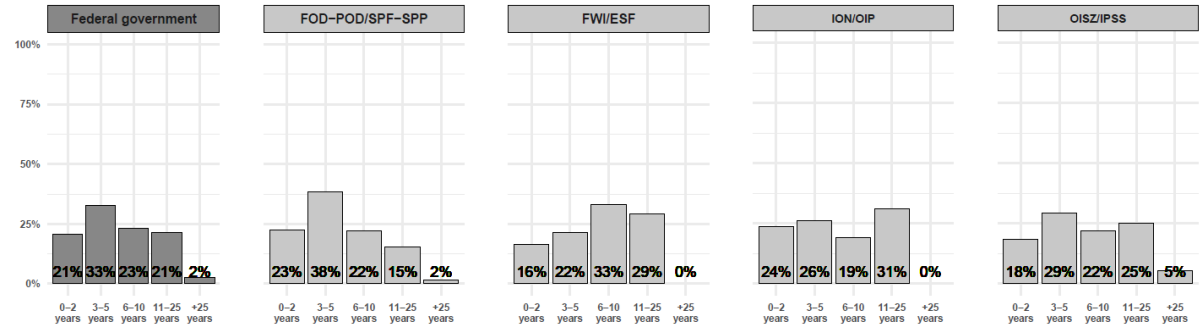

Figure 8. Amount of years active in current position

2.4.8 Orientation of organization unit

The respondents were asked the following question: *The activities of your organization(al division) are directed towards (please select one option): (1) primarily towards citizens, private actors and/or other non-profit actors; (2) primarily towards other public actors outside the organization; (3) equally towards other public organizations, and towards citizens, private actors and/or other non-profit actors; (4) other units in my organization (only for N-1 and N-2 respondents).*

Respondents on the N-level were asked about the orientation of the total organization and respondents on N-1 and N-2 level about the orientation of their organizational unit. The results in figure 9 show that the orientation of the organizations/organizational units is primarily directed towards citizens, private actors and/or other non-profit actors (35%). Organizations direct their activities the least towards other public actors outside the organization (10.75%). We do see that 26.22% of the respondents indicate that the activities are equally focused towards both categories. This is about the same percentage (27.69%) as actors who answered that the activities of their organizational unit were primarily focused towards other units in the organization. A remark that has to be made here is that only respondents on the N2 and N3 level could answer this last category.

The FOD-POD/SPF-SPP shows similar results, while the focus of the FWI/ESF is equally directed towards other public organizations, and towards citizens, private actors and/or other non-profit actors (39.47%). The largest difference between categories can be seen at the OISZ/IPSS. 56.54% of the respondents belonging to OISZ/IPSS answered that the activities are primarily focused towards citizens, private actors and/or other non-profit actors. This is much more than respondents who answered that activities are primarily focused towards other public actors outside the organization (1.57%).

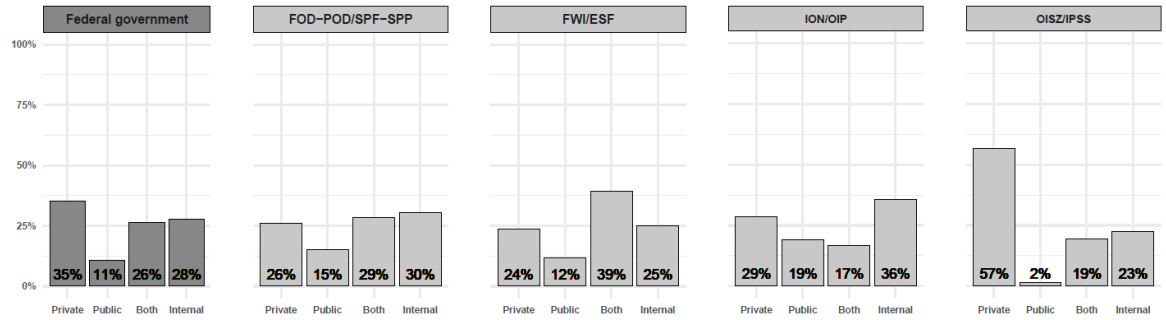

Figure 9. Orientation organization(al unit)

2.4.9 Organizational identification

The organizational identification is a control variable that measures the respondents "perceived oneness with the organization and the experience of the organization's successes and failures as one's own" (Mael & Ashfort 1992: 103). It is a specific form of social identification with the individual defining himself in terms of the organization he or she is a part of. The three items load on the same factor and the Cronbach's alpha of 0.705 indicates that the scale is internally reliable (see table 3).

Items	Factor loading
When someone criticizes the organization, it feels like a personal insult.	0.551
I am very interested in what others think about the organization.	0.707
The organization's successes are my successes.	0.772
Cronbach's alpha	**0.705**

Table 3. Construction of organizational identification

As can be seen in figure 10 and table 4, the overall mean score is 4.54 which fall between a score of 4 (agreement to a moderate extent) and 5 (agreement to a rather high extent). No significant differences were found between the means of the different types of organizations which is also reflected in the means which are without exception close to the total mean of 4.54. Noteworthy is the small standard deviation of 0.10 of the FWI which means that all answers are very close to the mean in that group.

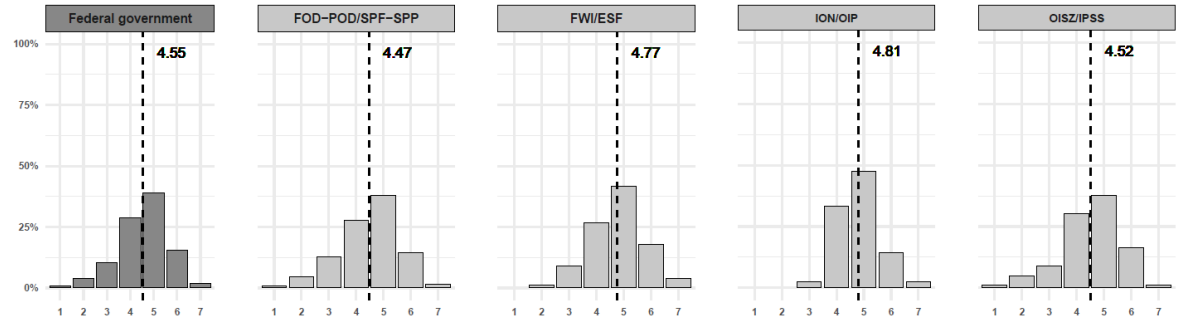

Figure 10. Organizational identification

	N	Mean	Standard deviation	Minimum	Maximum
Total	618	4.54	1.06	1	7
FOD-POD/SPF-SPP	306	4.46	1.10	1	7
FWI/ESF	79	4.77	0.10	1.67	7
ION/OIP	42	4.77	0.76	3.33	6.67
OISZ/IPSS	191	4.52	1.05	1.33	7

Table 4. Descriptive results of organizational identification

2.4.10 Experience with collaboration

The experience of the respondent was measured by the following question:

How much experience do you personally have in collaborative arrangements with other parties outside your own organization which focus on designing/implementing new services and policies?

As figure 11 and table 5 show, the overall mean is 4.02 which indicates that respondents have on average to a moderate extent experience with collaboration. The means are quite similar across types of organization as they all have an average around a score of 4. The biggest difference is between OISZ/IPSS (3.80) and FWI/ESF (4.28). As one can expect from these results, no significant difference is found between the means of the types of organizations, and neither for the size of the organizations.

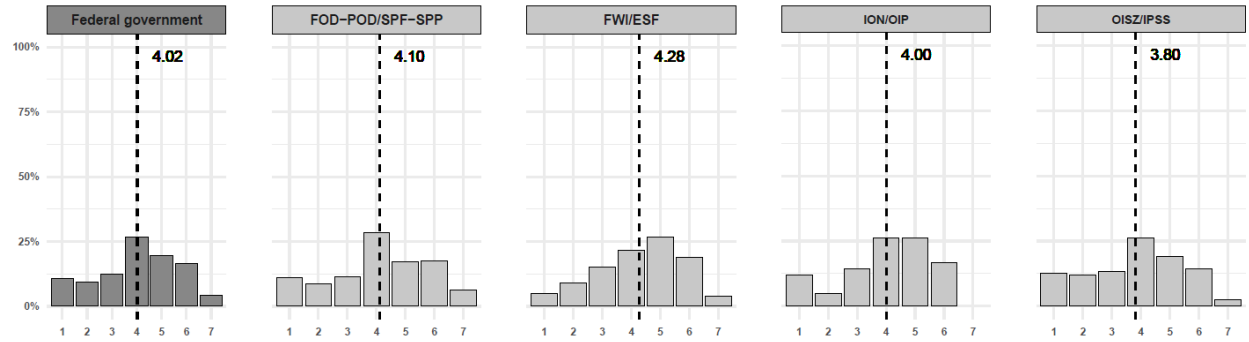

Figure 11. Experience with collaboration

	N	Mean	SD	Minimum	Maximum
Total	614	4.02	1.65	1	7
FOD-POD/SPF-SPP	303	4.10	1.69	1	7
FWI/ESF	79	4.28	1.51	1	7
ION/OIP	42	4.00	1.55	1	6
OISZ/IPSS	190	3.80	1.65	1	7

Table 5. Descriptive results experience with collaboration

2.5 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 scale[4]. 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 organization (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 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

[4] 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

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.

Please note that the control variables we include in all models are the following: age of the respondent; education; gender; hierarchical position, organizational identification of the respondent, tenure (number of years in the organization), as well as orientation of organization/organization unit of which the respondent is the manager.

Part Three: Innovation in the federal government: which, from what and with what satisfaction?

3.1 Type of innovation

3.1.1 Policy innovation

In terms of the types of innovations developed, the average response to the question on the extent to which policy innovations were developed by the respondents' organization (alone or in collaboration with others) in the last three years ranges from 3.23 (FWI/ESF) to 3.87 (OISZ/IPSS) with a mean of 3.67 across all organizational types (on a 7-point scale) (see figure 12 and table 6). This means that on average policy innovations have been developed (with involvement of the respondent's organization) to a rather low or moderate extent. As visible in figure 12, these is a huge variation in the extent to which respondents report policy innovations to be developed. The difference between organizational types is not significant.

There is a significant difference between organizations (see table 6), however, in terms of their size. In small organizations, policy innovation is reported to occur to a rather low extent (average: 3.00), while in mid-sized organizations (average: 3.51) and large organizations (average: 3.85) this is reported to occur more often comparatively.

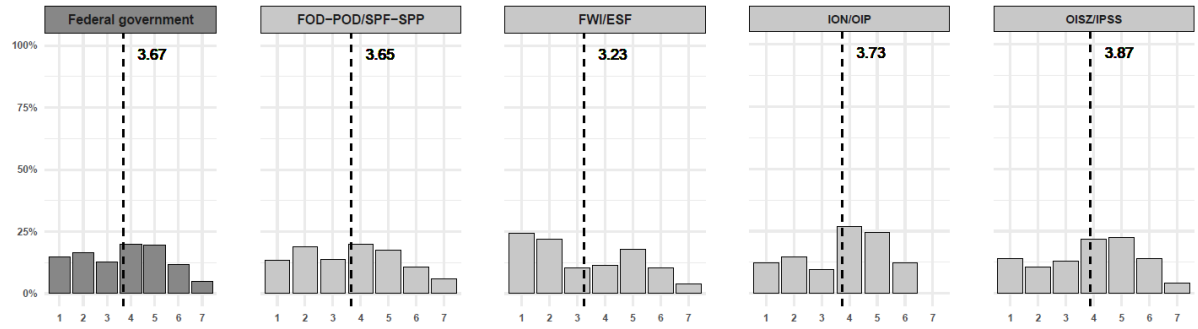

Figure 12. Policy innovations

	N	Mean^[5]	Standard deviation	Minimum	Maximum
Total	607	3.67	1.76	1	7
FOD-POD/SPF-SPP	301	3.65	1.77	1	7
FWI/ESF	78	3.23	1.89	1	7
ION/OIP	41	3.73	1.58	1	6
OISZ/IPSS	187	3.87	1.72	1	7

Table 6. Descriptive results policy innovations

3.1.2 Technological innovation

Technological innovations are reported to happen to a larger extent than policy innovations. The average response to the question on the extent to which technological innovations were developed by the respondents' organization (alone or in collaboration with others) in the last three years ranges from 3.32 (FWI-organizations) to 4.20 (OISZ/IPSS) with a mean of 3.82 across all organizational types. A significant difference between organizational types is found here, with the OISZ/IPSS reporting the highest levels of technological innovation (table 7). There is a significant difference between

[5] Means: Small organization=3.00; mid-sized organization=3.51; large organization=3.85 ; total=3.67

organizations in terms of their size as well. In small organizations technological innovation is reported to occur to a rather low extent (average: 3.14), while in mid-sized organizations (average: 3.81) and large organizations (average: 3.92) this is reported to occur to a moderate extent. The range of replies is large with 1-6 for FWI/ESF and 1-7 for all other types.

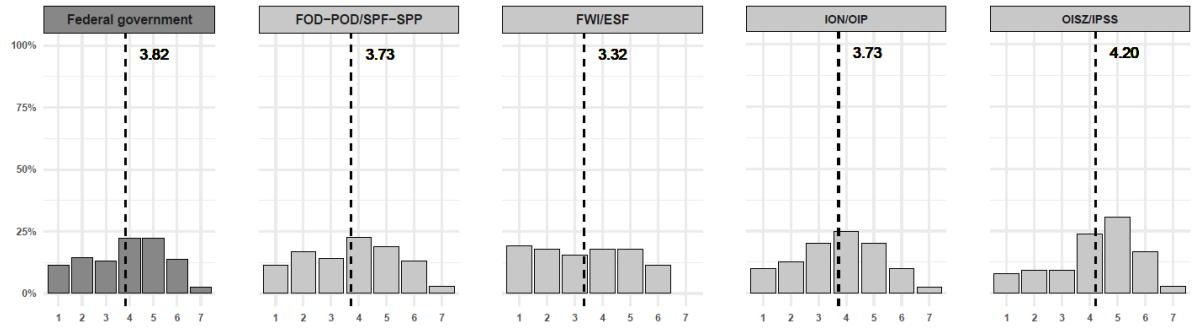

Figure 13. Technolgical innovations

	N	Mean*^[6]	Standard deviation	Minimum	Maximum
Total	606	3.82	1.64	1	7
FOD-POD/SPF-SPP	302	3.73	1.66	1	7
FWI/ESF	78	3.32	1.68	1	6
ION/OIP	40	3.73	1.55	1	7
OISZ/IPSS	186	4.20	1.54	1	7

Table 7. Descriptive results technological innovations

3.1.3 Service innovation

The average responses for service innovations developed by the respondents' organization (alone or in collaboration with others) in the last three years range from 2.92 (FWI/ESF) to 3.84 (OISZ/IPSS) with a mean of 3.55 across all organizational types (figure 14). This fall between the 'to a rather low extent' and 'to a moderate extent' category. Just like in case of technological innovations, both the means of the different organizational types as of the groups with different organizational size are significantly different from each other. It is clear from figure 14 and table 8 that the different organizational types shows quite different profiles in terms of service innovation, and these innovations are most prevalent in the OISZ/IPSS. As to the FWI/ESF, more than half of the respondents reports these innovations to be present in a rather to very limited extent. In small organizations service innovation is reported to occur to a rather low extent (average: 2.75), while in mid-sized organizations (average: 3.53) and large organizations (average: 3.68) this is reported to occur to a moderate extent.

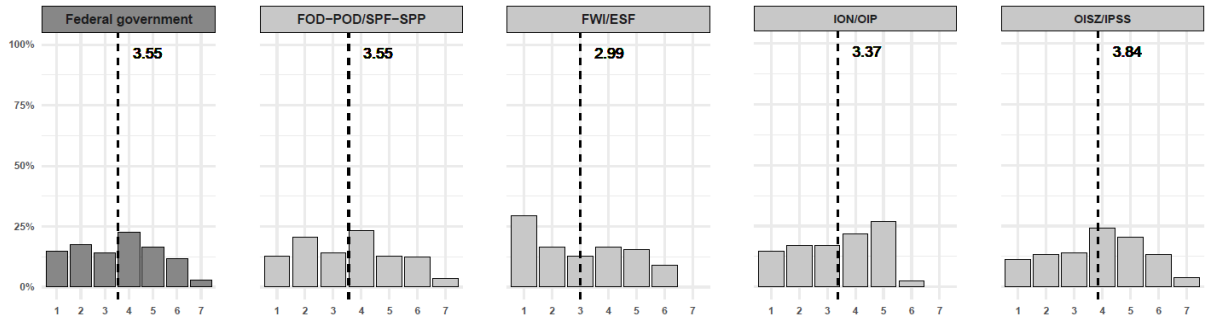

Figure 14. Service innovations

[6] Means: Small organization=3.14 ; mid-sized organization=3.81; large organization=3.92 ; total=3.82

	N	Mean*^[7]	Standard deviation	Minimum	Maximum
Total	608	3.55	1.69	1	7
FOD-POD/SPF-SPP	302	3.55	1.70	1	7
FWI/ESF	78	2.99	1.72	1	6
ION/OIP	41	3.37	1.48	1	6
OISZ/IPSS	187	3.84	1.66	1	7

Table 8. Descriptive results service innovations

3.1.4 Process innovation

For process innovations developed by the respondents' organization (alone or in collaboration with others) in the last three years, the average responses range from 3.27 (FWI/ESF) to 4.45 (OISZ/IPSS) with a mean of 4.02 across all organizational types (figure 15). The difference between organizational types and size is significant here as well. This kind of innovations are most prevalent in OISZ/SPSS, with more than half of the respondents of these organizations reporting these innovations to be present from a rather high to a very high extent.

In small organizations process innovation is reported to occur to a rather low extent (average: 3.24), while in mid-sized organizations (average: 4.05) and large organizations (average: 4.12) this is reported to occur to a moderate extent. The range of replies is large with 1-6 for ION/OIP and 1-7 for all other types (see table 9)

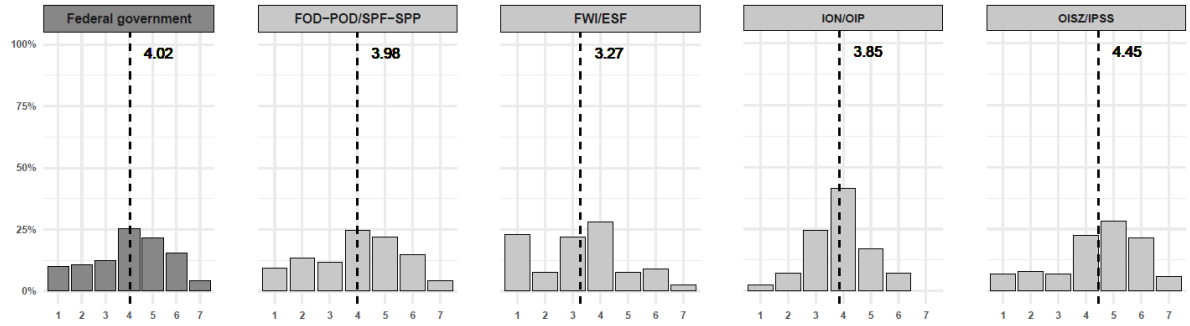

Figure 15. Process innovations

	N	Mean*^[8]	Standard deviation	Minimum	Maximum
Total	608	4.02	1.63	1	7
FOD-POD/SPF-SPP	302	3.98	1.64	1	7
FWI/ESF	78	3.27	1.67	1	7
ION/OIP	41	3.85	1.11	1	6
OISZ/IPSS	187	4.45	1.58	1	7

Table 9.Descriptive results process innovations

Comparing types of innovation

In this section we discussed what respondents answered when asked to what extent specific types of innovations (being either 'really new' policies, services, technologies or processes) were developed by the organization of the respondent (alone or in collaboration with actors other than the own organization) in the last three years. On average the extent of innovations were reported to be present

[7] Means: Small organization=2.75; mid-sized organization=3.53; large organization=3.68 ; total=3.55
[8] Means: Small organization=3.24; mid-sized organization=4.05 ; large organization=4.12 ; total=4.02

to an extent in between to a rather low extent and to a moderate extent, although for all kinds of innovations respondents also score very high or very low values. Comparing the different types of innovation, process innovations appears to be most common (average: 4.02 – meaning to a moderate extent). But the differences in to what extent certain types of innovation are present on average do not appear to differ much (technological innovations: 3.82 on average; policy innovations: 3.67 on average; service innovations: 3.55 on average). It is notable, however, that every type of innovation was reported to occur to the lowest extent in FWI/ESF and to the highest extent in IOSZ/IPSS when comparing the four different organizational types; and that the smaller an organization is in size, the less a certain type of innovation occurred in that organization in general.

On average the extent of innovations were reported to be present to a rather low extent and to a moderate extent, although for all kinds of innovations respondents also score very high or very low values.

The federal organizations are on average most involved in the development and/or implementations of process innovations. Service innovations are relatively the least developed.

FWI/ESF as well as small-sized organizations are relatively the least involved in the development and/or implementation of innovations. On the contrary, IOSZ/IPSS as well as large organizations are relatively the most extensively involved in innovations.

3.2 Innovation origin

Next to asking about the different types of innovations, respondents were asked where the developed innovations originated from. Respondents were asked to move sliders from 0 to 100% in three categories that added up to 100%. These categories were:

The innovations were:

- *Developed purely within our own organization without input from or collaboration with other parties outside our organization.*
- *Developed within our own organization but inspired by input or innovations from other parties outside our organization.*
- *Developed in collaborative arrangements/collaboration jointly with other parties outside our organization.*

When asking respondents about innovations that are *developed purely within their own organization* they report on average that 37.53% is purely developed within their own organization without input from or collaboration with other parties outside our organization (see figure 16 and table 10). The answers range from 32.75% (FWI/ESF) to 43.07% on average (OISZ/IPSS). The difference between organizational types is significant and replies ranged from the minimum of 0% to the maximum of 100%. There is also a significant difference between organizational averages in terms of their size. Averages are: 41.8% for small organizations, 32.29% for mid-sized organizations and 39,82% for large organizations.

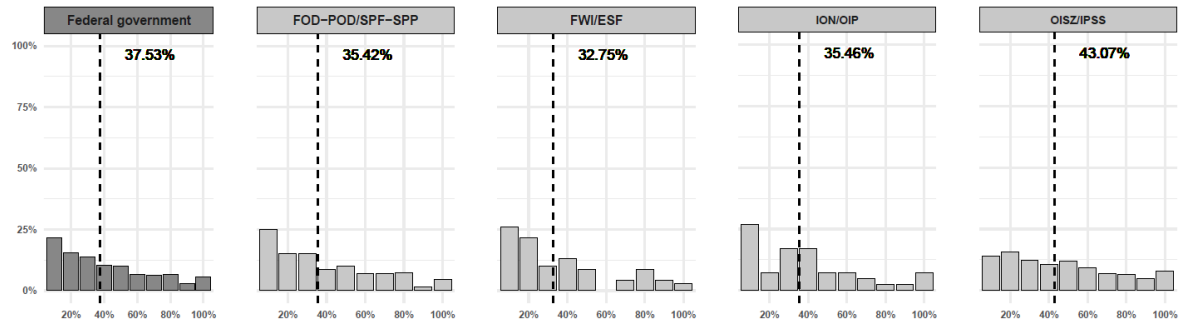

Figure 16. 'innovations developed purely within our own organization without input from or collaboration with other parties outside our organization'

	N	Mean*^[9]	Standard deviation	Minimum	Maximum
Total	589	37.53	27.92	0	100
FOD-POD/SPF-SPP	293	35.42	27.18	0	100
FWI/ESF	69	32.75	27.89	0	100
ION/OIP	41	35.46	27.63	0	100
OISZ/IPSS	186	43.07	28.51	0	100

Table 10. Descriptive results 'innovations developed purely within our own organization without input from or collaboration with other parties outside our organization'

When respondents were asked about innovations that are ongoing/occurred in their organization which were developed *within their own organization but inspired by input or innovations from other*

[9] Means: Small organization=41.8; mid-sized organization=32.29 ; large organization=39.82; total=37.53

parties outside their organization, they report that this is the case for on average 27.81% (OISZ/IPSS) to 29.54% (FOD-POD/SPF-SPP) of the innovations. These results can be found in figure 17 and table 11. Across all four organizational types the mean is 28.89% for this question. The difference between organizational types is not significant here. Neither is there a significant difference among organization from different sizes for this question. Replies ranged from 0% to 81% for ION/OIP and from 0% to 100% for all other organizational types.

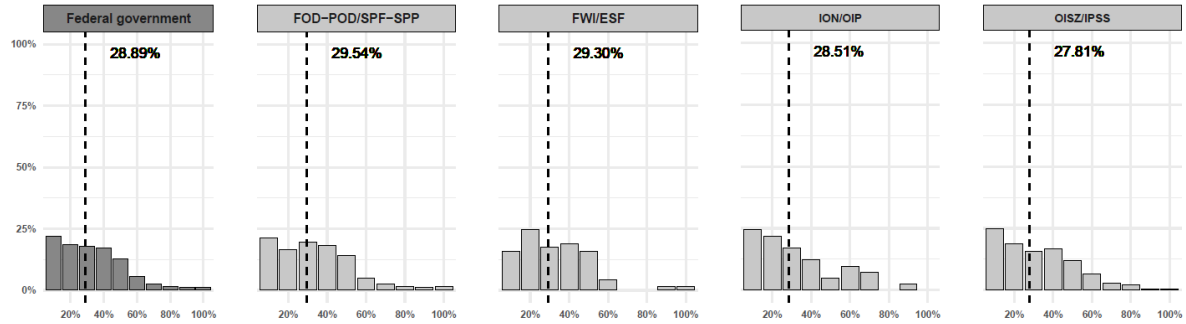

Figure 17. Innovations developed within our own organization but inspired by input or innovations from other parties outside our organization

	N	Mean	Standard deviation	Minimum	Maximum
Total	589	28.89	20.39	0	100
FOD-POD/SPF-SPP	293	29.54	20.67	0	100
FWI/ESF	69	29.3	19.27	0	100
ION/OIP	41	28.51	21.97	0	81
OISZ/IPSS	186	27.81	20.10	0	100

Table 11. Descriptive results "Innovations developed within our own organization but inspired by input or innovations from other parties outside our organization."

Lastly, figure 18 and table 12 show that for innovations that are ongoing/occurred in the respondent's organization which were *developed in collaborative arrangements with other parties outside their organization*, the average responses range from 29.12% (OISZ/IPSS) to 37.94% (FWI/ESF). The FWI/ESF report on average the highest scores here, most likely because scientific research and museum-related innovations are often done in collaborations with external actors. Across all four organizational types the mean is 33.58% for this question. The difference between organizational types is significant, while the differences among organizations with regard to their size are not significant. Replies ranged from 0% to 90% for ION/OIP, and from 0% to 100% for all other organizational types.

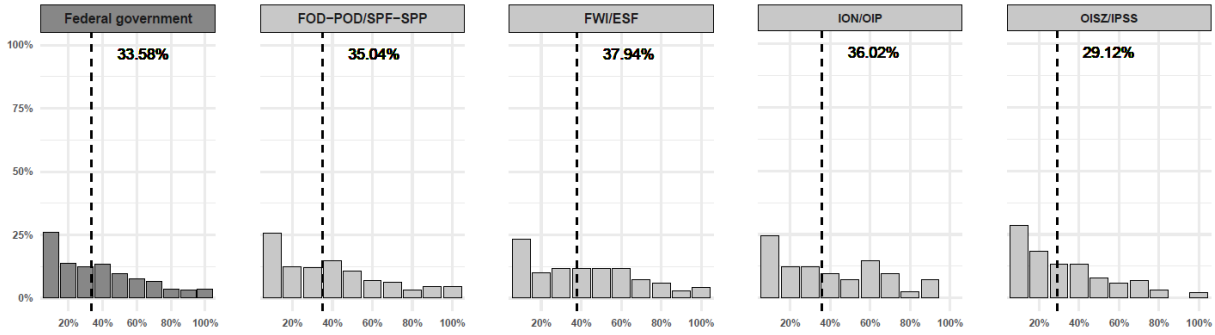

Figure 18. Innovations developed in collaborative arrangements/collaboration jointly with other parties outside our organization

	N	Mean*	Standard deviation	Minimum	Maximum
Total	589	33.58	26.90	0	100
FOD-POD/SPF-SPP	293	35.04	27.83	0	100
FWI/ESF	69	37.94	28.51	0	100
ION/OIP	41	36.02	27.54	0	90
OISZ/IPSS	186	29.12	24.14	0	100

Table 12. Descriptive results 'Innovations developed in collaborative arrangements/collaboration jointly with other parties outside our organization"

Looking at the different organizational types, in general most innovations are developed in the own organization (37.53%). For FOD-POD/SPF-SPP organizations, the proportion of self-developed innovations (35.42%) and jointly-developed (35.04%) innovations is similar. While for FWI/ESF , jointly-developed innovations are more common (37.94%) than self-developed innovations (32.75%). The same is true for ION/OIP organizations where respectively 36.02% of innovations are jointly developed in collaboration with others and 35.46% are self-developed, purely within the own organization. Lastly, in IOSZ/IPSS most innovations are self-developed within the own organization (43,07%) and only 29.12% are jointly-developed in collaboration with others. Strikingly, while IOSZ/IPSS report on average the highest extent of innovations being developed in the last three years (see previous section), they also report the highest share of innovations being developed purely within the own organization, without inspiration from or collaboration with other actors. The proportion of innovations developed within the own organization but inspired by input or innovations from other parties outside the organization is smallest in each organizational type.

On average, innovations are for the largest share developed purely within the own organization, followed by 'in active collaboration with others' and 'inspired by others'. Especially OISZ/IPSS report the largest share of their innovations to be developed in the own organization. On the contrary, FWI/ESF and ION/OIP have the largest share of their innovations developed in active collaboration with others.

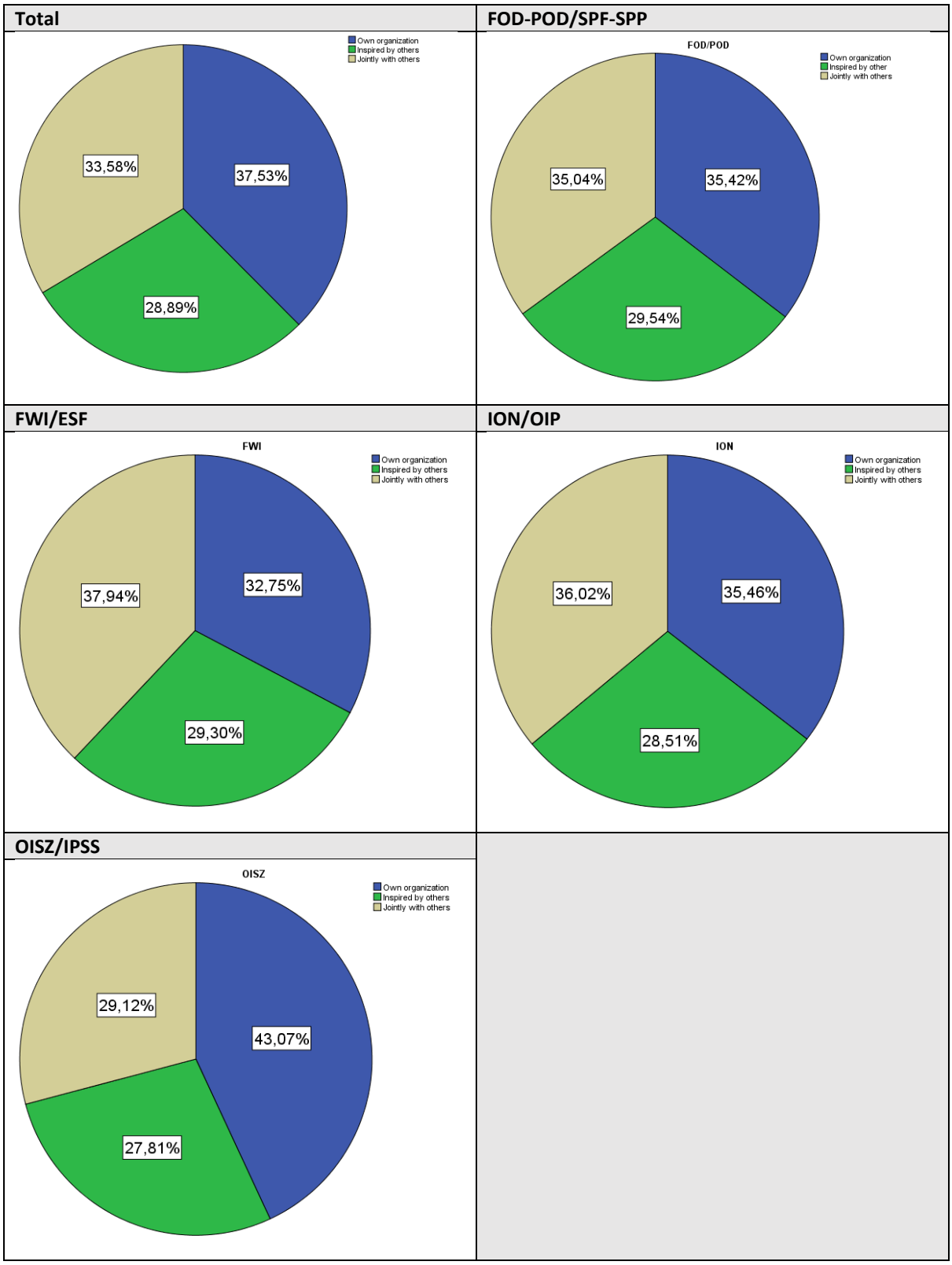

Figure 19. Innovation origin

3.3 Satisfaction with innovations

When asking about satisfaction with the developed innovations, the first question was to which extent respondents overall were satisfied with *innovations developed in the last three years fully within their own organization without input from other actors or collaboration with other parties outside of their organization*. Figure 20 and table 13 shows that the average replies range from 4.54 (OISZ/IPSS) to 4.71 (ION/OIP) with a mean of 4.57 across all organizational types. More than half of the respondents report to be satisfied in a rather to very high extent. Hence, the difference between organizational types is very small, there is no significant difference when taking organizational size into account either.

Although the answers range from 1-7, the results show that the average respondent is satisfied from a moderate extent (4) to a rather high extent (5).

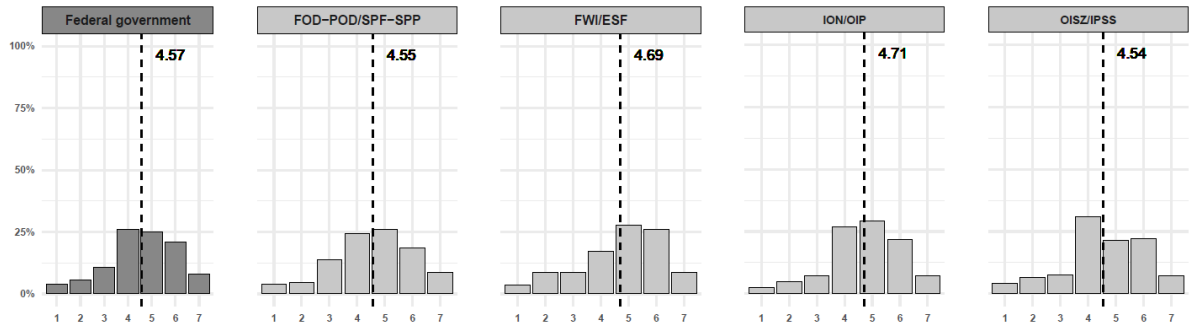

Figure 20. Satisfaction with innovations developed in the last three years fully within the own organization without input from other actors or collaboration with other parties outside of their organization

	N	Mean	Standard deviation	Minimum	Maximum
Total	529	4.57	1.47	1	7
FOD-POD/SPF-SPP	262	4.55	1.47	1	7
FWI/ESF	58	4.69	1.55	1	7
ION/OIP	41	4.71	1.37	1	7
OISZ/IPSS	168	4.54	1.48	1	7

Table 13. Descriptive results 'Satisfaction with innovations developed in the last three years fully within the own organization without input from other actors or collaboration with other parties outside of their organization'

With regard to the innovations developed *within their own organization, but inspired by input or innovations from other parties outside of their organization*; the results are similar. Figure 21 and table 14 shows that the minimum and maximum are 1 and 7 for all types of organizations. The total mean is slightly lower (4.38) indicating that actors are on average to a moderate extent satisfied with innovations that were developed within the own organization, but inspired by input or innovations from other organizations.

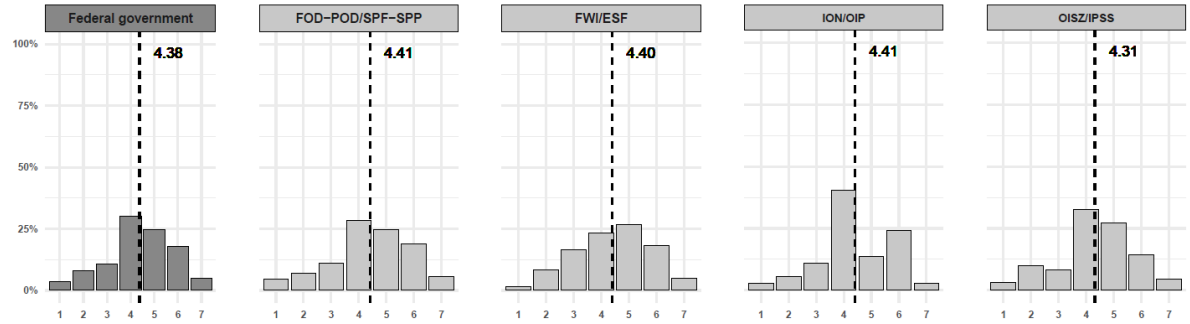

Figure 21. Satisfaction with innovations developed within the own organization, but inspired by input or innovations from other parties outside of their organization

	N	Mean	Standard deviation	Minimum	Maximum
Total	517	4.38	1.43	1	7
FOD-POD/SPF-SPP	261	4.41	1.47	1	7
FWI/ESF	60	4.40	1.41	1	7
ION/OIP	37	4.41	1.34	1	7
OISZ/IPSS	159	4.31	1.39	1	7

Table 14. Descriptive results 'Satisfaction with innovations developed within the own organization, but inspired by input or innovations from other parties outside of their organization'

The innovations *developed in active collaboration with other actors show similar means*. Figure 22 and table 15 shows that the total average is 4.42 which means satisfied to 'a moderate extent (4) to a rather high extent (5). More than half of the respondents report to be satisfied in a rather to very high extent. All the different types of organizations have similar means. The minimum and maximum scores are 1 to 7 for all organizations except for the IONs which has a minimum score or 2.

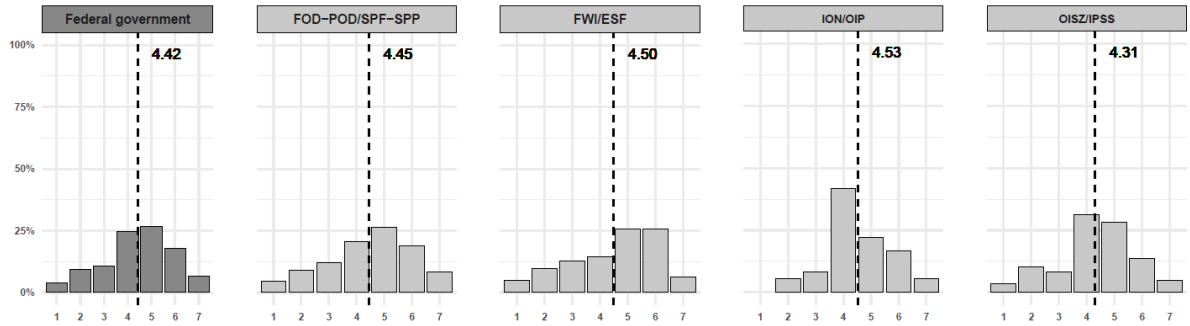

Figure 22. Satisfaction with innovations developed in active collaboration with other actors

	N	Mean	Standard deviation	Minimum	Maximum
Total	530	4.42	1.50	1	7
FOD-POD/SPF-SPP	265	4.45	1.57	1	7
FWI/ESF	62	4.50	1.62	1	7
ION/OIP	36	4.53	1.21	2	7
OISZ/IPSS	167	4.31	1.41	1	7

Table 15. Descriptive results 'Satisfaction with innovations developed in active collaboration with other actors'

Respondents are to 'a moderate' to ' to a rather high extent' satisfied with the developed innovations. They are slightly more satisfied with innovations that are entirely developed in their own organization.

3.4 Status of innovations

To examine whether the developed innovations did not remain a mere thinking exercise, but were actively put in practice, the respondents were asked two questions concerning the status of the innovations (which were developed in the last three years).

To what extent were these innovations…piloted or experimented in my own organization?

As can be seen in figure 22 and table 16 respondents score on average 4.42 on the piloting or experimentation of the innovations in the own organization, indicating that this happens for somewhat more than half of the developed innovations[10]. All types of organizations score below this total average, except for the OISZ/IPSS organizations which score 4.73, indicating that piloting or experimentation happens in the majority of the developed innovations. The ANOVA result shows that the means of the types of organizations are significantly different from each other. Furthermore, except for the ION/OIP, all the different types of organizations score the minimum and maximum score (1-7).

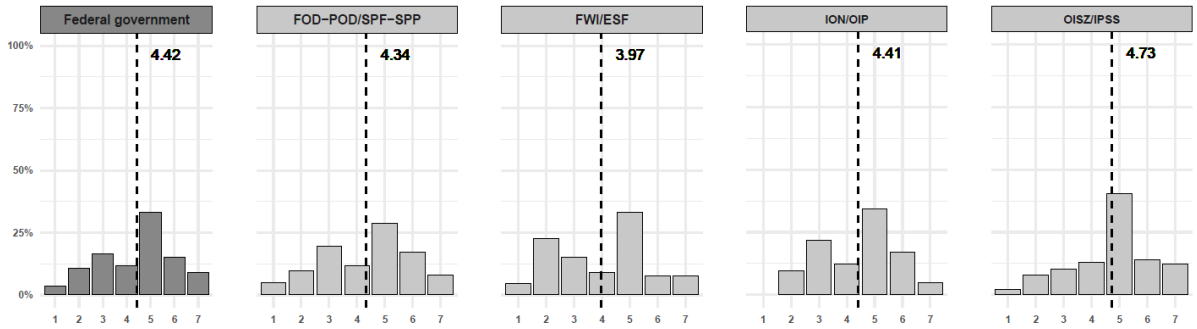

Figure 23. Piloting or experimentation in own organization

	N	Mean*	SD	Minimum	Maximum
Total	574	4.42	1.58	1	7
FOD-POD/SPF-SPP	289	4.34	1.62	1	7
FWI/ESF	66	3.97	1.68	1	7
ION/OIP	41	4.41	1.40	2	7
OISZ/IPSS	178	4.73	1.48	1	7

Table 16. Descriptive results 'Piloting or experimentation in own organization'

To what extent were these innovations…implemented by/in my own organization?

Presented in figure 24 and table 17 are the extent to which organizations implemented the innovation. The total average of the actual implementation is slightly higher having a score of 4.61, being close to score 5 meaning that implementation is done in the majority of the developed innovations. The means are all fairly close to the total mean which is also reflected in the fact that no significant difference is found between the means of the different types and sizes of the organizations. Again, except for the ION/OIP, all the different types of organizations score the minimum and maximum score (1-7). This type of organization also has the smallest standard deviation (1.20), which means that the answers are closest to its mean than in the other types organizations.

[10] 1= None of the innovations, 2= A very low amount of the innovations, 3= A low amount of the innovations, 4= Half of the innovations, 5= The majority of the innovations, 6= The vast majority of innovations, 7= All of the innovation

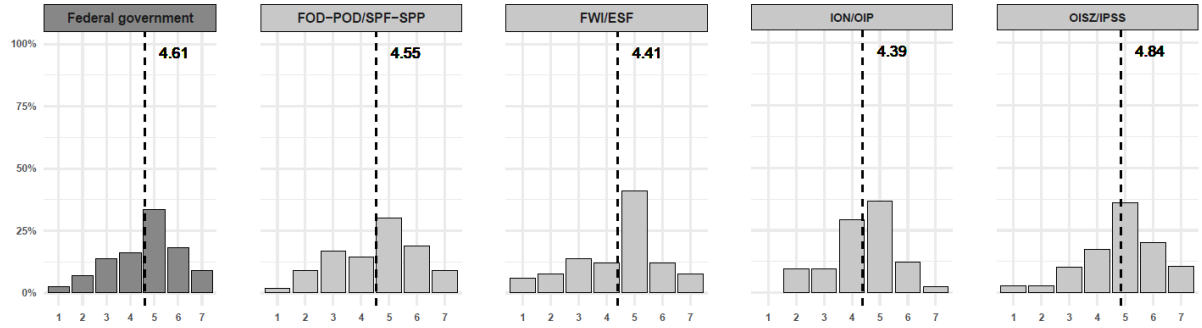

Figure 24. Implementation by/in own organization

	N	Mean	SD	Minimum	Maximum
Total	575	4.61	1.46	1	7
FOD-POD/SPF-SPP	290	4.55	1.50	1	7
FWI/ESF	66	4.41	1.56	1	7
ION/OIP	41	4.39	1.20	2	7
OISZ/IPSS	178	4.84	1.38	1	7

Table 17. Descriptive results 'Implementation by/in own organization'

On average, a little more than half of the developed innovations are actually implemented and experimented or piloted with.

Part Four: The effect of organizational culture and red tape on (collaborative) innovation

4.1.1 Organizational culture

As shown in table 18, the items on organizational culture load on two different factors. Only items with a factor loading > 0.50 were included for the construction of the resulting two constructs. This means that the item *'the organization is a very personal place'* is included in neither of the constructs. Factor 1 consists of the rational (externally focused and control-oriented with an emphasis on results), family (internally focused and flexible with an emphasis on trust and participation) and developmental culture (externally focused and flexible with an emphasis on creativity and improvement); meaning all three *non-administrative cultures* load on the same factor. Factor 2 refers to the *administrative culture*, a culture with an internal focus (versus external) and a preference for control (versus flexibility) where the emphasis is on stability. In the literature, an administrative culture is regarded as the least likely to foster (collaborative) innovation. Both factor 1 and factor 2 have a (rounded) Cronbach's alpha of 0.7 or above and are therefore internally consistent.

	Non-administrative culture (factor 1)	**Administrative culture (factor 2)**
The organization is a very personal place.	0.304	-0.277
The organization is a very dynamic entrepreneurial place.	0.745	-0.085
The organization is very result-oriented.	0.713	0.419
The organization is a very controlled and structured place.	-0.029	0.712
The glue that holds the organization together is loyalty and mutual trust.	0.681	-0.091
The glue that holds the organization together is commitment to innovation and development.	0.725	-0.051
The glue that holds the organization together is the emphasis on achievement and goal accomplishment.	0.732	0.421
The glue that holds the organization together is formal rules and policies.	0.211	0.670
Cronbach's alpha	**0.843**	**0.696**

Table 18. Construction of non-administrative organizational culture and administrative organizational culture

In terms of the presence of a *non-administrative culture,* close to 70% of the respondents see such an organizational culture being present in their organization in a rather to a very high extent. The mean score for the total group of organizations is 4,76. The four organizational types score somewhat differently, although this difference is not statistically significant (see table 19). For the FWI/ESF, the mean was 4.04 for the statements about a non-administrative culture; which means that this non-administrative culture is generally reported to be present 'to a moderate extent' in these organizations. The histograms also show that in the FWI/ESF this non-administrative culture is generally scored lower than in the other organizational types. For the other three organizational types, the mean value for the statements about a non-administrative culture are 4.65 to 5.11; values most closely related to '5 – true to a rather high extent'. The respondents of the OISZ/IPSS and the FOD-POD/SPF-SPP give more higher scores above '4'.

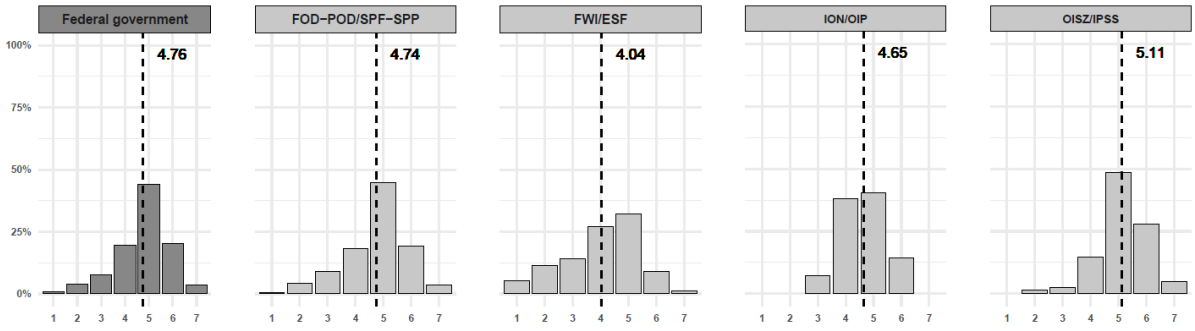

Figure 25. Non-administrative culture

Non-administrative culture	N	Mean	Standard deviation	Minimum	Maximum
Total	616	4.76	1.10	1	7
FOD-POD/SPF-SPP	305	4.74	1.10	1.20	7
FWI/ESF	78	4.04	1.34	1	6.80
ION/OIP	42	4.65	0.81	3	6.20
OISZ/IPSS	191	5.11	0.88	1.80	7

Table 19. Descriptive results non-administrative culture

The result of the administrative organizational culture is shown in figure 26 and table 20. With regard to the presence of an *administrative culture*, close to 50% of the respondents report such an administrative culture being present in their organization in a rather to a very high extent, meaning that although such a culture oriented towards internal control and formal rules and procedures is less present that a non-administrative culture, it is still very much prevalent. The mean of all organizations combined is 4.33. For FOD-POD/SPF-SPP and FWI-organizations the means are lower, 4.25 and 3.9 respectively. The ION/OIP and OISZ/IPSS score slightly higher: 4.76 and 4.53 respectively. The respondents of the ION/OIP gives more higher scores above '4'. The differences in means between the organizations are not significant here, however, neither is there a significant difference between the way organizations score on this factor when we take organizational size (small, medium, and large organizations) into account.

On average, across the federal organizations both a non-administrative and an administrative culture are to be found to a moderate or to a rather high extent, although not necessarily in the same organization. This holds for all types of organizations.

Lastly, it is notable that for both factors of organizational culture, there are strong differences between respondents as their answers range from '1 – not at all or to a very low extent' to '7 – completely or to a very high extent', with the exception of the ION-organizations where answers only range from '3 – to a rather low extent' to '6 – to a high extent'.

The results show that organizational culture is not an 'either or' matter. The presence of a rational, family or developmental culture in an organizational type (cf factor 1) does not coincide with a lesser presence of an administrative culture (cf factor 2). Both administrative and non-administrative cultures coexist within each organizational type.

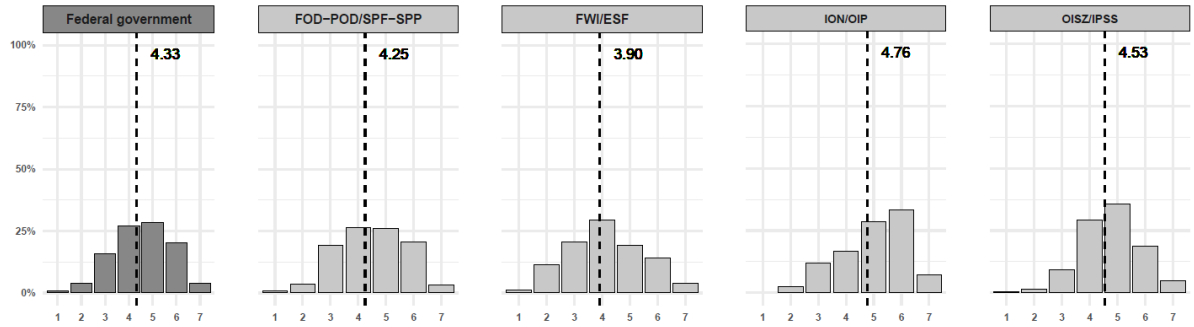

Figure 26. Administrative culture

Administrative culture	N	Mean	Standard deviation	Minimum	Maximum
Total	616	4.33	1.23	1	7
FOD-POD/SPF-SPP	305	4.25	1.24	1	7
FWI/ESF	78	3.90	1.38	1	7
ION/OIP	42	4.76	1.18	2	7
OISZ/IPSS	191	4.53	1.08	1	7

Table 20. Descriptive results administrative culture

4.1.2 Organizational red tape

The items on organizational red tape load on two different factors, as show in table 21. Again, items with a factor loading below 0.50 are not included in the construction of the concept. Here, there is a good internal consistency for factor 1, which includes items for communication red tape, procedure red tape and general red tape compliance burden. Factor 2 contains two items on budget red tape and for this factor the internal consistency is lower (Cronbach's alpha = 0.64).

	Factor 1	**Factor 2**
The rules with which I have to comply in core activities have a clear function for my job activities (reversed)	-.014	0.133
The rules with which I have to comply in core activities take a lot of my time to comply with	0.542	0.305
Even if an employee is a poor performer, formal rules make it difficult to remove him/her from the organization	0.095	0.269
The administrative procedures to arrange basic HR-issues (requesting vacation, arranging financial compensation for transport on the job, …) take a lot of time to comply with	0.350	0.171
Communication with other government bodies is restricted by procedures·	0.622	0.204
Procedural requirements make it difficult for me to obtain relevant information	0.730	0.216
The budgetary rules and procedures limit my ability to deal with unexpected program/project cost overruns	0.190	0.577
Rules and procedures limit my ability to reprogram funds in accordance with the mission of my organization/organizational division	0.313	0.708
Cronbach's alpha	***0.715***	***0.640***

Table 21. Construction of two factors of red tape

For factor 1, which refers to the non-budgetary red tape, the mean response to the items for all types of organizations is 3.58 (see figure 27 and table 22), with about half of the respondents reporting this to be present in a rather to a very low extent. There is no significant difference between the different types of organizations. On the contrary, with the averages per group ranging from 3.45 to 3.86 the average responses are very similar. There is also no significant difference between organizations on factor 1 based on organizational size. For all organizational types the range of responses is large. The organizational type with the smallest range is the ION/OIP with a range of 1.33 to 6.

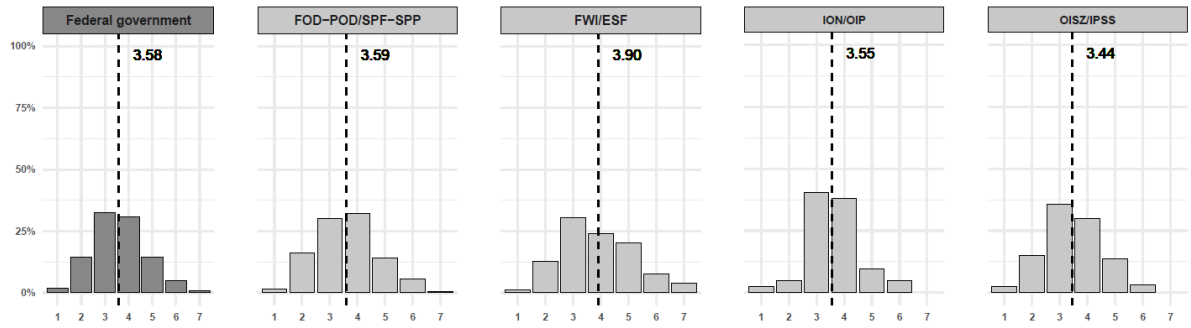

Figure 27. Red tape factor 1

Red tape factor 1	N	Mean	Standard deviation	Minimum	Maximum
Total	618	3.58	1.13	1	7
FOD-POD/SPF-SPP	306	3.58	1.13	1	6.67
FWI/ESF	79	3.86	1.30	1.33	7
ION/OIP	42	3.69	0.94	1.33	6
OISZ/IPSS	191	3.45	1.07	1	6.33

Table 22. Descriptive results red tape factor 1

For factor 2, which refers to the red tape in terms of budgetary management and which is clearly scored higher than the non-budgetary red tape, the mean for all organizations combined is 4.77 (see figure 28 and table 23). About 60% of the respondents report the budgetary red tape to be rather high to very high. For OISZ/IPSS, the average score on this factor is 4.35 while for FWI/ESF this is 5.28. The difference for this second red tape factor based on organizational types is statistically significant, with the budgetary red tape being lower in the OISZ/IPSS. Their legal form as a public law agency with their own governing board clearly gives them more budgetary flexibility compared to the other forms. The scientific institutions FWI/ESF have the highest degree of budgetary red tape. The differences for this factor based on organizational size are not significant, however. In terms of the range of replies, the organizational type with the smallest range is the ION-type organizations, with a range of 2-7.

The items on organizational red tape can be divided into two different factors. Higher scores are given to the second factor which refers to budgetary red tape. Whereas the non-budgetary red tape is on average present between a rather low and a moderate extent in all types of organizations, the budgetary red tape is scored higher, with the highest scores in the FWI/ESF. Comparatively, managers in the social security agencies report relatively the lowest levels of budgetary red tape, although still considerable in its presence.

Comparing factors 1 and 2, it is notable that factor 2 which refers to budgetary red tape has higher scores among respondents. This can be explained because many respondents (e.g. managers at the third highest hierarchical level) have little or no authority in budgetary matters.

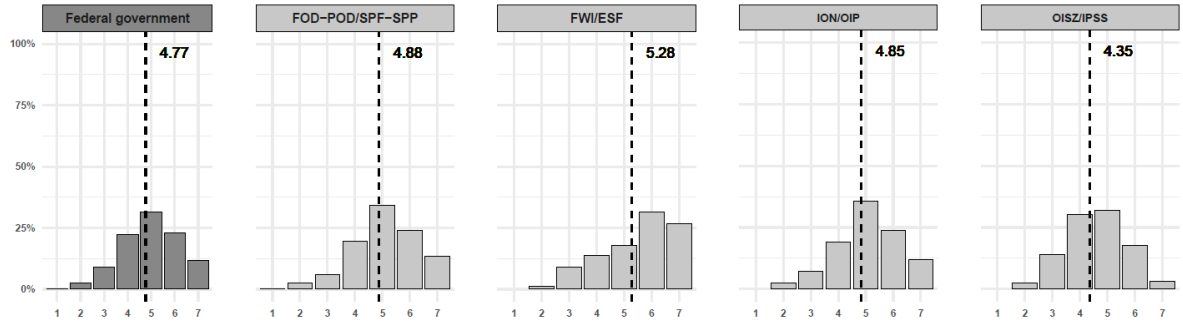

Figure 28. Red tape factor 2

Red tape factor 2	N	Mean*	Standard deviation	Minimum	Maximum
Total	617	4.77	1.22	1	7
FOD-POD/SPF-SPP	305	4.89	1.19	1	7
FWI/ESF	79	5.28	1.31	1.50	7
ION/OIP	42	4.45	1.16	2	7
OISZ/IPSS	191	4.35	1.11	1.50	7

Table 23. Descriptive results red tape factor 2

4.1.3 Collaborative red tape

The items on collaborative red tape load on one factor, with a very high internal consistency (Cronbach's alpha: 0.867). It is shown in table 24 that items loaded below 0.5 and therefore all items are included in the construction of the concept. When considering the total group of respondents, the mean is 4.01. Therefore the average response is very close to answering category 4. This means that rules which apply in the respondents' organization make it moderately hard to in engage in collaborations with other actors outside their organizations.

Items	Factor loading
Rules which apply for my organization make it hard in collaborations with the aim to develop and /or implement an innovation with other parties outside my organization to….	
…select the best partner for a project	0.723
…shut down a project early when it is failing	0.815
…provide flexibility to change partners during a project	0.822
…commit ourselves in a collaboration with other parties to perform certain actions	0.776
Cronbach's alpha	***0.867***

Table 24. Construction of collaborative red tape

ION/OIP report the highest level of collaborative red tape and OISZ/IPSS the lowest.

The difficulties in collaborations created by rules and procedures are not the same for all types of organizations. Comparing the types of organizations, there is a significant difference between the ION/OIP and the three other organizational types (see figure 24 and table 25). The mean score for the ION/OIP is 4.49; while the other organizational types had a mean score ranging from 3.81 to 4.07, meaning that on average ION/OIP report the highest level of cumbersome rules which makes collaboration more difficult. There is no significant difference between organizations, however, based on their size. In terms of the range of responses, all organizational types have a large range of responses, ranging from '1 – not at all or to a very low extent' to '7 – completely or to a very high extent'; with the exception of the ION/OIP where the responses ranged from 2 to 7 instead.

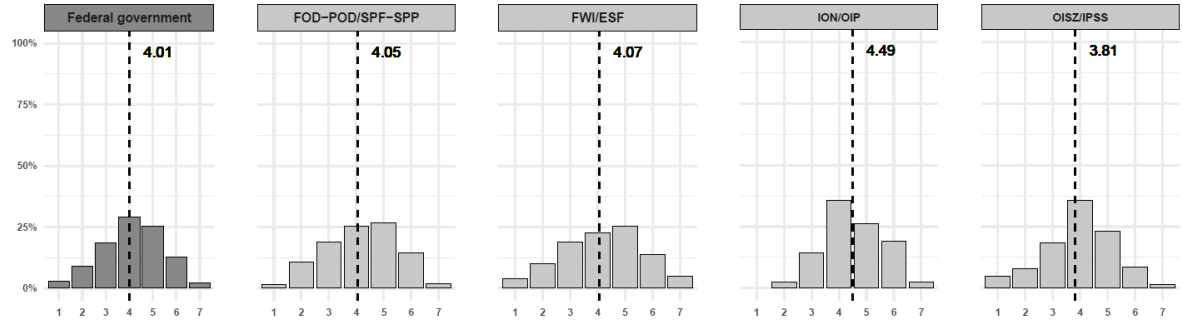

Figure 29. Collaborative red tape

	N	Mean*	Standard deviation	Minimum	Maximum
Total	613	4.01	1.30	1	7
FOD-POD/SPF-SPP	302	4.05	1.30	1	7
FWI/ESF	79	4.07	1.43	1	7
ION/OIP	42	4.49	1.13	2	7
OISZ/IPSS	190	3.81	1.24	1	7

Table 25. Descriptive results collaborative red tape

4.1.3 Commitment towards organization and stress

A last concept relating to the organizational environment is the commitment towards the organization and the degree to which the organization is a stressful place to work in.

This was measured with two single items of which the results are described below. Please note that these concepts and items are not used in the explanatory analyses.

-Employees in my organization lack organizational commitment. (reversed)

For methodological reasons, the answers to this question were reversed so they tell us something about organizational commitment, and not the lack of it. The results can be found in figure 30 and table 26 below.

Overall, the average with regard to organizational commitment is close to 5, meaning that respondents consider that employees have organizational commitment to "a rather high extent". More than 60% of the respondents report a rather high to a very high extent of organizational commitment in the federal organizations. There is no significant difference between types of organizations and all types of organization report close to ' a rather high extent of organizational commitment of employees'.

The range of response is similar to all types of organizations, and range from '1 – not at all or to a very low extent' to '7 – completely or to a very high extent'.

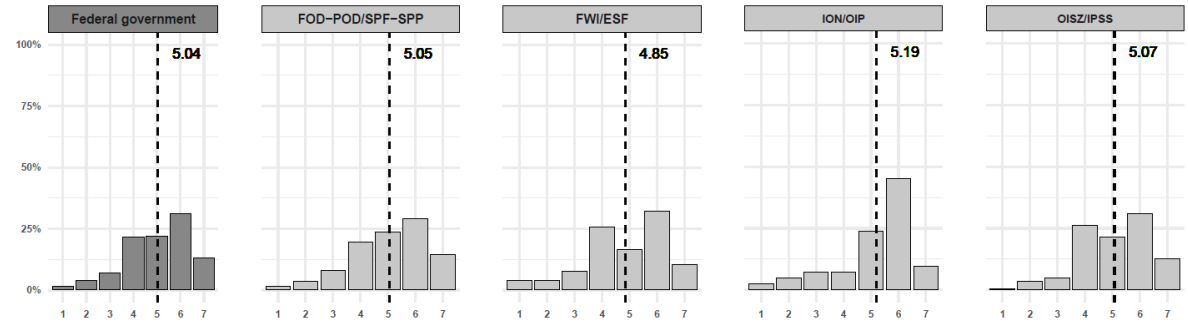

Figure 30. Organizational commitment

	N	Mean	Standard deviation	Minimum	Maximum
Total	616	5.04	1.39	1	7
FOD-POD/SPF-SPP	305	5.05	1.40	1	7
FWI/ESF	78	4.85	1.50	1	7
ION/OIP	42	5.19	1.42	1	7
OISZ/IPSS	191	5.07	1.30	1	7

Table 26. Descriptive results organizational commitment

-My organization is a stressful environment

As figure 31 and table 27 shows, the mean response for respondents across organizational types on stress is of 4.6. Overall, respondents perceive their organization as a stressful environment to "a rather high extent". Over half of the respondents report their organization as being a stressful environment in a rather to a very high extent.

There is a significant difference between types of organizations. The mean score of ION/OIP is substantially higher, with a value of 5.24. Respondents of this type of organization perceive a higher level of stress. The other types of organizations have a mean score ranging from 4.45 to 4.65. There is no significant difference between organizations based upon their size.

All types of organizations have a large range of responses, from '1 – not at all or to a very low extent' to '7 – completely or to a very high extent'. ION/OIP is the exception. Responses range from 2 to 7.

Over half of the federal respondents report their organization as being a stressful environment in a rather to a very high extent. Respondents of ION/OIP indicate that their organization is the most stressful one.

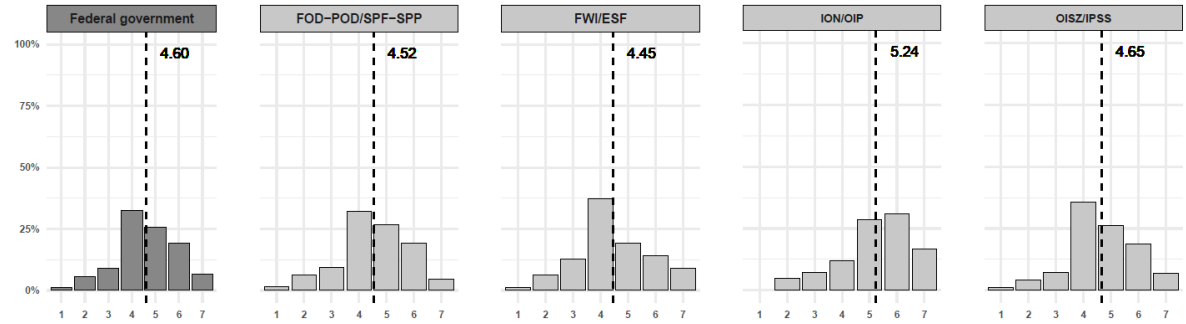

Figure 31. Organizational stress

	N	Mean*	Standard deviation	Minimum	Maximum
Total	616	4.60	1.30	1	7
FOD-POD/SPF-SPP	305	4.52	1.30	1	7
FWI/ESF	78	4.45	1.37	1	7
ION/OIP	42	5.24	1.34	2	7
OISZ/IPSS	191	4.65	1.24	1	7

Table 27. Descriptive results organization as stressful environment

4.2. The effects of organizational culture and red tape on (collaborative) innovation in the federal government

In the first part of this section, we discuss how the two variables related to organizational culture and the variables related to organizational and collaborative red tape influence several innovation-related outcomes on their own. In the second part of this section, we discuss whether these relations stay intact when they are tested in combined models.

4.2.1 The separate influence of organizational culture and red tape on innovation-related outcomes

Table 28 presents an overview of the conditions related to organizational culture and red tape that have a statistically significant, **isolated effect** on one or more of the innovation-related outcomes. Note that these models only contain one specific condition, but also control for all control variables and organizational dummies. In doing so, we get a first insight on how the isolated variable influences the innovation-related outcomes. Furthermore, the cells in table 28 only present the Beta-coefficient and a R^2-value (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 condition of interest has a significant influence on the outcome of interest.

A non-administrative oriented organizational culture is positively related with innovation-related outcomes

The first two independent variables in table 28 are those relating to organizational culture. The literature distinguishes between four types of organizational culture: an administrative culture, a rational culture, a family culture and a developmental culture. The variables are measured by giving the respondents items to score on a scale of 1 to 7. An example of such an item is "The organization is a very personal place (family culture)". For the analysis, we split the concept organizational culture in two, testing the effects of the presence of, on the one hand, an administrative culture, which emphasizes internal control and formal rules/procedures, and, on the other hand, the presence of non-administrative cultures emphasizing the achievement of objectives (rational culture), relationship building (family culture) and creativity (developmental culture). This division is based on the factor analysis that revealed two different organizational cultures in our data.

T**he degree to which an organization has a non-administrative culture centered around the achievement of objectives, relationship building or creativity has a significant, positive, isolated influence on the extent to which different policy, technological, service and processes innovations are developed in the organization** (when controlling for socio-demographics and organization dummies, but not including other independent variables). This effect is statistically significant at the level $< 0{,}001$ for all types of innovations. The effect of having an administrative culture which is focused on internal control and formal rules, on the type of innovation is however not significant. Having an administrative culture does not in itself influence the extent to which federal organizations develop innovations.

We find no significant relationship between the culture of an organization and the origin of innovations in the organization. **What we do find, however, is a statistically significant, positive relationship between a non-administrative culture and the level of satisfaction with innovations developed internally, with innovations developed internally but inspired by external contributions and with innovations developed in collaboration at level $p < 0{,}001$.** This means that employees in federal organizations which have a higher degree of non-administrative culture are, in general, more

satisfied with the innovations developed by the organizations (when not regarding other independent variables). The degree to which an organization has a non-administrative culture (together with the organizational dummies and socio-demographics as control variables) explains 22% to 24% of the satisfaction levels with innovations. Again, having a higher degree of an administrative culture is not related to the level of satisfaction with regards to the innovations developed. Finally, we find no significant relation between the culture of an organization and the status of innovation – that is the extent to which innovations were piloted or implemented by or within the organization.

The last three variables in table 28 are related to red tape, burdensome rules and procedures that negatively affect performance. For the analysis, we distinguish between organizational red tape in general, in personnel, communication, and information matters (Organizational red tape FA1), organizational red tape in budgetary matters (Organizational red tape FA2), and collaborative red tape, such as the inflexibility to adapt a collaborative project or change project partners. Red tape is measured by items that are scored from 1 to 7 by respondents.

Overall, we find **no significant relation between the level of organizational red tape or collaborative red tape in an organization, on the one hand; and the types of innovations, the origin of innovations, or the status of innovations on the other**. However, **we do find one significant, negative relationship between budgetary red tape and the satisfaction with innovations developed in collaborative arrangements.** Employees in federal organizations with a higher level of red tape in budgetary matters are less satisfied with the innovations developed in collaboration (when not regarding other variables) The level of red tape in budgetary matters (together with the organizational dummies and socio-demographics as control variables) explains 15% of the satisfaction level with regards to innovations developed in collaborative arrangement.

	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 that were internally developed	Innovations that were internally developed but inspired by external contributions	Innovations developed in collaborative arrangements	Satisfaction with innovations that were internally developed	Satisfaction with innovations that were internally developed but inspired by external contributions	Satisfaction with innovations that were developed in collaborative arrangements	Innovations have been experimented with	Innovations have been implemented already
Non-administrative oriented culture	0.35*** R^2=0.16	0.55*** R^2=0.21	0.53*** R^2=0.23	0.57*** R^2=0.23				0.55*** R^2=0.22	0.40*** R^2=0.24	0.58*** R^2=0.22	0.45*** R^2=0.15	0.40*** R^2=0.13
Administrative oriented culture												
Organizational red tape FA1												
Organizational red tape FA2 (budgetary red tape)										-0.22* R^2=0.15		
Collaborative red tape												

Note: Cells display beta-coefficients, significance level (***p < 0.001, **p < 0.01, *p < 0.05) and R^2-values for models that had an overall significant influence and wherein the variable of interest had a significant influence.

Table 28. Overview of culture and red tape variables that have a significant isolated effect on dependent variables

4.2.2 The combined influence of organizational culture and red tape on innovation-related outcomes

To determine whether some variables deserve more attention, we executed regression models with two or more independent variables with a similar conceptual background[11]. We did this to examine if the effects stay the same or if they disappear when they are taken together. Based on these analyses we can determine which effects are extra important. We hence inserted all organizational culture and red tape variables in a regression model with all control variables and organizational dummies.

The non-administrative culture remains the most important independent variable to explain the development of innovations. Controlling for the degree of administrative culture, the level of organizational red tape and the level of collaborative red tape, organizations with a higher degree of non-administrative culture develop to a higher extent any type of innovation. Also, respondents who work in an organization with a higher degree of non-administrative culture are more satisfied with the innovations developed inside the organization, internally developed but inspired by external contributions or in collaborative arrangements. Moreover, a non-administrative culture remains to have a positive effect on the experimentation and implementation. Thus, we see that **the positive, significant relations as found in the isolated models are maintained for 'non-administrative culture' in the combined models.**

4.2.3 Conclusion

The analysis shows that a **non-administrative culture positively influences the level of development of all types of innovations, satisfaction and experimentation or implementation with innovations**. This culture **emphasizes the achievement of results, relationship building or creativity, rather than emphasizing control and internal focus.**

Moreover, we do not find any prove that an administrative culture, which is centered on internal control and formal rules, negatively or positively influence the development, experimentation and/or implementation of innovations, nor the satisfaction with them. The same applies for organizational or collaborative red tape.

We find that budgetary red tape has a negative significant effect on the respondents' satisfaction of innovations that were developed in collaborative arrangements when this is tested in an isolated model.

[11] We decided not to include these tables because of their number and size. The full tables can be on request provided by the researchers.

Part Five: The effect of connective, learning and innovation capacities on (collaborative) innovation

5.1.1. Intra-organizational connective capacity

Intra-organizational connective capacity is the way to which an organization facilitates connecting with others within the own organization. It was measured by four items which all load on one factor have a score which is above .50 (see table 29). The Cronbach's alpha is 0.789 indicating an internally reliable scale. The total average of the answers is 3.90, indicating that respondents report this to be present to a moderate extent. Unlike many other concepts none of the 617 respondents answered 'to a very high extent or completely' (7) on all items. Therefore, none of the respondents scored the maximum score of 7 on this concept.

Items	**Factor loading**
- There are regular work-related social activities	0.538
- In our organization collaboration between different organizational divisions is stimulated	0.812
- There is sufficient opportunity for informal information exchange within our organization	0.769
- Our organization has systems or procedures to effectively share information and knowledge	0.668
Cronbach's alpha	***0.789***

Table 29. Construction of intra-organizational connective capacity

On average, intra-organizational connective capacities are reported to be present to a moderate extent within the Federal government. As can be seen in figure 32 and table 30, the mean of the types of organization shows that the FWI/ESF have a considerably lower mean than the other types of organizations. The mean of the FWI is 3.27 which is 0.57 points lower than the second lowest average. The ANOVA tests show that the means of the different types of organizations are statistically different from each other. As the ANOVA test only tests for a significant difference between the means of the groups without indicating which groups, it is not possible to say if the FWI is the group that is statistically different, but the descriptive results point in that direction. The OISZ/IPSS and FOD-POD/SPF-SPP report the highest average score in terms of intra-organizational connective capacity.

Intra-organizational connective capacities are not strongly developed. Large organizations have on average more intra-organizational connective capacity than small and middle-sized ones. The organizations with the lowest intra-organizational connective capacity on average are the FWI/ESF, the OISZ/IPSS and FOD-POD/SPF-SPP report the highest average level, albeit at a moderate level.

Next, the ANOVA test also indicates that the means of the different sizes of the organization are significantly different. The descriptive results show that especially the large organizations have a higher score on the scale, scoring 0.38 points higher than the second highest scoring size of organization.

The range of the responses is different for the type of organizations. Whereas the answers from FOD-POD/SPF-SPP range from 1 to 6.75 which are almost the extreme scores, the range of the ION/OIP is far smaller going from 1.50 (to a low extent) to 5.25 (to a rather high extent), with even the 1.50 score

being an outlier. Consequently, the standard deviation is considerably smaller (0.83) than the standard deviation of the other organizations.

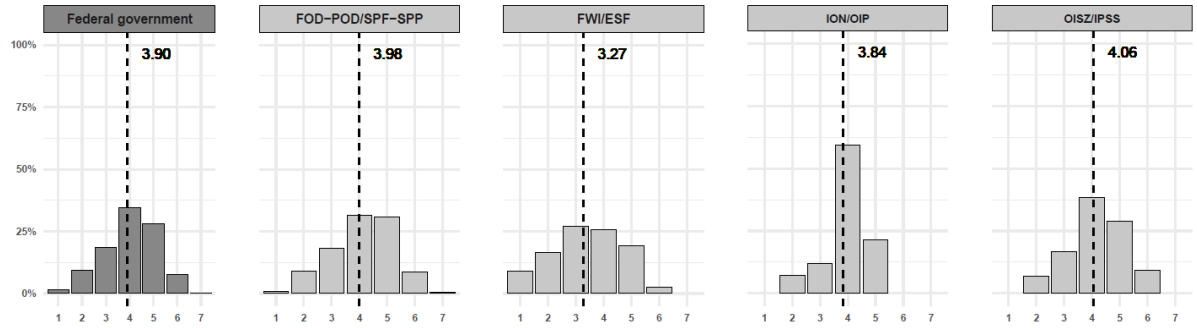

Figure 32. Intra-organizational connective capacity

	N	Mean*^[12]	Standard deviation	Minimum	Maximum
Total	617	3.90	1.11	1	6.75
FOD-POD/SPF-SPP	306	3.98	1.14	1	6.75
FWI/ESF	78	3.27	1.19	1	6
ION/OIP	42	3.84	0.83	1.50	5.25
OISZ/IPSS	191	4.06	1.00	1.50	6.25

Table 30. Descriptive results intra-organizational connective capacity

[12] Means: Small organization=3.66 ; mid-sized organization=3.68; large organization=4.06 ; total=3.90

5.1.2 Inter-organizational connective capacity

Inter-organizational connective capacity refers to the way to which an organization facilitates connecting with others outside the own organization. The items that were used to measure the inter-organizational connective capacity all load on one factor and together form a scale that is internally reliable with a Cronbach's alpha of 0.794 (see table 31). As figure 33 and table 32 show, the minimum score in all types of organizations is 1 which reflects the 'not at all or to a very low extent' -category, while the maximum score is different for the different types of organizations (5.33 for FWI/ESF and ION/OIP, and 6.77 for FOD-POD/SPF-SPP and OISZ/IPSS). Again, none of the respondents has a maximum score on this scale.

Items	**Factor loading**
There are policies and routines for management of collaborative arrangements and network activities (think of e.g. stakeholder management, strategic environment management)	0.778
There is training about how to act effectively in collaborative arrangements (e.g. negotiation, stakeholder analysis, environment management)	0.781
There are roles or functions for management of collaborative arrangements and network activities	0.696
Cronbach's alpha	***0.794***

Table 31. Construction of inter-organizational connective capacity

The total mean is 3.31 across the Federal organizations. As this is closest to 3 it shows that respondents on average indicate that the organizations in which they work score 'to a rather low extent' on inter-organizational connective capacity. Only about 25% of the respondents report these inter-organizational capacities to be present at a rather high to a very high extent. Overall, inter-organizational connective capacity are not developed well in the federal organizations. Especially the FWI/ESF score low on the scale with an average of only 2.51 out of 7, falling between the 'to a low extent' and 'to a rather low extent' category. This is also the type of organization that has the smallest range (1 to 5.33) (or: from 'not at all or to a very low extent' to ' to a rather high extent'). The average score is the highest for the FOD-POD/SPF-SPP and the OISZ/IPSS.

The means of the different types of organizations are significantly different from each other. This is also the case for the size of the organizations. The large organizations have higher inter-organizational connective capacity (3.48), than the mid-sized (3.15) and the small-sized organizations (2.78).

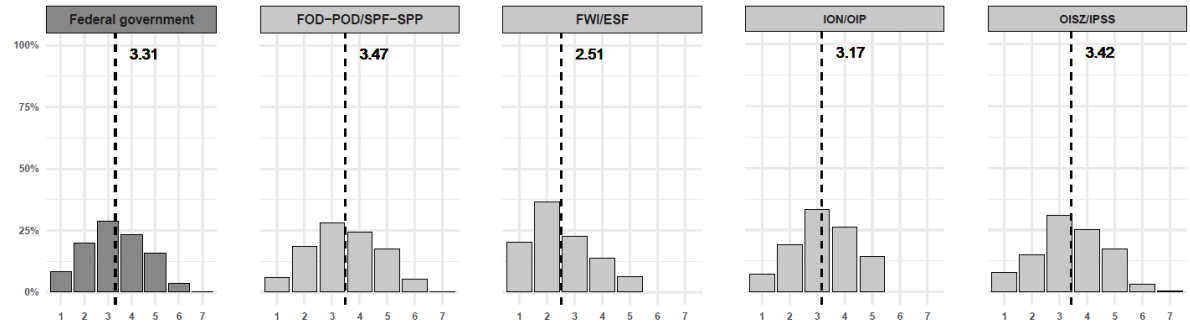

Figure 33. Inter-organizational connective capacity

	N	Mean*^[13]	Standard deviation	Minimum	Maximum
Total	618	3.31	1.26	1	6.67
FOD-POD/SPF-SPP	306	3.47	1.27	1	6.67
FWI/ESF	79	2.52	1.11	1	5.33
ION/OIP	42	3.17	1.07	1	5.33
OISZ/IPSS	191	3.42	1.21	1	6.67

Table 32. Descriptive results inter-organizational connective capacity

Overall, inter-organizational connective capacities in terms of functions, roles, policies and training for management of collaborative arrangements and network activities are not developed well in the federal organizations. Compared to the other types of capacities, the federal organizations score low on inter-organizational connective capacity. Especially respondents from small-sized organizations and FWI/ESF indicate that their organization has lower levels of inter-organizational capacity. The average score is the highest for the FOD-POD/SPF-SPP and the OISZ/IPSS, but also for these types the average score is still rather low.

[13] Means: Small organization=2.76 ; mid-sized organization=3.15 ;large organization=3.48 ; total=3.31

5.1.3 Individual connective capacity

Individual connective capacity is the extent to which an organization has staff members who are proficient in connecting with others, in terms of connecting interests, ideas, policy areas and disciplines, as well as build trusting relations with other actors. The four items to measure individual connective capacity all load on the same factor and have a high internal reliability with a Cronbach's alpha of 0.894 (see table 33). As shown in figure 34 and table 34, the total mean is 3.91 which is about the same as the mean of the individual connective capacity and indicates that respondents report this capacity to be present at a moderate extent. The range of the scores is from 1 to 7 . This means that some respondents answered the absolute minimum, -not at all or to a very low extent-, on all four items and some respondents answered the absolute maximum, very high extent or completely' on all items.

Items	**Factor loading**
We have staff (e.g. project leaders, program managers) who can connect different ideas, policy areas and disciplines	0.715
We have staff (e.g. project leaders, program managers) who can effectively build and maintain trusting relations with other parties outside our organization	0.922
We have staff (e.g. project leaders, program managers) who can connect interests of different parties	0.889
We have staff (e.g. project leaders, program managers) with much experience in effectively working across organizational boundaries	0.776
Cronbach's alpha	0.894

Table 33. Construction of individual connective capacity

In both FOD/POD and FWI/ESF are respondents who score a 1 and respondents who score a 7. This is also reflected in the standard deviation which is highest for these two types of organizations (1.40 and 1.53). Contrary, the ION/OIP show scores that range from 1.75 to 5.50 and having the lowest standard deviation of all the types of organizations (1.04). However, the mean score is 3.80 which is in line with the mean score of the other types of organizations and is reflected best by the 'to a moderate extent' category.

No significant differences were found between the means of the different types of organizations making this the only type of 'connective capacity' where the means of the organization type are not significantly different from each other. This is also the case for the size of the organization. No significant differences between the mean were found.

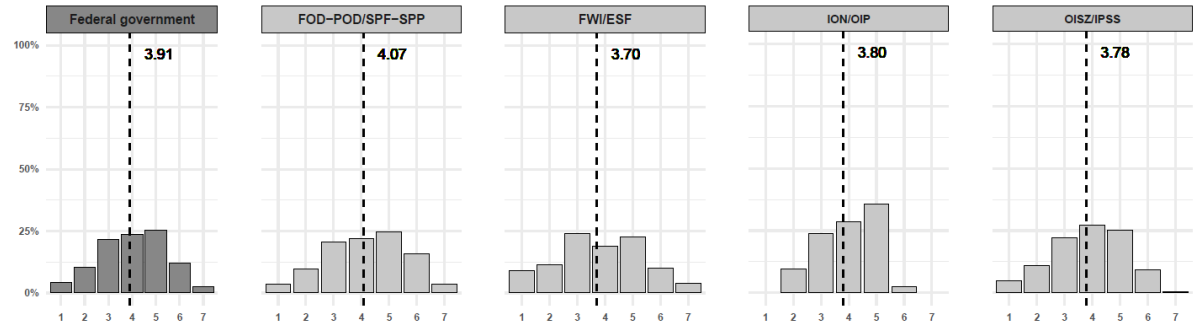

Figure 34. Individual connective capacity

	N	Mean	Standard deviation	Minimum	Maximum
Total	618	3.91	1.37	1	7
FOD-POD/SPF-SPP	306	4.07	1.40	1	7
FWI/ESF	79	3.70	1.53	1	7
ION/OIP	42	3.80	1.04	1.75	5.50
OISZ/IPSS	191	3.78	1.27	1	6.50

Table 34. Descriptive results individual connective capacity

All types of federal organizations have rather similar average scores on individual connective capacity. Respondents report that individual connective capacities are to a moderate extent present in their organization. A minority of respondents report these capacities to be present in a rather high to a very high extent.

5.1.4 Intra-organizational learning capacity

Intra-organizational learning is the extent to which the organization facilitates learning *within* the organization through learning procedures and practices. It was measured with three items that together form an internally reliable scale of 0.807, as can be seen in table 35. The minimum and maximum ranges from 'not at all or to a very low extent' (1) to 'to a very high extent or completely' (7), but there are considerable differences between the types of organizations. Again, the range of the ION/OIP is smallest with score 2 to 5.22 ('to a low extent' to 'to a rather high extent'). See figure 35 and table 36 for the full results.

Items	**Factor loadings**
Our policies and routines are regularly adjusted to new insights or techniques	0.784
There are routines (e.g. like in planning cycles) to reflect on what new insights and knowledge mean for the organization	0.803
My organization learns optimally from my experiences	0.703
Cronbach's alpha	***0.807***

Table 35. Construction of intra-organizational learning capacity

The mean is 3.81 of the total sample, which is closest to the 'to a moderate extent' category. Only the OISZ/IPSS score higher than the total mean (4.18). The ANOVA shows that the means of the different types of organizations are significantly different from each other. Especially the mean of the FWI/ESF (3.18) is lower compared to the means of the other organizations (3.77, 3.64, 4.18). The means of the different sizes of organization are significantly different from each other as well (Small organization = 3.54 ; mid-sized organization = 3.64 ; large organization = 3.94). Especially the respondents of large organizations perceive that their organization has more intra-organizational learning capacity (mean: 3.94) than respondents from small (mean: 3.54) and mid-sized (mean: 3.64) organizations.

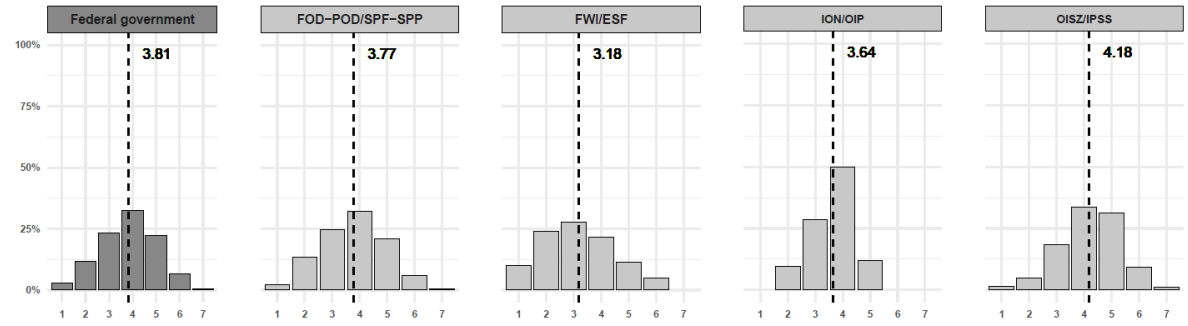

Figure 35. Intra-organizational learning capacity

	N	**Mean*^[14]**	**Standard deviation**	**Minimum**	**Maximum**
Total	618	3.81	1.19	1	7
FOD-POD/SPF-SPP	306	3.77	1.18	1	7
FWI/ESF	79	3.18	1.33	1	6
ION/OIP	42	3.64	0.83	2	5.33
OISZ/IPSS	191	4.18	1.10	1	7

Table 36. Descriptive results intra-organizational learning capacity

[14] Means: Small organization=3.54 ; mid-sized organization=3.64 ; large organization=3.94 ; total=3.81

5.1.5 Inter-organizational learning capacity

Inter-organizational learning is the extent to which the organization learns *from parties outside of the own organization* through joint experimenting and joint learning practices. The scale to measure inter-organizational learning consists of three items that together form a reliable scale with a Cronbach's alpha of 0.884 (see table 37).

Items	Factor loadings
My organization stimulates joint learning with and from other parties outside our organization	0.797
We use pilots and experiments to test new solutions with other parties outside our organization	0.816
My organization learns from the collaboration with other parties	0.934
Cronbach's alpha	***0.884***

Table 37. Construction of inter-organizational learning capacity

Looking at figure 36 and table 38 we see a largely similar pattern here compared to the scores for intra-organizational learning. Again, the minimum and maximum ranges from 'not at all or to a very low extent' to 'to a very high extent or completely', and again there are considerable differences between the means of the types of organizations. The range of the ION/OIP is smallest with score 1.33 to 5.67 ('Not at all or to a low extent' to 'to a high extent') which is a larger range than for intra-organizational learning capacity, but still it is the smallest range.

Both the capacity to learn within organizations and between organizations is not that strongly developed in the federal organizations, but only to a moderate extent. Especially large organizations and OISZ/IPSS possess relatively high levels of both intra-organizational and inter-organizational capacities of learning (present to a moderate extent), whereas FWI/ESF score on average relatively lowest on these capacities.

The total mean score is 4.02, indicating that respondents on average report this capacity to be present to a moderate extent. The mean of the FWI/ESF is lowest (3.41), but this type of organization has again the highest standard deviation, indicating that perceptions about the inter-organizational learning capacity of the organization are less unanimous than in other types of organizations. The means are significantly different for the types of organization as for the size of the organizations. Again the respondents from large organizations perceive a higher inter-organizational learning capacity from their organization (mean: 4.15) than respondents from small (mean: 3.96) and mid-sized (mean: 3.80) organizations.

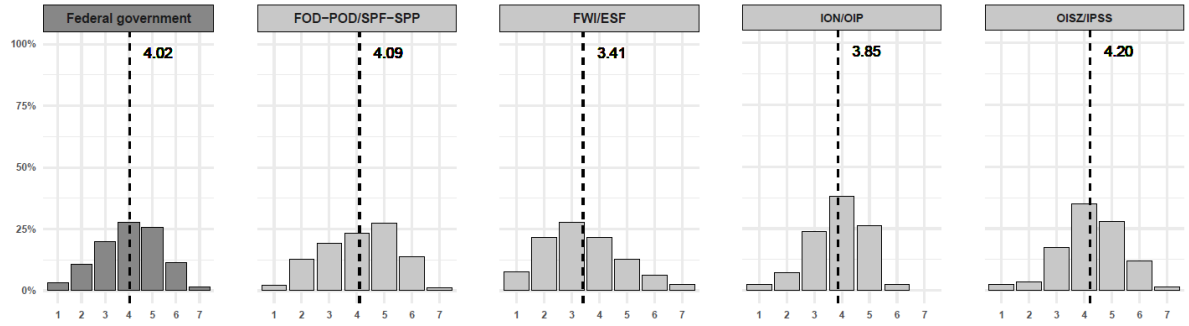

Figure 36. Inter-organizational learning capacity

	N	Mean*^ [15]	Standard deviation	Minimum	Maximum
Total	618	4.02	1.29	1	7
FOD-POD/SPF-SPP	306	4.10	1.31	1	7
FWI/ESF	79	3.41	1.43	1	7
ION/OIP	42	3.85	1.00	1.33	5.67
OISZ/IPSS	191	4.20	1.16	1	7

Table 38. Descriptive results inter-organizational learning capacity

5.1.6 Innovation capacity (processes)

The innovation capacity refers to the ability to innovate, while maintaining the other recurrent operations which are needed to fulfill the organizations' mandate. The innovation capacity in terms of processes in terms of plans, policies and procedures for innovation, was measured with three items that load on the same factor and have a high Cronbach's alpha of 0.867 as can be found in table 39 below.

Items	Factor loadings
Innovation is part of our plans at the level of the organization, organizational divisions or staff	0.749
We have clear policies and procedures for innovation	0.893
Regular and innovation processes are well connected in our organization	0.852
Cronbach's alpha	***0.867***

Table 39.Construction of innovation capacity (processes)

As shown in figure 37 and table 40, the total mean is 3.77, indicating that respondents on average answer closest to the 'to a moderate extent' answer category. However, looking at the different types of organizations we see that the means of different types of organizations are significantly different from each other. The difference is most clear between the FWI and the OISZ/IPSS. FWI has a mean score of 3.18 which indicates that respondents report these capacities to be present to 'a rather low extent' , while OISZ/IPSS scores on average almost 1 entire point higher (4.13) meaning that actors report this to be present to a moderate extent. This means that respondents in FWI refer to their organizations as having considerably less innovation capacity in terms of processes than respondents working in OISZ/IPSS do. The FOD-POD/SPF-SPP and ION/OIP are in between these values with means of 3.71 and 3.67.

Only a significant difference between the means of the types of organization was found. The size of the organization is not a factor that is associated with the value of the mean.

[15] Means: small organization = 3.96; mid-sized organization = 3.80; large organization = 4.15; total = 4.02

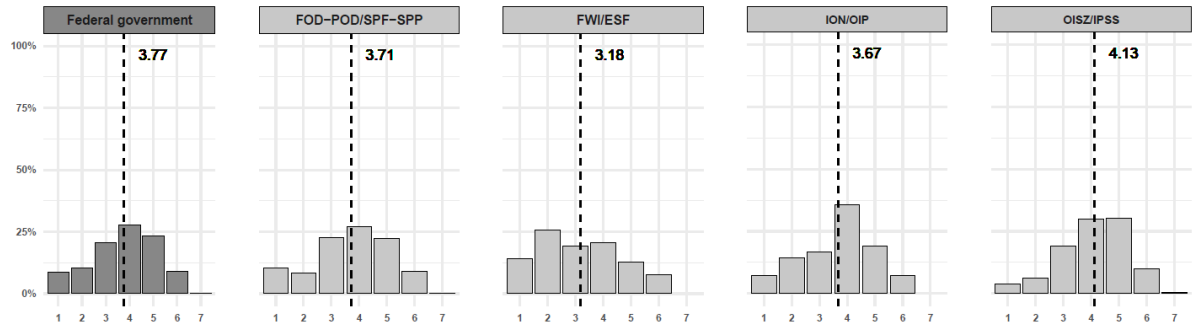

Figure 37. Innovation capacity (processes)

	N	Mean*	Standard deviation	Minimum	Maximum
Total	612	3.77	1.38	1	7
FOD-POD/SPF-SPP	304	3.71	1.40	1	7
FWI/ESF	78	3.18	1.49	1	6.33
ION/OIP	42	3.67	1.30	1	6.33
OISZ/IPSS	188	4.13	1.21	1	7

Table 40. Descriptive results innovation capacity (processes)

5.1.7 Innovation capacity (resources)

Next to the innovation capacity concerning processes, we also asked respondents to the innovation capacity in terms of available resources in their organization(al) unit. The four items to measure this forms a reliable scale with all factor loading above 0.50 and a Cronbach's alpha of 0.797.

Items	Factor loadings
Our human resources management (HRM) values innovativeness of the employees (in selection, training, career support, personnel evaluation)	0.730
Resources (money/time) are allocated well to regular tasks and innovation	0.865
ICT and new technologies are a strong enabler for innovation	0.629
There are enough resources (money/time) for innovation	0.614
Cronbach's alpha	***0.797***

Table 41. Construction of innovation capacity (resources)

Both the innovation capacities in terms of processes (plans, policies and procedures) and resources for innovation are not that strongly developed in the Federal government; on average they are present in a rather low to a moderate extent. OISZ/IPSS score on both types of innovation capacities (resources and processes) relatively the highest, but even in these organizations, only about 40% of the respondents report these capacities to be present in a rather high to a very high extent. Innovation capacities in terms of resources is relatively less present, compared to innovation in terms of processes.

The total mean is 3.41 which is closest to the 'to a rather low extent' category. Interestingly three of the four types of organizations have a mean that is lower than the total mean (FOD-POD/SPF-SPP: 3.29; FWI.ESF: 2.94; ION/OIP: 3.28). Yet, they are still closest to the 'to a rather low extent' category. The mean of the IOSZ/IPSS is with 3.81 closer to the 'to a moderate extent' answer category. This mean is 0.87 points higher than the FWI mean, implying that the respondents of IOSZ/IPSS experience quite some more innovation capacity concerning resources than FWI/ESF does. The difference between the groups is reflected in the significant difference in the means of the

types of organizations. Again, the size of the organization is no factor for determining the difference in means.

Next we see in table 42 that all types of organizations have, unlike innovation capacity concerning processes, standard deviations lower than 1. This indicates that the answers of respondents are more in accordance with each when it comes to the resources to innovate than when it comes to the processes to innovate. This also translates into the higher minimum score (1.25 compared to 1) and the lower maximum score (6.25 compared to 7) of 'resources' compared to 'processes'.

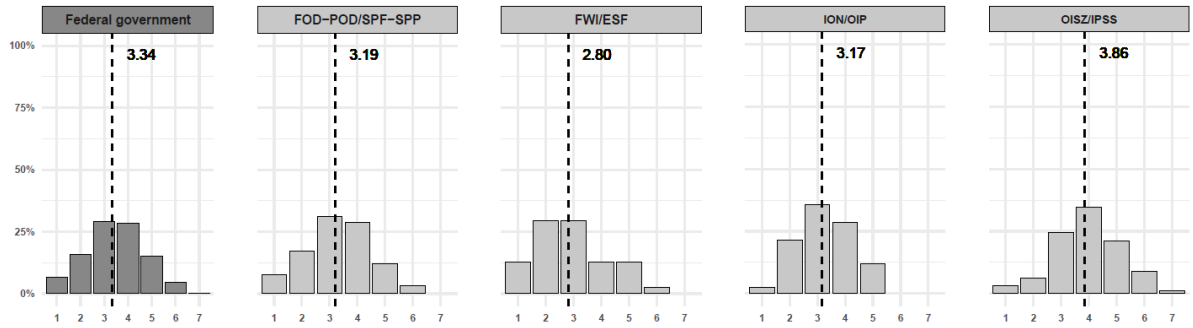

Figure 38.Innovation capacity (resources)

	N	Mean*	Standard deviation	Minimum	Maximum
Total	618	3.41	0.98	1.25	6.25
FOD-POD/SPF-SPP	306	3.29	0.96	1.25	5.50
FWI/ESF	79	2.94	0.96	1.25	5.50
ION/OIP	42	3.28	0.79	1.50	4.75
OISZ/IPSS	191	3.81	0.92	1.25	6.25

Table 42. Descriptive results innovation capacity (resources)

5.1.8 Attitude of the supervisor towards collaboration and innovation

The attitude of the superior or minister towards collaboration and innovation was measured with the two items as shown in table 43. For this concept we were interested in the person that is hierarchically above the respondent. This means that we asked for the attitude of the superior in case the respondent is a manager at the N2 or the N3 level of the organization, and for the attitude of the responsible minister when the respondent is a manager at the N1 level because he or she is already at the top level of the organization and thus has no managerial superior. The two items form an internally reliable scale of 0.926.

Items	**Factor loadings**
My superior/minister stimulates collaboration with other parties outside our organization	0.928
My superior/minister encourages innovation and creativity	0.928
Cronbach's alpha	***0.926***

Table 43. Construction of attitude of the superior towards collaboration and innovation

Figure 39 and table 44 show the descriptive results of the construct. On average the respondents indicate that the superior/minister has to rather high extent a positive attitude towards innovation and collaboration. Especially high score the OISZ/IPSS with a score of 4.85. FWI/ESF score lowest with 4.21, indicating 'to a moderate extent'. The results also show that the means of the different organizations are significantly different from each other.

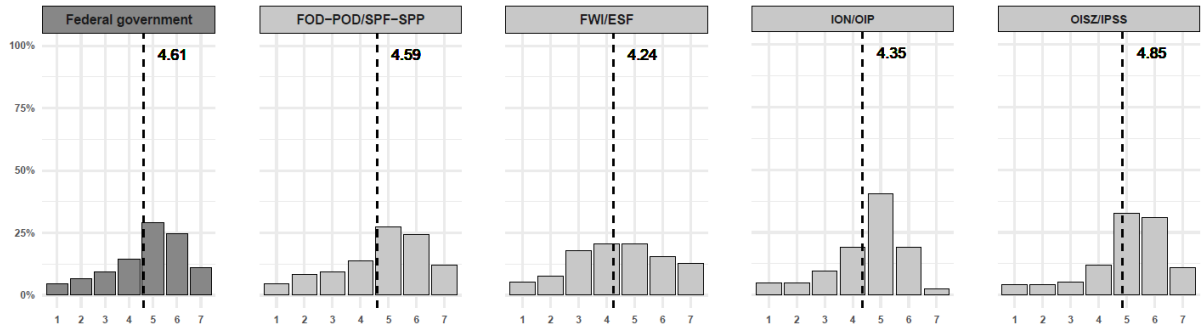

Figure 39. Attitude of the superior towards collaboration and innovation

	N	Mean*	Standard deviation	Minimum	Maximum
Total	616	4.61	1.57	1	7
FOD-POD/SPF-SPP	305	4.59	1.70	1	7
FWI/ESF	83	4.24	1.61	1	7
ION/OIP	42	4.35	1.34	1	7
OISZ/IPSS	191	4.85	1.46	1	7

Table 44. Descriptive results attitude of the superior towards collaboration and innovation

5.1.9 Attitude of the respondent towards collaboration

The attitude of the respondents towards the collaboration was measured by the following item: *I think collaboration across organizational boundaries is cumbersome*

Respondents in federal organizations report on average that their superior stimulates collaboration and innovation in a moderate to a rather high extent, and moreover they themselves perceive collaboration across organizational boundaries rather positively.

We reversed the answers on this items so a higher score means a more positive attitude towards collaboration. Looking at the answers in figure 40 and table 45 we see that the total mean is 4.77, indicating that respondents argue that collaboration across organizational boundaries is to a rather high extent. The answers of the different types of organizations is relatively similar ranging from 4.57 to 4.97, which all indicates 'to a rather high extent'. Noteworthy is that ION/OIP and OISZ/IPSS have the same mean score. The difference in their responses lies in the higher standard deviation of OISZ/IPSS (1.52 versus 1.21) and the fact that no one of ION/OIP filled in the minimum score.

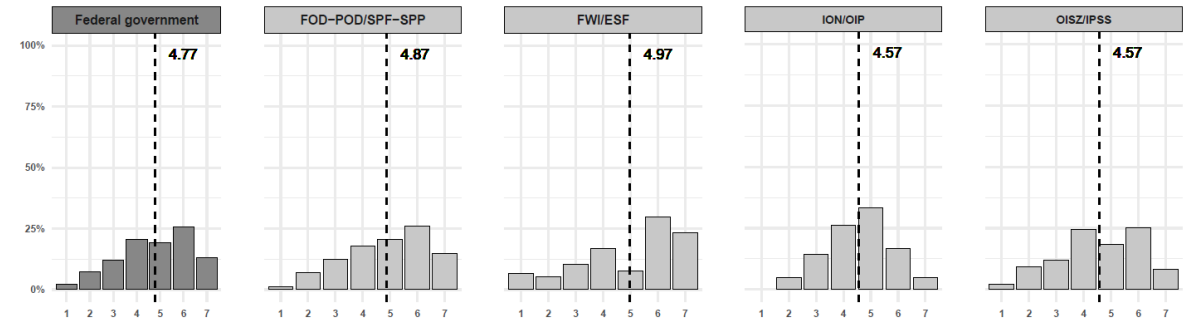

Figure 40. I think collaboration across organizational boundaries is cumbersome (reversed scores)

	N	Mean	Standard deviation	Minimum	Maximum
Total	616	4.77	1.56	1	7
FOD-POD/SPF-SPP	306	4.87	1.53	1	7
FWI/ESF	77	4.97	1.84	1	7
ION/OIP	42	4.57	1.21	2	7
OISZ/IPSS	191	4.57	1.52	1	7

Table 45. Descriptive results 'I think collaboration across organizational boundaries is cumbersome' (reversed scores)

5.2. The effects of connective, learning and innovation capacities on (collaborative) innovation in the federal government

In the first part of this section, we discuss how connective, learning and innovation capacities of organizations influence several innovation-related outcomes. Next, we discuss to what extent these relations are maintained in combined models.

5.2.1 The isolated influence of connective, learning and innovation capacities on innovation-related outcomes

Table 46 presents an overview of the capacities that appear to have a statistically significant, isolated effect on one or more of the innovation-related outcomes. Again, note that these models only contain one specific capacity as independent variable, but also control for all control variables and organizational dummies. Furthermore, the cells in Table 46 only present the Beta coefficient of the independent variable as well as the R^2-value (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.

The results show that the **different connective, learning and innovation capacities have without exception an individual, positive effect on the extent to which federal organizations develop policy, technological, service and process innovations**. The results are rather similar for the reported satisfaction with the innovations. All capacities have individually a positive effect on the level of satisfaction with innovations developed internally, inspired by others or developed in collaborative arrangements.

Interesting to see is that the capacities have almost no significant result with the origin of the innovations. **We only see a negative, statistically significant effect of individual connective capacity** (at level $p < 0.01$) **and inter-organizational learning capacity** (at level $p < 0.05$) **on the share of innovations which are developed fully within the own organization**. This effect might be explained by the fact that organizations with those capacities are less directed towards the internal development of innovation.

Reminder
Connective capacities refer to organizational processes, training or resources facilitating exchange between different actors within the organizations (intra-organizational), between organizations (inter-organizational) and the presence of staff able to build trusting relationships between actors and link their ideas and interests (individual).
Learning capacities refer to processes allowing the organizations to adjust existing practices in light of new insights within the organization (intra-organizational) or the capacity to experiment and learn from other organizations (inter-organizational).
Innovation capacities refer to the ability in terms of processes (plans, policies and procedures) as well as resources to innovate, while maintaining the other recurrent operations which are needed to fulfill the organizations' mandate.

With regards to the status of innovation, we see that none of the connective capacities influence the extent to which innovations are experimented with or implemented. **Learning capacities as well as innovative capacities have, on the contrary, a positive influence on the extent to which innovations are experimented with**, at level $p < 0.001$. The explained variance lies between $R^2 = 0.12$ (inter organizational learning capacity) and $R^2 = 0.15$ (innovative processes capacity). This indicates that the higher the presence of these capacities leads to more experimentation of innovations. **The extent to**

which an innovation is implemented is, in turn, individually, positively influenced by intra-organizational learning capacity and innovation capacity in terms of processes, at level p <0.001.

Furthermore, **the attitude of the minister or the superior towards collaboration and innovation also shows significant relations**. The extent to which the direct superior of the respondent[16] stimulates innovation/creativity and collaboration with other organizations positively influences the development of innovations. There is also a positive effect of the attitude of the superior concerning collaboration and innovation on the level of satisfaction with innovations. Finally, a positive attitude of the superior concerning collaboration and innovation also individually positively influence the extent to which a federal organization experiment with innovations.

[16] This is the minister in case of respondents of N 1-level and the direct supervisor in case of respondents of level N-2 and N-3.

	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 that were internally developed	Innovations that were internally developed but inspired by external contributions	Innovations developed in collaborative arrangements	Satisfaction with innovations that were internally developed	Satisfaction with innovations that were internally developed but inspired by external contributions	Satisfaction with innovations that were developed in collaborative arrangements	Innovations have been experimented with	Innovations have been implemented already
Connective intra-organizational	0.29** R^2=0.15	0.43*** R^2=0.19	0.40*** R^2=0.21	0.43*** R^2=0.20				0.50*** R^2=0.21	0.35*** R^2=0.23	0.41*** R^2=0.18		
Connective inter-organizational	0.40*** R^2=0.17	0.52*** R^2=0.21	0.49*** R^2=0.23	0.49*** R^2=0.21				0.21* R^2=0.16	0.32*** R^2=0.22	0.42*** R^2=0.19		
Connective individual	0.49*** R^2=0.20	0.46*** R^2=0.21	0.52*** R^2=0.25	0.49*** R^2=0.22	-4.30** R^2=0.16			0.30*** R^2=0.17	0.44*** R^2=0.26	0.52*** R^2=0.22		
Learning intra-organizational	0.56*** R^2=0.20	0.67*** R^2=0.25	0.65*** R^2=0.26	0.70*** R^2=0.27				0.52*** R^2=0.21	0.47*** R^2=0.26	0.60*** R^2=0.23	0.41*** R^2=0.14	0.33*** R^2=0.12
Learning inter-organizational	0.48*** R^2=0.19	0.55*** R^2=0.23	0.47*** R^2=0.23	0.51*** R^2=0.22	-3.61* R^2=0.16			0.47*** R^2=0.21	0.43*** R^2=0.25	0.50*** R^2=0.21	0.29*** R^2=0.12	
Innovation processes	0.68*** R^2=0.24	0.70*** R^2=0.27	0.68*** R^2=0.28	0.62*** R^2=0.26				0.53*** R^2=0.22	0.35*** R^2=0.23	0.48*** R^2=0.20	0.45*** R^2=0.15	0.39*** R^2=0.14
Innovation resources	0.51*** R^2=0.19	0.69*** R^2=0.25	0.64*** R^2=0.26	0.53*** R^2=0.22				0.41*** R^2=0.20	0.48*** R^2=0.26	0.45*** R^2=0.20	0.40*** R^2=0.14	
Attitude of superior ((minister in case of respondents of N-level and direct supervisor for respondents of level N-1 and N-2)	0.46*** R^2=0.18	0.39*** R^2=0.19	0.41*** R^2=0.22	0.50*** R^2=0.22				0.37*** R^2=0.19	0.33*** R^2=0.23	0.38*** R^2=0.18	0.37*** R^2=0.13	

Attitude of the respondent with respect to collaboration												
Note: Cells display beta-coefficients, significance level (***p < 0.001, **p < 0.01, *p < 0.05) and R^2-values for models that had an overall significant influence and wherein the variable of interest had a significant influence.												

Table 46. Overview of capacity-related variables with a significant isolated effect

5.2.2 The combined influence of connective, learning and innovation capacities on innovation-related outcomes

Again, we executed regression models with two or more independent variables with a similar conceptual background to test if the isolated relations remain significant. That way we can determine which capacities deserves extra attention in explaining what determines innovation.

The results suggest that the presence of all connective, learning and innovation capacities are still particularly important for the development of the different types of innovations. Some effects disappear in interaction with other capacities, but that does not mean that they are not important for explaining the developed innovations. Yet, we want to **give special attention to innovation capacity concerning processes as this concept is the only type of capacity that remains to have a significant effect on the development of all types of innovation.**

The determinants for the origin of the innovations remain largely the same. Especially federal organizations possessing connective individual capacities tend to focus less on developing innovations fully within their own organizations.

Concerning the **satisfaction of the developed innovations developed in the own organization** extra attention should be paid to **intra-organizational connective capacity and innovation capacity concerning processes**. These two concepts remain to have a significant positive relation with the satisfaction with innovations that were fully developed in the own organization. Interestingly, inter-organizational connective capacity has a significant negative relation.

Moreover, **innovation capacity concerning resources** and **individual connective capacity** still leads to more satisfaction with innovations that were internally developed but inspired by external contributions. The latter also remains to have a significant relation with satisfaction with innovations that were developed in collaborative arrangements, **just like intra-organizational learning capacity has.**

Furthermore, the **significant relation between innovation capacity concerning processes and experimentation and implementation of innovations remain present** in a combined model with all different capacities.

Lastly, the positive effects of the stimulating attitude of the supervisor towards the innovation related outcomes remain intact when they are placed in a model together with the attitude of the respondent.

5.2.3 Conclusion

As expected, having connective, learning, and innovation capacities in federal organizations contributes to the development of all types of innovations as well as satisfaction with these innovations, regardless of their origin. Interestingly, these capacities have hardly an effect on the way these innovations are established. In line with what can be expected is that learning and innovation capacities are related to experimentation with the developed innovation. **Intra-organizational learning capacity and innovation capacities concerning processes are positively related to the actual implementation of the innovation.** This indicates that the organization must be able to stimulate learning within the own organization and needs to have processes for innovation (plans, policies and procedures for innovation) without blocking the regular activities of the organization in order to implement the developed innovation.

Aside from the different capacities, we found that the attitude of the supervisor towards innovation and collaboration is a good, positive indicator for the development of all types of innovation, the satisfaction with them and the experimentation with them.

Special attention must be paid to several relations that also proved to be significant in combined models with other variables. We want to stress however that all the significant relations in the isolated models are important, but that some deserve a bit more attention. **Especially the innovation capacity concerning processes is important here. It turns out to be a good predictor for the development of innovations, as this positively influences the development of all types of innovations as well as their experimentation and implementation.** Also the attitude of the supervisor towards the innovation remains a good predictor for the development of all types of innovations, the satisfaction with them and the amount of experimentation.

Part Six: The effect of working through collaborative arrangements on (collaborative) innovation

6.1. Working in collaborative arrangements with external actors in the Federal government

6.1.1 Collaboration to innovate and collaboration for other purposes

Respondents were asked to what extent their organization collaborated with parties outside of their organization in the last three years in collaborative arrangements which at a certain point have the aim to develop and/or implement new services, technologies, processes or policies.

The value of the average response to this question is 4.15 as can be seen in figure 41. This value is most closely linked to answering category 4: 'to a moderate extent'. Less than half of the respondents report such collaborations for innovation to be practiced in a rather high to very high extent. The answers do not differ significantly among different organizational types. For OISZ/IPSS the average response was lowest (3.93) and for FOD-POD/SPF-SPP the average response was highest (4.15), indicating that they report collaborating the most (see table 47). There was no significant difference in response in terms of organizational size either. The response range for this question was large, showing very different collaboration practices within and across organizations.

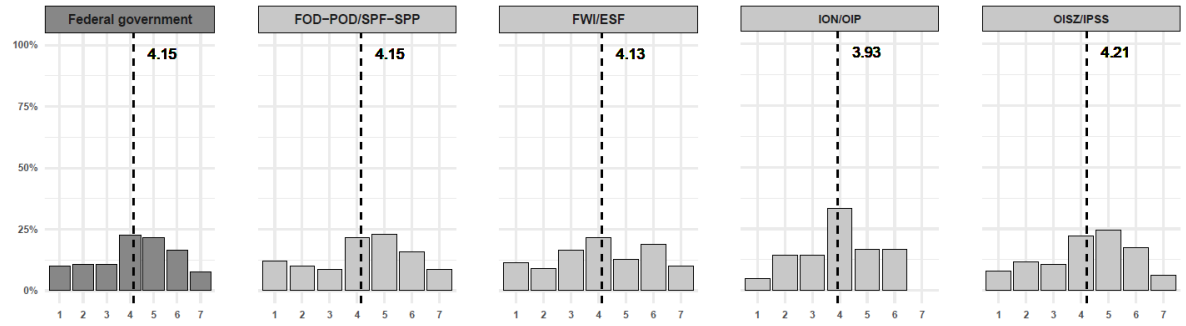

Figure 41. Collaboration with the aim to innovate

	N	Mean	Standard deviation	Minimum	Maximum
Total	618	4.15	1.73	1	7
FOD-POD/SPF-SPP	306	4.15	1.79	1	7
FWI/ESF	79	4.13	1.84	1	7
ION/OIP	42	3.93	1.42	1	6
OISZ/IPSS	191	4.21	1.66	1	7

Table 47. Descriptive results collaboration with the aim to innovate

To the question to what extent a respondent's organization collaborated with parties outside of their organization in the last three years in collaborations with other purposes than innovation, the average response value is 3.95. See figure 42 and table 48 for the full results. This means that organizations appear to

On average federal organizations engage in collaborations, aimed at collaboration, to a moderate extent, and this holds for all types of organizations. Respondents indicate that their organization(al unit) collaborates more often with the aim to develop an innovation than they do for other purposes. Again the engagement in such collaborations differs substantially between, but also within organizations.

collaborate slightly more with the aim to innovate than for other reasons.

The average response among the different organizational type ranges from 3.79 for OISZ/IPSS to 4.38 for ION/OIP. Yet although ION/OIP thus report on average to collaborate more with outsiders in collaborations with other purposes than innovation, this difference in organizational types is not significant. Neither is the difference with regard to organizational size in this respect. The range of replies among all organizational types is large for this question, going from 1 to 7.

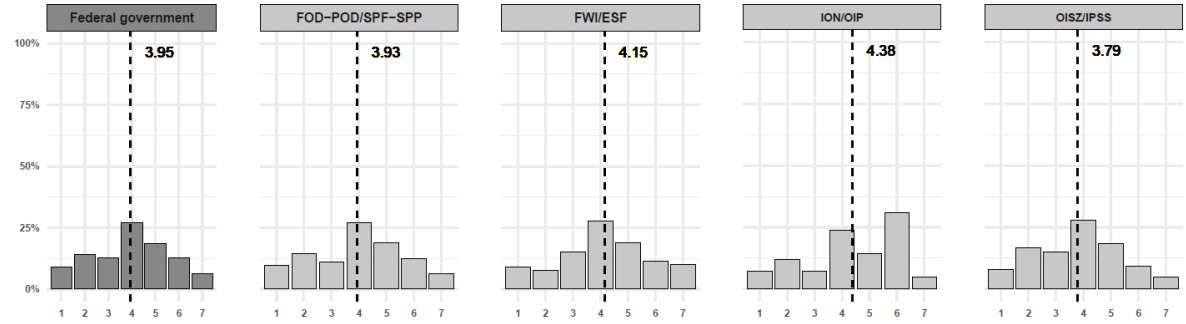

Figure 42. Collaboration with other purposes

	N	Mean	Standard deviation	Minimum	Maximum
Total	618	3.95	1.65	1	7
FOD-POD/SPF-SPP	306	3.93	1.68	1	7
FWI/ESF	79	4.15	1.68	1	7
ION/OIP	42	4.38	1.71	1	7
OISZ/IPSS	191	3.79	1.58	1	7

Table 48. Descriptive results collaboration for other purposes

6.1.2 Size of collaborations

To the question to what extent a respondent's organization collaborates/collaborated with the aim to develop and/or implement an innovation in the last three years in small-sized collaborations with four or less other parties, the average response is 4.11. This value is most closely related to answering category '4': to a moderate extent.

The average response among the different organizational type ranges from 3.93 for OISZ/IPSS to 4.41 for FWI/ESF (see figure 44 and table 49). Yet although FWI-organizations thus appear to collaborate slightly more in small configurations, this difference in organizational types is not significant. Neither is the difference with regard to organizational size in this respect. The range of replies among all organizational types is large for this question, going from 1 to 7.

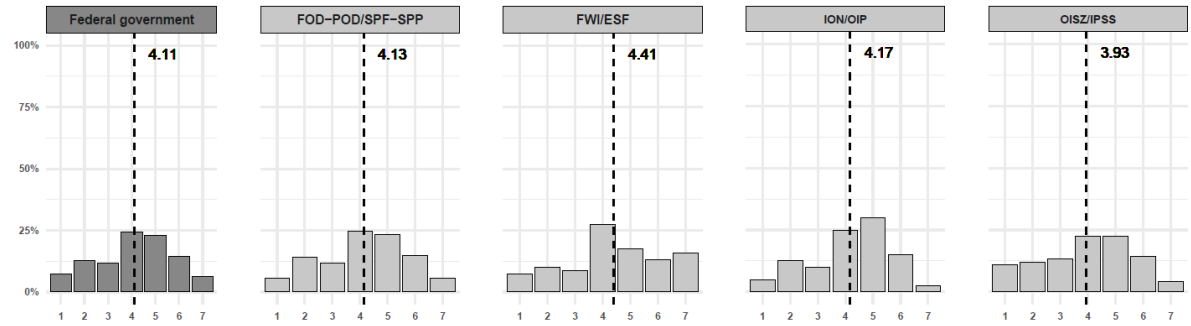

Figure 43. Collaboration in small-sized arrangements

	N	Mean	Standard deviation	Minimum	Maximum
Total	551	4.11	1.63	1	7
FOD-POD/SPF-SPP	269	4.13	1.58	1	7
FWI/ESF	69	4.41	1.78	1	7
ION/OIP	40	4.18	1.48	1	7
OISZ/IPSS	173	3.93	1.67	1	7

Table 49. Descriptive results collaboration in small-sized arrangements

To the question to what extent a respondent's organization collaborates/collaborated with the aim to develop and/or implement an innovation in the last three years in large-sized collaborations with five or more other parties, the average response is 3.64. This indicates that organizations appear to collaborate to a slightly higher extent in small-size collaborations. The average response among the different organizational type ranges from 3.34 for FWI/ESF to 3.72 for FOD-POD/SPF-SPP. Hence there is barely any difference in average response among the different types of organizations. Neither is there a significant difference with regard to organizational size in this respect. The range of replies among all organizational types is large for this question, going from 1 to 7 (see figure 45 and table 50).

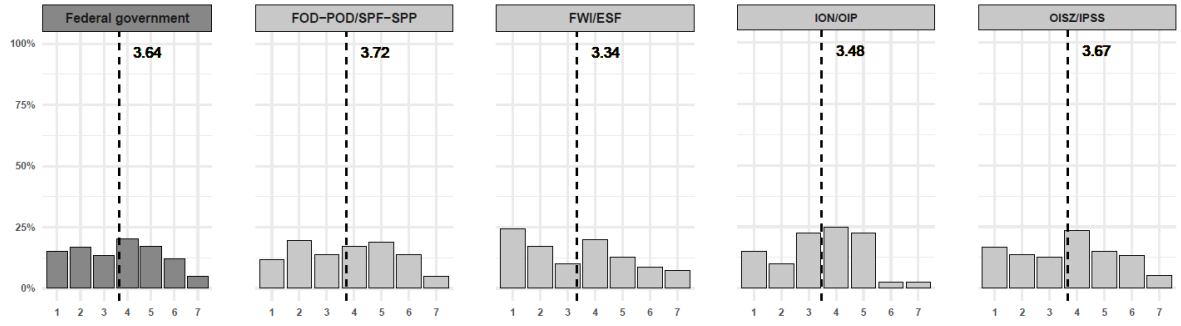

Figure 44. Collaboration in large-sized arrangements

	N	Mean	SD	Minimum	Maximum
Total	553	3.64	1.78	1	7
FOD-POD/SPF-SPP	269	3.72	1.76	1	7
FWI/ESF	70	3.34	1.93	1	7
ION/OIP	40	3.48	1.52	1	7
OISZ/IPSS	174	3.67	1.80	1	7

Table 50. Descriptive results collaboration in large-sized arrangements

Federal organizations engage on average relatively more in small-sized collaborations compared to large-sized collaborations to develop innovations.

6.1.3 Type of actors with whom there is collaboration for innovation

6.1.3.1 Other federal ministries or agencies in the same policy area, to which we belong

Respondents were asked to indicate to what extent their organization collaborated with others to develop and/or implement an innovation in the last 3 years. The results are shown in figure 46 and table 51. With regard to collaborations with other federal ministries or agencies in the same policy area, their average response ranges from 4.06 (FWI/ESF) to 4.52 (OISZ/IPSS) with an average of 4.36 across all organizational types ('to a moderate extent'). Over half of the respondents of the OISZ/IPSS and the FOD-POD/SPF-SPP report that their organization(al unit) collaborates with other federal ministries and agencies in the same policy area in a rather high to very high extent.

Over half of the respondents of the OISZ/IPSS and the FOD-POD/SPF-SPP report that their organization(al unit) collaborates with other federal ministries and agencies in the same policy area in a rather high to very high extent.

The differences among organizations taking into account their type or size is not significant.

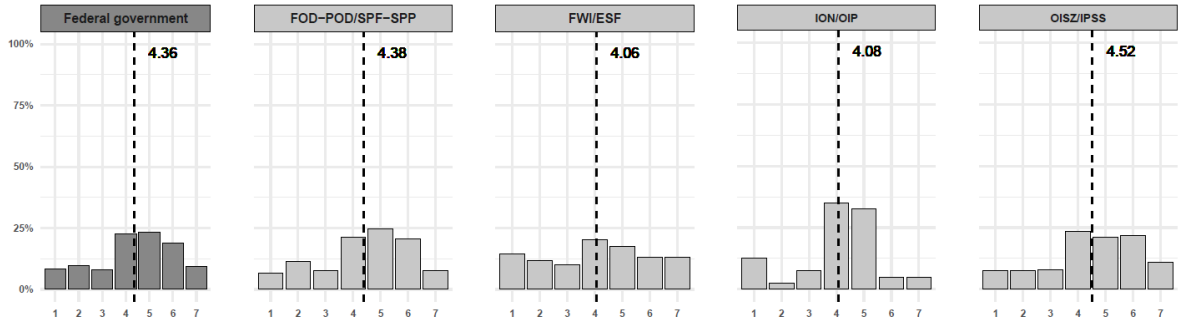

Figure 45. Collaboration with other federal ministries or agencies in the same policy area, to which we belong

	N	Mean	Standard deviation	Minimum	Maximum
Total	553	4.36	1.703	1	7
FOD-POD/SPF-SPP	269	4.38	1.67	1	7
FWI/ESF	69	4.06	1.95	1	7
ION/OIP	40	4.08	1.53	1	7
OISZ/IPSS	175	4.52	1.69	1	7

Table 51. Descriptive results 'Collaboration with other federal ministries or agencies in the same policy area, to which we belong'

6.1.3.2 Other organizations in the federal government which belong to other policy areas

Collaborations with other bodies in the federal government which belong to other policy areas that of the respondent's organization appear to be considerably less common, the average response to this question ranges from 3.21 (OISZ/IPSS) to 3.8 (FOD-POD/SPF-SPP) with an average of 3.5 across all organizational types (between 'to a rather low extent' and 'to a moderate extent'). See figure 47 and table 52 for the full results. Here, while the difference between organizational types is significant, the difference between organizations in terms of size is not.

The FOD-POD/SPF-SPP report the highest level of collaborations with other federal bodies which belong to other policy areas, albeit that they engage in such collaborations on average

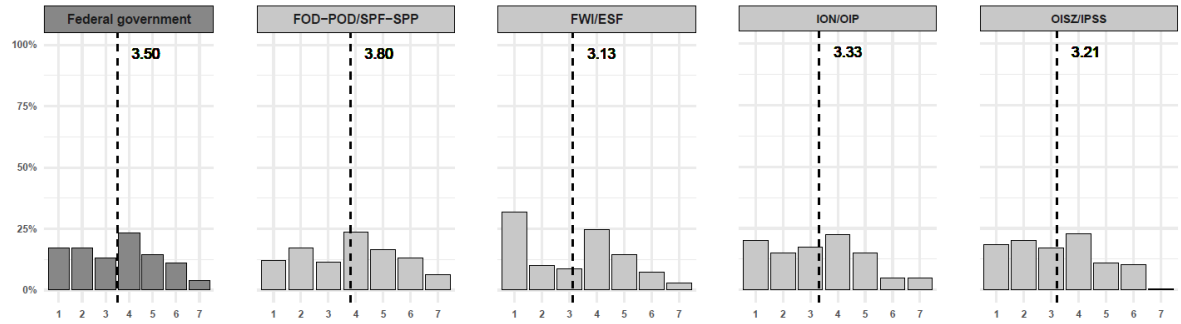

Figure 46. Collaboration with other organizations in the federal government which belong to other policy areas

	N	Mean*	Standard deviation	Minimum	Maximum
Total	551	3.50	1.74	1	7
FOD-POD/SPF-SPP	267	3.80	1.77	1	7
FWI/ESF	69	3.13	1.83	1	7
ION/OIP	40	3.33	1.73	1	7
OISZ/IPSS	175	3.21	1.61	1	7

Table 52. Descriptive results 'Collaboration with other organizations in the federal government which belong to other policy areas'

6.1.3.3 Knowledge institutions and research institutions

Collaborations with knowledge and research institutions in order to develop and/or implement an innovation in the last 3 years appear to be less common than collaborations with other public organizations in the federal government; on average such collaborations only happen to a rather low extent. This can be seen in figure 48 and table 53. The average response to this collaboration question differs strongly and significantly among the different types of organizations, however, from 2.21 (OISZ/IPSS) to 4.80 (FWI/ESF) with an average of 3.05 across all organizational types. This type of collaboration is far more common in FWI/ESF, the federal scientific institutions, because of joint research projects. The average response of FWI/ESF is most closely linked to answer category 5 'to a rather high extent'. FWI/ESF as scientific institutions do indeed much of their work in collaboration with universities. On the other hand the OISZ/IPSS only collaborate with knowledge and research institutions to a limited extent. There are also strong differences with regard to organizational size. This type of collaboration is most common in small organizations (average: 4.00) compared to mid-sized organizations (3.02)

The FWI/ESF report the highest level of collaborations with knowledge and research institutions, but for the federal organizations such collaborations only occur to a (rather) low extent.

and large organizations (2.93). This means that small organizations on average report this type of collaboration with knowledge institutions and research institutions happen(s)(ed) 'to a moderate extent', while the average responses for large and mid-sized organizations are most closely linked to answering category 3: 'to a rather low extent'.

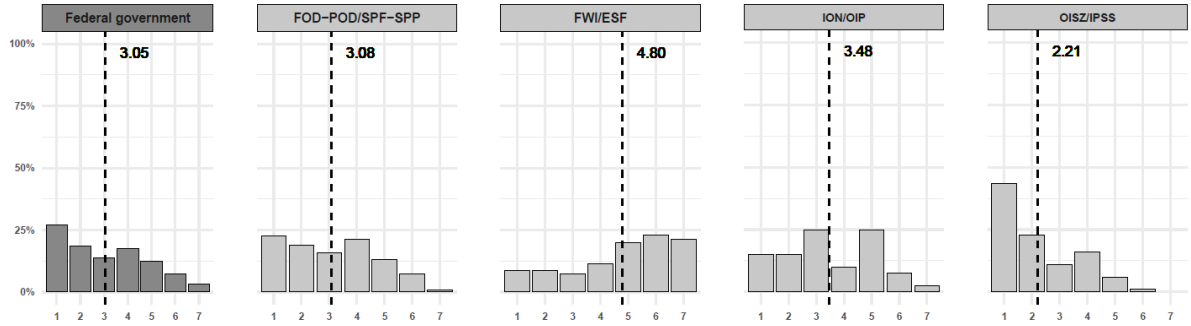

Figure 47. Collaboration with knowledge institutions and research institutions

	N	Mean*^[17]	Standard deviation	Minimum	Maximum
Total	554	3.05	1.77	1	7
FOD-POD/SPF-SPP	269	3.08	1.62	1	7
FWI/ESF	70	4.80	1.91	1	7
ION/OIP	40	3.48	1.66	1	7
OISZ/IPSS	175	2.21	1.36	1	6

Table 53. Descriptive results 'Collaboration with knowledge institutions and research institutions'

6.1.3.4 Governmental organizations at regional, provincial or local levels of government

When it comes to collaborating with governmental organizations at regional, provincial or local levels of government to develop and/or implement an innovation in the last 3 years, the average response ranges from 2.70 (OISZ/IPSS) to 3.39 (FOD-POD/SPF-SPP) with a mean of 3.06 across all organizational types. So, overall collaboration with other governmental levels within Belgium (including the regional level) is (rather) limited. Here the difference between organizational types is significant, the difference between organizations in terms of size is not.

In general collaboration with public organizations at other levels of government is (rather) limited, with FWI/ESF and the FOD/POD/SPF-SPP collaborating the most with such bodies, and the OISZ/IPSS the least.

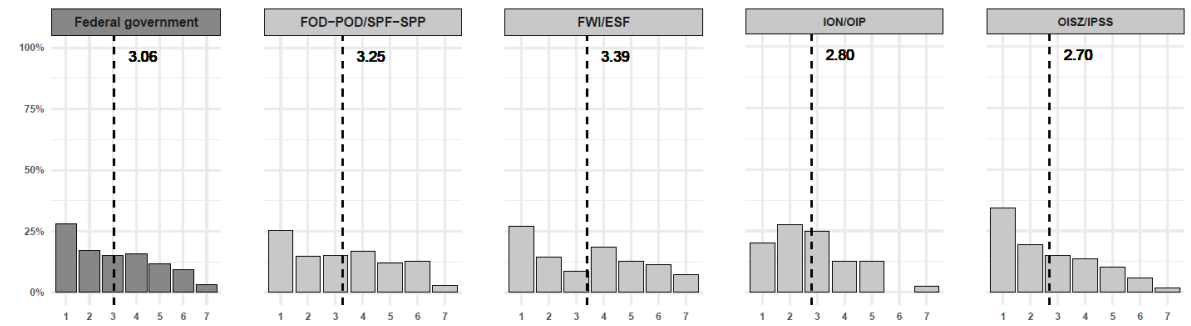

Figure 48. Collaboration with governmental organizations at regional, provincial or local levels of government

[17] Means: Small organization=4.00; mid-sized organization=3.02; large organization=2.93; total=3.05

	N	Mean*	Standard deviation	Minimum	Maximum
Total	553	3.06	1.80	1	7
FOD-POD/SPF-SPP	268	3.25	1.84	1	7
FWI/ESF	70	3.39	2.00	1	7
ION/OIP	40	2.80	1.45	1	7
OISZ/IPSS	175	2.70	1.68	1	7

Table 54. Descriptive results 'Collaboration with governmental organizations at regional, provincial or local levels of government'

6.1.3.5 Citizens

We also asked the respondents to what extent their organization/organizational unit collaborated with citizens in order to develop and/or implement an innovation in the last 3 years. The results our shown in figure 50 and table 55. Overall, citizens appear to be an unlikely collaborator for the organizations of respondents in our survey. The average response ranges from 2.30 (ION/OIP) to 2,66 (FWI/ESF) with a mean of 2.36 across all organizational types, which indicates that such collaborations are only to be found to a limited extent. Here the difference between organizational types is not significant, neither is the difference between organizations in terms of size.

Collaboration with citizens in order to develop or implement an innovation is rather scarcely practiced within federal government. A vast majority of respondents report such collaborations to be non-existing or only present at a limited extent. This holds for all the types of federal organizations.

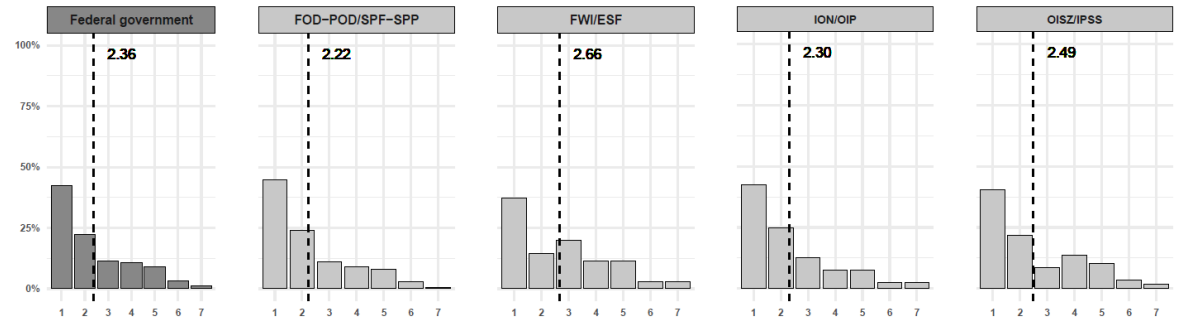

Figure 49. Collaboration with citizens

	N	Mean	Standard Deviation	Minimum	Maximum
Total	551	2.36	1.57	1	7
FOD-POD/SPF-SPP	266	2.22	1.47	1	7
FWI/ESF	70	2.66	1.68	1	7
ION/OIP	40	2.30	1.59	1	7
OISZ/IPSS	175	2.49	1.65	1	7

Table 55. Descriptive results 'Collaboration with citizens'

6.1.3.6 Non-profit organizations

Non-profit organizations appear to be another unlikely collaborator for the organizations of respondents in our survey, as shown in figure 51 and table 56. The average response ranges from 2.15 (OISZ/IPSS) to 2.58 (FWI/ESF) with a mean of 2.31 across all organizational types, meaning that such

collaboration with non-profit organizations is only to be found to a limited extent. Again the difference between organizational types is not significant, neither is the difference between organizations in terms of size.

Like with citizens, collaboration with non-profit organizations in order to develop or implement an innovation is poorly developed within federal government. A vast majority of respondents report such collaborations to be non-existing or only present at a limited extent. This holds for all the types of federal organizations.

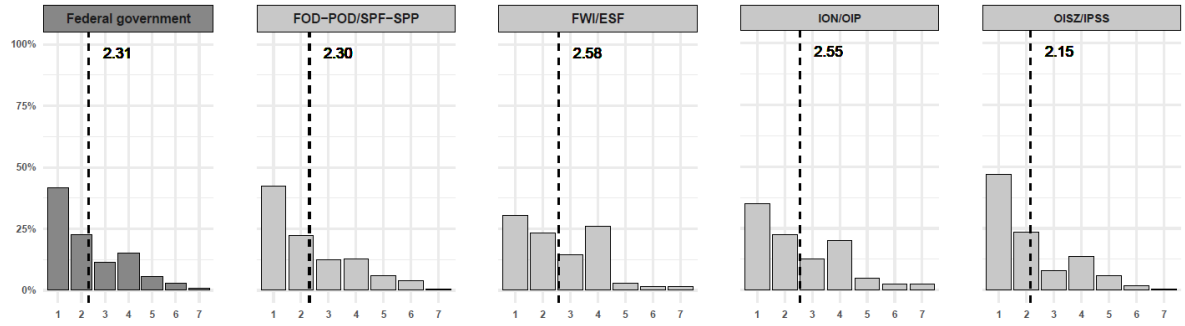

Figure 50. Collaboration with non-profit organizations

	N	Mean	Standard deviation	Minimum	Maximum
Total	550	2.31	1.47	1	7
FOD-POD/SPF-SPP	266	2.30	1.49	1	7
FWI/ESF	69	2.58	1.43	1	7
ION/OIP	40	2.55	1.58	1	7
OISZ/IPSS	175	2.15	1.42	1	7

Table 56. Descriptive results 'Collaboration with non-profit organizations"

6.1.3.7 Private companies (e.g. consultants, suppliers and/or other private actors)

We also asked to what extent the organization or organizational unit of the respondent collaborated with private companies in order to develop and/or implement an innovation in the last 3 years. The results are shown in figure 52 and table 57. Private companies are more likely collaborators for the organizations of respondents in our survey, with results comparable to those on collaborations with bodies in the federal government from other policy areas, meaning that such collaborations are to be found 'to a moderate extent'. The average response ranges from 3.27 (FWI/ESF) to 3.98 (ION/OIP) with a mean of 3.52 across all organizational types. The difference between organizational types is not significant, neither is the difference between organizations in terms of size.

Collaboration with private companies is practiced on average relatively more than collaboration with citizens and non-profit organizations in order to develop or implement an innovation is rather scarcely practiced within federal government. But such collaborations are still rather limited, although the variety among and within organizations is substantial.

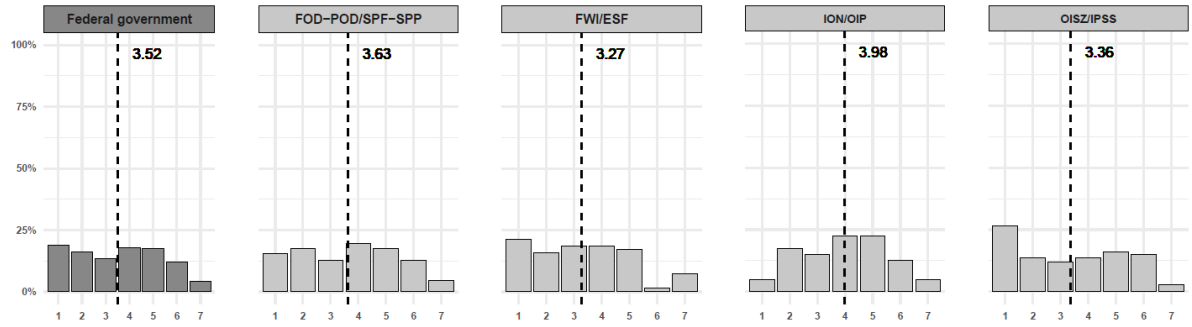

Figure 51. Collaboration with private companies

	N	Mean	Standard deviation	Minimum	Maximum
Total	551	3.52	1.82	1	7
FOD-POD/SPF-SPP	267	3.63	1.78	1	7
FWI/ESF	70	3.27	1.77	1	7
ION/OIP	40	3.98	1.59	1	7
OISZ/IPSS	174	3.36	1.92	1	7

Table 57. Descriptive results 'Collaboration with private companies'

6.1.3.8 EU-level organizations and foreign actors

Lastly, in figure 53 and table 58 we show that for EU-level organizations and foreign actors there are strong differences in the responses of different organizational types. The average responses range from 2.6 (OISZ/IPSS) to 4.30 (ION/OIP) with a mean of 3.28 across all organizational types. Clearly, the group of public institutions (ION) which includes national regulators or the body dealing with reception of asylum seekers is more active in collaborations with EU or international bodies in order to develop and implement innovations. Here the difference between organizational types is significant, but the difference between organizations in terms of size is not.

Collaboration with EU or international bodies in order to develop or implement an innovation is rather limitedly practiced within federal government. The ION/OIP have most such collaborations, as this group includes regulatory agencies and agencies with strong international cooperation. The OISZ/IPSS seem to be the least engaged in such international or European collaborations.

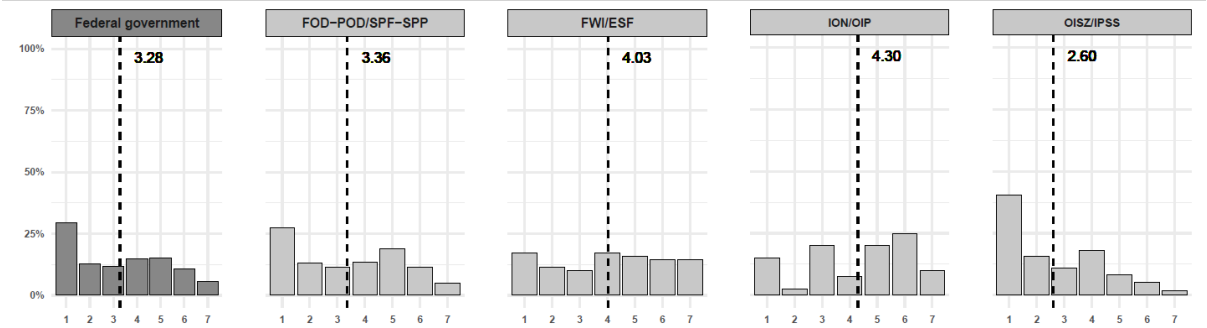

Figure 52. Collaboration with EU-level organizations and foreign actors

	N	Mean*	Standard deviation	Minimum	Maximum
Total	550	3.28	1.96	1	7
FOD-POD/SPF-SPP	267	3.36	1.94	1	7
FWI/ESF	70	4.03	2.04	1	7
ION/OIP	40	4.30	1.94	1	7
OISZ/IPSS	173	2.60	1.70	1	7

Table 58. Descriptive results 'Collaboration with EU-level organizations and foreign actors'

Comparing the extent to which there is collaboration for innovation with different types of actors

Clearly, collaboration for innovation is more likely with some kind of actors compared to collaboration with other kinds of actors. Collaborating with federal actors in the same field appears to be most common (4.36 on average); such collaborations are practiced at a moderate extent. Collaboration in order to develop innovations with federal actors from a different field (3,50 on average) is on average practiced to the same extent as collaborations with private companies (3.52 on average). Collaboration with EU-level organizations and international actors (3.28 on average) is less prevalent, and mainly practiced by the group of public institutions (ION/OIP).

Overall, collaboration with governmental organizations at regional, provincial or local levels of government (3.06 on average) and knowledge and research institutions (3.05 on average) is even less practiced and only to be found to a rather limited extent. Collaboration with citizens and non-governmental organizations is even more scarce with respective average values of 2.36 and 2.31, and this holds for all types of federal organizations. Hence, co-production of innovations with citizens or non-commercial actors is still rather hard to find and is not frequently used as a practice.

6.1.4 Information sharing

The items on information sharing load on two different factors, but only factor 1 is a construct of several items (see table 59). Factor 1 consists of three items representing the surveillance or control organizations maintain over their partner. A high value for this factor means a high level of surveillance. Factor 2 consists of only one item, representing the risk organizations are ready to take in order to share relevant information to their partners. In the literature, surveillance is considered as detrimental for (collaborative) innovation – on the contrary of risk.

Items	**Factor 1**	**Factor 2**
In collaborations with other parties outside my organization with the aim to develop and/or implement an innovation,…		
We check the correctness of the information given by these other parties (reversed)	**0.848**	**-.044**
We keep a close eye on these other parties to ensure they won't do something detrimental (reversed)	**0.773**	**0.016**
We give all the relevant information on important matters to these other parties, even if it could be detrimental	**-0.234**	**0.393**
We carefully consider which information to share with these other parties (reserved)	**0.557**	**0.345**
Cronbach's alpha	***0.762***	***Not applicable***

Table 59. Construction of information sharing

Factor 1 has a Cronbach's alpha of 0.76, being hence internally consistent. As factor 2 consists of only one item, Cronbach's alpha is not relevant. In terms of surveillance, the mean of all types of organizations is of 3.71 for factor 1 as is shown in figure 54 and table 60. The value, close to 4, means that, overall, organization control their partners' information and action to a moderate extent. The mean scores for FWI/ESF and FOD-POD/SPF/SPP organizations are the highest: 3.8 and 3.73, respectively. The mean scores for OISZ/IPSS and ION/OIP are the lowest: 3.56 and 3.62 respectively. The difference between types of organizations is not statistically significant.

The standard deviation for all organizations is close to one, meaning that 50% of the answer range from "3 - to a rather low extent" and 5 – "to a rather high extent". Differences between respondent's answer are relatively strong. They range from "1 – not at all or to a very low extent" to "7 – completely or to a very high extent" for FOD-POD/SPF-SPP and OISZ/IPSS; from 1 to 6 for FWI/ESF and from 1.33 to 5.67 for OISZ/IPSS.

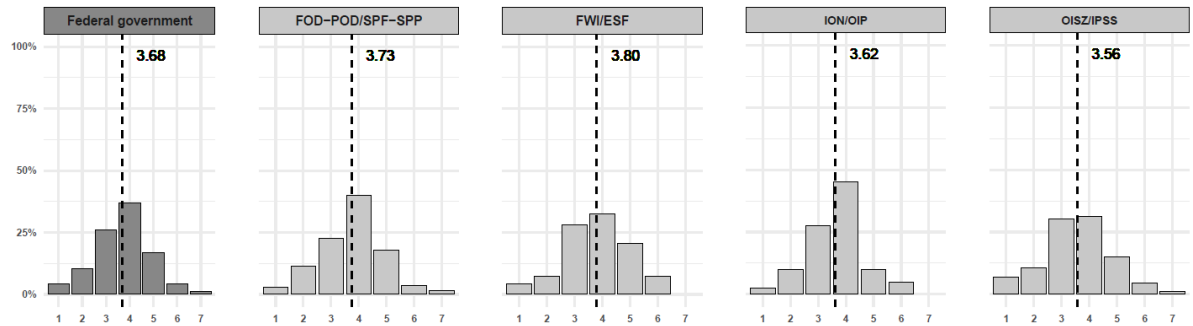

Figure 53. Information sharing factor 1

Information sharing 1	N	Mean	Standard deviation	Minimum	Maximum
Total	544	3.68	1.17	1	7
FOD-POD/SPF-SPP	264	3.73	1.15	1	7
FWI/ESF	68	3.80	1.13	1	6
ION/OIP	40	3.62	1.09	1.33	5.67
OISZ/IPSS	172	3.56	1.25	1	7

Table 60. Descriptive results information sharing factor 1

Figure 55 and table 61 show the results of factor 2. With regards to factor 2 and the risk organizations are ready to take, the overall mean of 3.72. Organizations are ready to take risks to a moderate extent (value of 4) in order to share relevant information to their partners. The differences between organizations are somewhat higher than for factor 1 – even if they are not statistically significant. The histograms show that ION/OIP score generally higher on risk-taking behavior than other types of organizations. Their mean score is the only one above 4 (4.03). The mean score of FWI organizations is the lowest, with 3.51. Means for FOD-POD/SPF-SPP and OISZ/IPSS are rather similar (3.70 and 3.74, respectively), but their histogram shows difference in the distributions of answers from their respondents. Respondents from OISZ/IPSS organizations tend to score lower than respondent from FOD-POD/SPF-SPP organizations. The standard deviation ranges from 1.61 for OISZ/IPSS to 1.14 for ION/OIP. The standard deviation for FOD-POD/SPF-SPP and FWI/ESF is 1.40. Respondent perceptions about the risk taken by the organizations varies more than their perceptions about surveillance. The histograms shows that the answer of respondent from ION/OIP vary less, ranging from "4 - to a moderate extent" and 5 – "to a rather high extent". Again, differences between respondent's answer are relatively strong. They range from "1 – not at all or to a very low extent" to "7 – completely or to a very high extent" for FOD-POD/SPF-SPP and OISZ/IPSS; from 1 to 6 for FWI/ESF- and ION/OIP-organizations. Considering both factors together, it turns out that surveilling and taking risks are both behaviors similarly present in the organizations. They are not mutually exclusive. Organizations surveil their partner but, at the same time, are ready to take risk – both to a moderate extent.

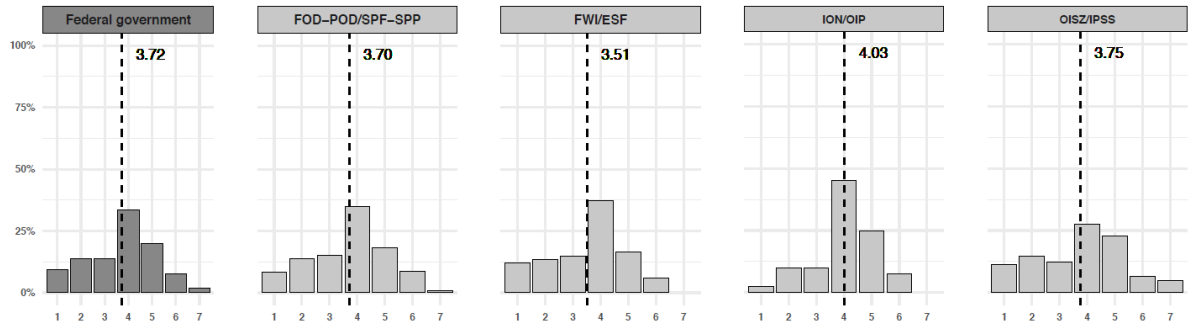

Figure 54. Information sharing factor 2

Information sharing 2	N	Mean	Standard deviation	Minimum	Maximum
Total	539	3.72	1.46	1	7
FOD-POD/SPF-SPP	262	3.70	1.40	1	7
FWI/ESF	67	3.51	1.40	1	6
ION/OIP	40	4.03	1.14	1	6
OISZ/IPSS	170	3.75	1.61	1	7

Table 61. Descriptive results information sharing factor 2

6.1.5 Knowledge acquisition

The survey asked to what extent specific kinds of knowledge are acquired in these collaborations with the aim to innovate. The items on knowledge acquisition load on one factor, meaning that all types of knowledge are strongly correlated with each other and that they measure one underlying concept. This factor includes knowledge generated about policy content (items 1), knowledge about the collaborative partners (items 2, 3 and 4), knowledge about innovation users or citizens (item 5), as well as knowledge about the political priority (item 6). The item related to knowledge about collaborative partner's expectation, way of working, and resources have the largest contribution to the factor. See table 62 below for the construction of this concept.

Items	**Factor loadings**
Collaboration with other parties outside my organization with the aim to develop and /or implement an innovation results in new and useful knowledge for my organization about…	
technical information about the policy issue(s) the collaboration deals with	0.598
other parties' goals and expectations	0.812
other parties' way of working	0.762
other parties' resources (human, finance, time, etc.)	0.721
citizen or users' expectations	0.557
the priorities of the responsible political leaders of other organizations	0.506
Cronbach's alpha	***0.817***

Table 62. Construction of knowledge acquisition

On average, all types and sizes of organizations in the federal governments generate knowledge to the same extent when they collaborate with other parties.

The concept has a Cronbach's alpha of 0.817, and is hence internally consistent. The mean of all organizations is 4.11 which means that, overall, knowledge is generated to 'a moderate extent'. The mean score for OISZ/IPSS and FOD-POD/SPF-SPP are the highest, with 4.20 and 4.11, respectively. The score for ION/OIP and FWI/ESF are slightly lower, with 4.03 and 3.90. The differences between organizations type is not statistically significant.

The standard deviation for all organization is close to one, meaning that 50% of the answer range from "3 - to a rather low extent" and 5 – "to a rather high extent". However, there are strong differences between respondents' answers, which range from "1 – not at all or to a very low extent" to "7 – completely or to a very high extent", excepted for respondents from ION/IOP, whose answers vary from 1.67 to 5.67. The histograms in figure 56 show that the variation in individual answers is the highest within FWI/ESF organization, and the lowest within ION/OIP.

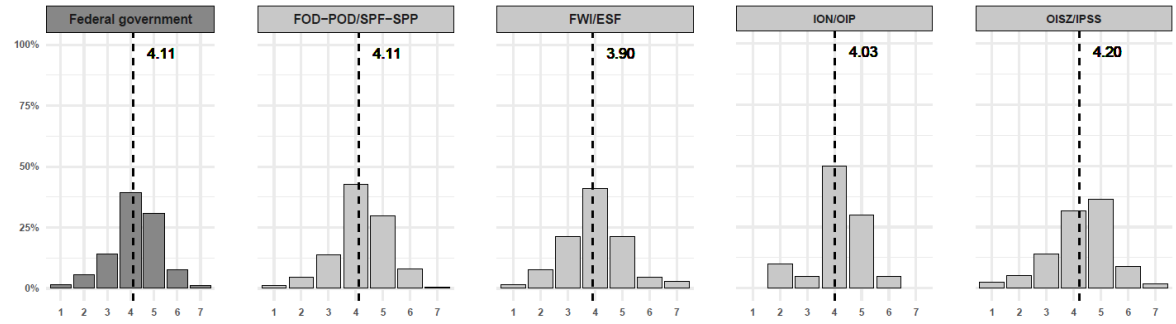

Figure 55. Knowledge acquisition

	N	Mean	Standard deviation	Minimum	Maximum
Total	540	4.11	1.05	1	7
FOD-POD/SPF-SPP	263	4.11	0.99	1	7
FWI/ESF	66	3.90	1.12	1	6.83
ION/OIP	40	4.03	0.97	1.67	5.67
OISZ/IPSS	171	4.20	1.12	1	6.67

Table 63. Descriptive results knowledge acquisition

6.1.6 Autonomy, control and priority of organization in collaborations for innovation

The autonomy that the respondent receives from the organization was measured using the following item:

The staff that represents our organization in collaborations with the aim to develop/implement an innovation ……..receives the autonomy to act as they see fit in these collaborations

The total mean is 4.22 indicating that respondents on average receive to a moderate extent the autonomy to act as they see fit in the collaboration. This is the same for every type or organization as is shown in the histograms in figure 57 and table 64. The lowest score is 3.98 (OISZ/IPSS) and the highest is 4.37 (FOD-POD/SPF-SPP). As these scores are all closest to 4 we conclude that they all receive to a moderate extent the autonomy as they see fit in the collaboration. Furthermore, the means related to different organizational sizes do not differ significantly from each other.

The lowest score is 1 for all types of organizations and the highest is 7 for all organizations except for ION/OIP who has a maximum score of 6. As the histograms show however, these minimum and maximum scores are frequently indicated by the respondent.

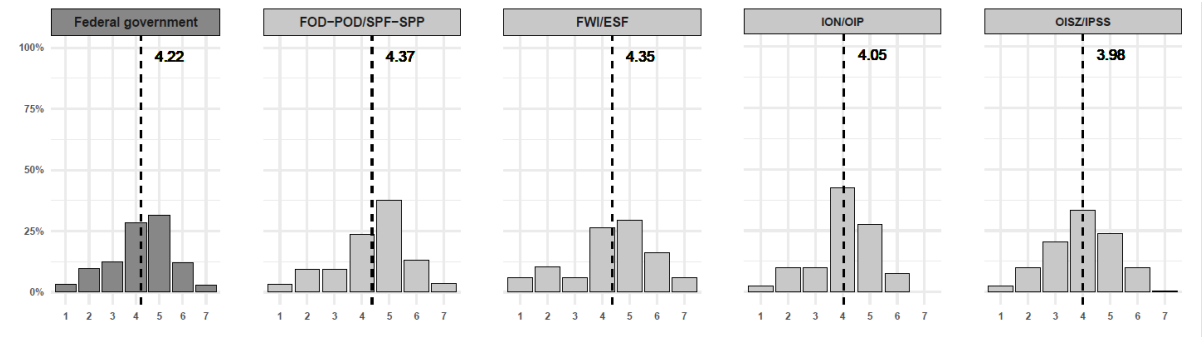

Figure 56. Autonomy

	N	Mean	Standard deviation	Minimum	Maximum
Total	548	4.22	1.34	1	7
FOD-POD/SPF-SPP	268	4.37	1.37	1	7
FWI/ESF	68	4.35	1.54	1	7
ION/OIP	40	4.05	1.15	1	6
OISZ/IPSS	172	3.98	1.23	1	7

Table 64. Descriptive results autonomy

The perceived control of the respondents was measured by the item:

The staff that represents our organization in collaborations with the aim to develop/implement an innovation ……..is strongly controlled by our organization

Again, the mean of the total sample is around '4' indicating that the staff that represents the organization is to moderate extent controlled by the organization (see figure 58 and table 65).

This time the averages of the different of types of organizations are significantly different from each other. The ANOVA results show that organizational size matters for the perceived control by the organization on the staff that represents the organization in collaborations for innovation. The small organizations score lowest with a mean of 3.61 and the large organizations score highest with 4.11, which indicates that respondents from small organizations consider staff involved in such collaborative arrangements to be considerable less controlled by their own organization.

Especially high is the difference in perceived amount of organizational control during collaborations for FWI/ESF (3.66) and OISZ/IPSS (4.40). This indicates that in the OISZ/IPSS, staff active in collaborations is considerably more controlled by the organization during collaborations.

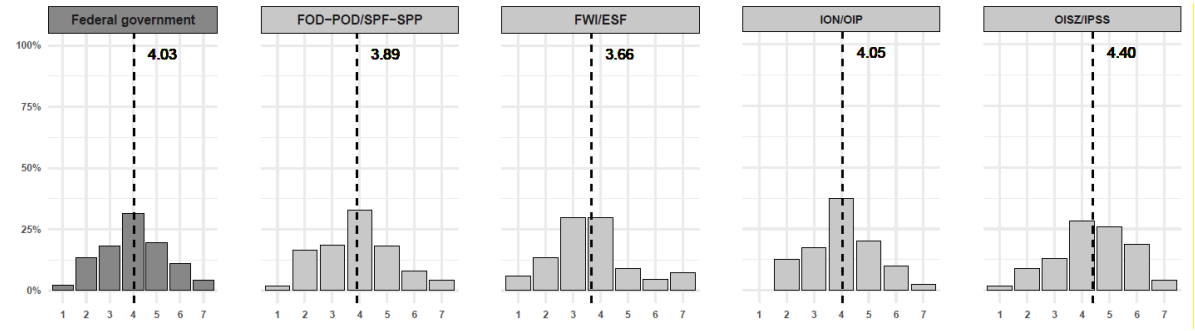

Figure 57. Perceived organizational control

	N	Mean*^[18]	Standard deviation	Minimum	Maximum
Total	546	4.03	1.40	1	7
FOD-POD/SPF-SPP	268	3.89	1.37	1	7
FWI/ESF	67	3.66	1.49	1	7
ION/OIP	40	4.05	1.24	2	7
OISZ/IPSS	171	4.40	1.37	1	7

Table 65. Descriptive results perceived organizational control

The priority of the development and/or implementation of the innovation for the organization was measured with the following item:

Collaborations with the aim to develop and/or implement an innovation in which our organization participates…. is a priority for our organization

The mean is 4.18 for the total sample, indicating that respondents perceive that the collaborations with the aim to develop and/or implement is to a moderate extent a priority for the organization. This is the same if we look at the different types of organizations. All the means have a score of 4, ranging from 4.07 (FWI/ESF) to 4.45 (ION/OIP). As the means are closer to 4 than to 5 they can all be interpreted that the organization regards collaborations with the aim to develop and/or implement

[18] Means: Small organization=3.61; mid-sized organization=4.01; large organization=4.11; total=4.03

an innovation to a moderate extent a priority for the organization. The maximum and minimum scores are again between 1 ('not at all or to a very low extent') to 7 ('to a very high extent or completely'), except for ION/OIP which had a minimum score of 2 ('to a low extent'). There are no significant differences between the means for different types of organization, or for different organizational sizes.

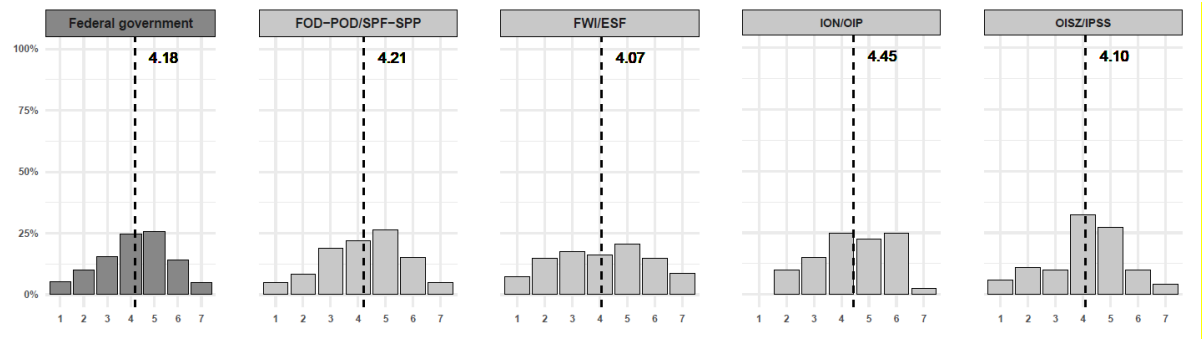

Figure 58. Organizational priority

	N	Mean	Standard deviation	Minimum	Maximum
Total	547	4.18	1.50	1	7
FOD-POD/SPF-SPP	266	4.21	1.49	1	7
FWI/ESF	68	4.07	1.75	1	7
ION/OIP	40	4.45	1.36	2	7
OISZ/IPSS	173	4.10	1.45	1	7

Table 66. Descriptive results organizational priority

The management of federal organizations gives on average to a moderate extent priority to collaborations aimed at innovation, and gives to a moderate extent autonomy to staff active in these collaborations. This holds for all types of organizations. However, staff active in such collaborations and working for FWI/ESF experience considerable less organizational control than such staff in OISZ/IPSS. Moreover, staff active in such collaborations, which are working in small organizations experience less control than the ones working in larger organizations.

5.1.9 Interest and interference by the involved minister and his/her cabinet

Concerning the political involvement we looked at the ministerial interest and the interference of the minister/cabinet for the development and/or implementation of the innovation.

The ministerial interest was measured with the following item:

Collaborations with the aim to develop and/or implement an innovation in which our organization participates…. is discussed with our responsible minister (or cabinet)

We see that the average of ministerial interest for the total sample is considerably lower than the above mentioned mean of the control by the own organization in collaborations. With a score of 3.22 it means that in general respondents indicate that the collaborations with the aim to develop and/or implement an innovation in which their organization participates are to a rather low extent discussed with the responsible minister (or cabinet).

The mean of the different types of organizations are significantly different from each other, as shown in table 67. They range from 2.30 for FWI/ESF, indicating that the collaborations are discussed to a low extent with the responsible minister or cabinet, to 3.54 for ION/OIP. This is closest to 4 and can therefore be classified as 'to moderate extent'.

The standard deviations are about the same for all types of organizations, as well as the minimum and maximum scores (1 to 7).

The mean of the different sizes of organizations are significantly different from each other as well. Noteworthy is especially the low score of the small organizations. The score of 2.20 means that respondents of small organizations discuss the collaborations to a low extent with the responsible minister. The mid-sized organizations discuss the collaborations most with a score of 3.49 which lies between 'to a rather low extent' and 'to a moderate extent'.

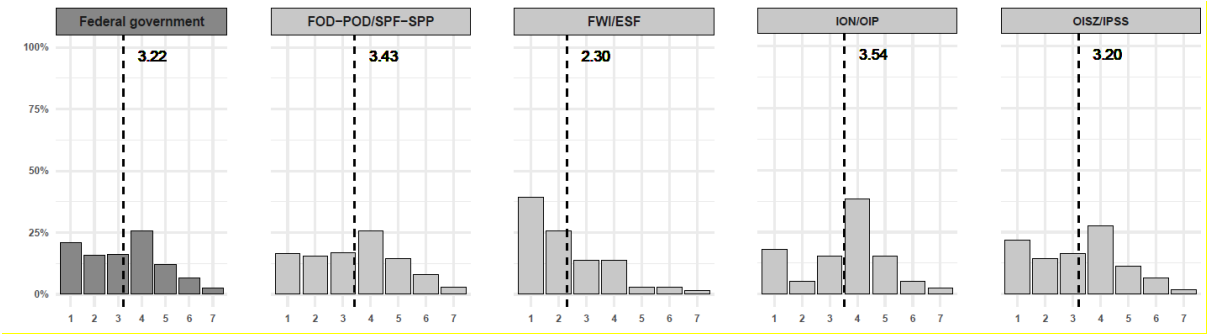

Figure 59. Ministerial interest

	N	Mean*^[19]	Standard deviation	Minimum	Maximum
Total	534	3.22	1.64	1	7
FOD-POD/SPF-SPP	263	3.43	1.64	1	7
FWI/ESF	66	2.30	1.47	1	7
ION/OIP	39	3.54	1.55	1	7
OISZ/IPSS	166	3.20	1.62	1	7

Table 67. Descriptive results ministerial interest

The ministerial interference is measured with the following item:

Collaborations with the aim to develop and/or implement an innovation in which our organization participates…. experiences interference from our responsible minister (or cabinet)

The results are shown in the histograms in figure 61 and table 68. The total mean is 3.72 which indicates that respondents experience to a moderate extent that the innovation interference from the minister (or cabinet). This is 0.5 point higher than the total mean of the above mentioned ministerial interference. The means of the different types of organization are significantly different from each other and we see that the mean of FWI/ESF is again considerably lower than the other types of organizations. FWI/ESF has a mean of 2.49 which lies between 'to a low extent interference' and 'to a rather low extent interference'.

The means of the different organizational sizes are significantly different as well. Especially small organizations score low with a mean of 2.41 ('to a low extent'), which indicates that they experience

[19] Means: Small organization=2.20; mid-sized organization=3.49; large organization=3.23 ; total=3.22

less interference from the responsible minister. Mid-sized organizations score highest (3.91; ‘ to a moderate extent’) and large organizations in the middle (3.81; ‘to a moderate extent’).

The fact that the means for both interest as interference from/by the responsible minister (or cabinet) are significantly different from each other indicates that politics plays a different role for the type of organization and the size. Based on the means we see that especially FWI/ESF and small-sized organizations score lower on the items which might indicate that politics plays a smaller role in these organizations.

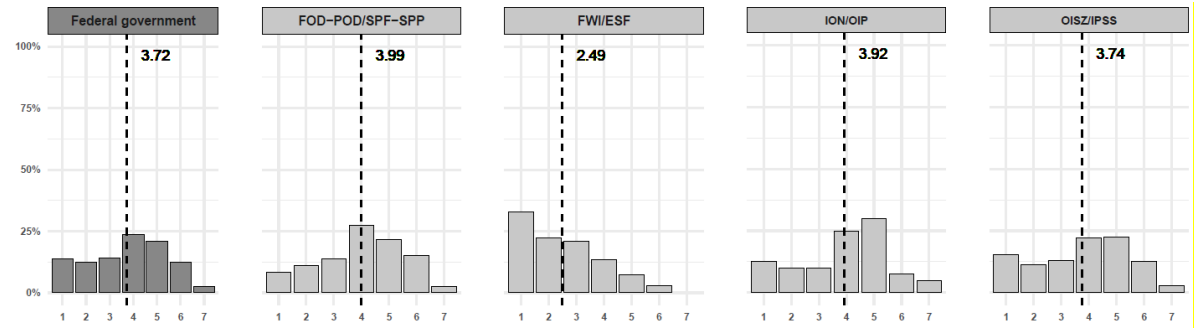

Figure 60. Ministerial interference

	N	Mean*^[20]	Standard deviation	Minimum	Maximum
Total	538	3.72	1.66	1	7
FOD-POD/SPF-SPP	263	3.99	1.55	1	7
FWI/ESF	67	2.49	1.42	1	6
ION/OIP	40	3.93	1.66	1	7
OISZ/IPSS	168	3.74	1.71	1	7

Table 68. Descriptive results ministerial interference

Collaborations with the aim to innovate are discussed with the minister/cabinet on average to a rather limited extent, and experience ministerial interference on average to a moderate extent. Respondents working for FWI/ESF indicate that they discuss collaborations with the aim to innovate considerably less with their responsible minister and also that they experience less ministerial interference than respondents from other organizations. This is the same for respondents working for a small organization.

[20] Means: Small organization=2.41; mid-sized organization=3.91; large organization=3.81 ; total=3.72

6.2 The effects of working through collaborative arrangements

In the first part of this section, we discuss how various variables relating to the characteristics of the collaborative arrangements (type of collaboration, size of collaboration, partners, …) as well as the characteristics of information exchange (risk-taking and knowledge acquisition) influence innovation-related outcomes on their own. In the second, part of this section, we discuss which relations deserve extra attention as the relations remain significant in the combined models.

6.2.1 The individual influence of collaboration-related factors on innovation-related outcomes

Table 69 presents an overview of the collaboration-related factors that appear to have a statistically, individual, significant effect on one or more of the innovation-related outcomes. Again, note that these models only contain one specific factor, but also control for all control variables and organizational dummies. Furthermore, the cells in Table 69 present the Beta-coefficients for the included independent variable, as well as the R^2-value (i.e. the degree to which a model explains the variation in the outcome of interest), but only for models that have an overall significance and wherein the capacity of interest has a significant influence on the outcome of interest.

The individual results show that the different aspects of collaboration have a significant influence on many innovation-related outcomes.

We see that the extent of collaboration with the aim to innovate has a significant effect on the development of all four types of innovations, the level of satisfaction with all types of innovations and the extent to which innovations were experimented or implemented. **This indicates that collaboration with the aim to innovate indeed leads to the development of more innovations, contribute to satisfaction with innovations and facilitate the experimentation or implementation of these innovations**. The extent of collaboration with the aim to innovate has a significant negative effect on the share of internal development of innovation, but a positive effect on the share of innovations developed in collaboration. **This indicates that organizations engaged in collaborations with the aim to innovate indeed succeed in developing a larger share of their innovations in collaborative arrangements.** Collaboration with other purposes has a significant effect on the development of policy, service and processes innovations (and hence not on the development of technology innovation), and a positive effect on satisfaction with innovations that were internally developed but inspired by external contributions. **This shows that even collaboration for other purposes than innovation might as a side-effect help organizations to develop new kinds of policies, services and processes.**

Both small-sized networks as large-sized networks positively influence the development of all four types of innovations. Both also **positively influence satisfaction with innovations developed in collaborative arrangements**. We also see small-sized networks positively influence the extent to which innovations are experimented or implemented. **It seems easier to experiment or implement innovations when collaborating in small-sized networks (when not taking into account other variables).**

Next, **collaborations with any type of actors positively influence the development of any type of innovations.** One notable exception is collaboration with knowledge institutions. Organizations that collaborate with knowledge institutions do not significantly influence the extent to which they develop process innovations, which seems logic. Collaboration with private actors shows a significant negative effect on the share of internal development of innovations and a significant positive effect on the

share of developed innovations in collaborative arrangements. **It implicates that organizations that collaborate with private partners tend to develop a larger share of their innovations in collaborative arrangements.**

Interesting to see is that collaboration with certain type of actors influence the level of satisfaction with innovations differently. Collaboration involving federal actors in the same or in another policy domain positively influence the level of satisfaction with innovations developed internally, innovations inspired by external contributions as well as innovations developed in collaboration. **Interestingly, satisfaction with innovations developed in collaborative arrangements is higher in case the collaboration included citizen or non-profit organizations**. Collaborations with private actors do not significantly influence the level of satisfaction. **Another interesting result is that collaboration with federal actors involved in other policy domain positively influence the extent to which the organization implement innovations.**

Furthermore, we see no significant effect of information sharing on any innovation-related outcomes, suggesting that trust has no direct influence on innovations**. Knowledge acquisition, in turn, has a significant, positive effect on the development of all types of innovations, the level of satisfaction with all kinds of innovations and the extent to which organizations have implemented the innovations**. It does not significantly influence the 'origin of these innovations' and the extent to which organizations have experimented with innovations.

Similarly**, the extent to which the staff involved in such collaborations has autonomy to act as they see fit in such collaborations also shows significant, positive influence on the development of any type of innovation, the 'satisfaction with the innovations and the extent to which organizations implement innovations**. Organizational control has no significant influence on innovation-related outcomes. On the contrary, the level of priority given by organizations to collaborative innovation positively influence the development of any type of innovations, the proportion in which organization develop innovations in collaborative arrangement, the level of satisfaction with all kinds of innovations and the extent to which innovations are implemented**.** This means that organizations giving a higher priority to collaborative innovation develop and implement innovations to a higher extent (when not regarding other variables). Interestingly, organizational priority for collaborations with the aim to innovate negatively influence the proportion in which organizations develop innovations internally. **The ministerial interest in such collaborations for innovation has a positive relation with the extent to which organization develop policy innovations**. **Ministerial interference, remarkably, has a positive influence on the development of any type of innovations, as well as on the level of satisfaction with innovations that were developed internally.**

	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 that were internally developed**	**Innovations that were internally developed but inspired by external contributions**	**Innovations developed in collaborative arrangements**	**Satisfaction with innovations that were internally developed**	**Satisfaction with innovations that were internally developed but inspired by external contributions**	**Satisfaction with innovations that were developed in collaborative arrangements**	**Innovations have been experimented with**	**Innovations have been implemented already**
Extent of collaboration for innovation	0.44*** R^2=0.29	0.35*** R^2=0.26	0.41*** R^2=0.32	0.38*** R^2=0.29	-2.39** R^2=0.17		2.82*** R^2=0.14	0.22*** R^2=0.19	0.18*** R^2=0.23	0.26*** R^2=0.20	0.23*** R^2=0.15	0.21*** R^2=0.14
Extent of collaboration for other goals	0.19*** R^2=0.16		0.13** R^2=0.19	0.11* R^2=0.17					0.14** R^2=0.22			
Extent of collaboration in small arrangements for innovation	0.22*** R^2=0.16	0.22*** R^2=0.18	0.20*** R^2=0.20	0.20*** R^2=0.19	-1.57* R^2=0.17				0.13** R^2=0.22	0.21*** R^2=0.18	0.17*** R^2=0.13	0.14** R^2=0.13
Extent of collaboration in large arrangements for innovation	0.27*** R^2=0.19	0.25*** R^2=0.22	0.26*** R^2=0.24	0.23*** R^2=0.22				0.12** R^2=0.16		0.14*** R^2=0.16		
Actors involved: other federal actors in same policy domain	0.34*** R^2=0.22	0.21*** R^2=0.19	0.26*** R^2=0.23	0.22*** R^2=0.21				0.13** R^2=0.17	0.12** R^2=0.21	0.19*** R^2=0.17		
Actors involved: other federal actors in another policy domain	0.27*** R^2=0.19	0.22*** R^2=0.19	0.25*** R^2=0.23	0.20*** R^2=0.20				0.11* R^2=0.17	0.12** R^2=0.21	0.13** R^2=0.15		0.12** R^2=0.13

Actors involved: knowledge institutions	0.15** R^2=0.14	0.15** R^2=0.16	0.11* R^2=0.18					0.11* R^2=0.16				
Actors involved: regional or local level governmental actors	0.23*** R^2=0.17	0.22*** R^2=0.20	0.16*** R^2=0.20	0.12** R^2=0.17				0.10* R^2=0.16		0.09* R^2=0.15		
Actors involved: citizens	0.18*** R^2=0.15	0.14** R^2=0.16	0.19*** R^2=0.20	0.11** R^2=0.17						0.11* R^2=0.15		
Actors involved: non-for-profit	0.28*** R^2=0.18	0.23*** R^2=0.18	0.23*** R^2=0.21	0.17*** R^2=0.17						0.10* R^2=0.14		
Actors involved: private companies	0.22*** R^2=0.17	0.22*** R^2=0.20	0.22*** R^2=0.22	0.19*** R^2=0.20	-2.71*** R^2=0.19		2.59*** R^2=0.15					
Actors involved: European or international actors	0.17*** R^2=0.16	0.11** R^2=0.16	0.18*** R^2=0.21	0.11** R^2=0.17				0.10** R^2=0.16		0.09* R^2=0.15		
Information-sharing Factor 1												
Information-sharing Factor 2												
Knowledge acquisition	0.66*** R^2=0.24	0.45*** R^2=0.20	0.51*** R^2=0.23	0.53*** R^2=0.24				0.26** R^2=0.17	0.30*** R^2=0.23	0.35*** R^2=0.17		0.30*** R^2=0.14
Autonomy	0.13* R^2=0.13	0.15** R^2=0.16	0.21*** R^2=0.19	0.18** R^2=0.17				0.29*** R^2=0.21	0.22*** R^2=0.23	0.24*** R^2=0.17		0.17** R^2=0.14
Control												

Priority	0.46*** R^2=0.25	0.38*** R^2=0.25	0.35*** R^2=0.24	0.42*** R^2=0.28	-2.2* R^2=0.17		2.07* R^2=0.13	0.14** R^2=0.16	0.19*** R^2=0.23	0.21*** R^2=0.17		0.23*** R^2=0.16
Political interest	0.19*** R^2=0.15											
Political interference	0.23*** R^2=0.16	0.11* R^2=0.15	0.15** R^2=0.18	0.14** R^2=0.17				0.10* R^2=0.15				
Note: Cells display beta-coefficients, significance level (***p < 0.001, **p < 0.01, *p < 0.05) and R^2-values for models that had an overall significant influence and wherein the variable of interest had a significant influence.												

Table 69. Overview of collaboration-related variables with a significant isolated effect

6.2.2 The combined influence collaboration-related factors on innovation-related outcomes

Again we looked at the effects of the combined models to see what relations deserve extra attention. The relation of 'collaboration for innovation' with the dependent variable remains the same when taken in a model together 'collaboration with other purposes'. For this latter variable the positive relation with the development of policy innovation and satisfaction with innovations that were partly inspired by external contributions is extra important because there relations remain intact.

Only when 'collaboration for innovation' is placed in a combined model with autonomy, control, priority, ministerial interest and ministerial interference, some relations disappear, but most relations stay the same. Because a large amount of relations remain significant in the models, it is to say that **'collaboration for innovation' is a very important factor for innovative outcomes and should deserve extra attention.**

We argue that collaboration with all different types of actors is important. The isolated results show that collaboration with every type of actor is positively related to types of innovation (except for collaboration with knowledge institutions which does not necessarily lead to the development of process innovations). Yet, we see a different picture when we place all types of actors in one combined model and this reveals that some actors are extra important to collaborate with. We find that collaboration with private companies positively influences the development of technological, service and process innovations, controlling for the presence of other types of actors. Collaboration with other federal actors in the same policy domain as well as in another policy domain has a positive influence on the extent to which organizations develop service and process innovations. In addition, collaboration with federal actors in the same policy domain also positively influence the development of policy innovations. The development of policy innovations is also positively related to collaboration with non-profit organizations.

Concerning satisfaction, we see new results as well. We see that federal organizations collaborating to a higher extent with other federal actors in the same policy domain are more satisfied with innovations developed in collaboration. The relations of knowledge acquisition remain largely the same, making this an important variable to explain innovative outcomes.

The level of autonomy the staff gets in such collaborations for innovations has a clear positive influence upon the satisfaction with innovations inspired or developed with other actors.
Organizational priority for such collaborations with the aim to innovate, have a clear positive effect on the development of all types of innovations, but does have a negative effect on the shared of innovations that are developed entirely in the own organization. Lastly, ministerial interest has a positive effect on the development of policy innovations, making this an extra important relation as well, however only for one type of innovation.

6.2.3 Conclusion

The results show a quite ambiguous picture of the effect of collaboration on innovation-related outcomes. **The most eye-catching result is the large amount of collaboration-related factors that positively influence the development of innovations. The aim of the collaboration, its size, all involved actors, knowledge acquisition, autonomy of the involved staff, priority and political priority all have a positive significant effect on the development of (almost) all types of innovation.**

Few variables explain the origin of the developed innovation. The satisfaction with the developed innovation is explained by different variables. **Especially engagement in collaborations with the specific aim to innovate, collaborations with other federal actors in the same or different policy domain, knowledge acquisition, autonomy for the involved staff, and priority are associated with more satisfaction for the developed innovation.**

We also find that solely the engagement in collaborations with the aim to innovate and small-sized collaborations influence positively the extent to which there is experimentation with the innovation. Lastly, these variables also have a significant relation with the extent of implementation of the innovation, just like collaboration with other federal actors in a different policy domain, knowledge acquisition, autonomy and priority have.

Collaboration with all different actors is important, but **extra attention should be paid to collaboration with private companies and federal ministries or agencies in the same policy area. When all types of organizations were added to the model we found that collaborations with private companies leads to the development of technological, service and process innovations.** Innovations developed with federal ministries or agencies in the same policy area has a positive effect on the development of policy innovation, service innovation and process innovation. Additionally, when innovations are developed in active collaboration with other federal ministries or agencies in the same policy area (and not just inspired by or only internally developed) it leads to more satisfaction with these innovations.

Lastly, knowledge acquisition, autonomy of the involved staff, organizational priority, and ministerial interest in such collaborations are important variables for the development of innovations as well as they all have effects that remain present in the combined models.

Part Seven: Taking it all together – what matters for innovation (through collaboration)

In this last chapter we provide a summary of the main findings of this study towards the drivers of innovative outcomes. As a reminder, innovation is defined in this report *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.

This report assesses four aspects of innovations:

- **The extent of innovation**, which is the extent to which innovations have been developed in the organizations in the last three years. Four types of innovations are distinguished:
    - Policy innovations refer to the development of new policies;
    - Technological innovations refer to the creation or use of new technologies to deliver services to users or citizens;
    - Service innovations are new services offered by the organizations to users or citizens;
    - Process innovations encompass the improvement of the quality and the efficiency of organizational processes.
- **The origin of innovation,** which refers to the source of innovation, or the way in which innovations have been developed. Innovations can be developed:
    - Fully within the organizations;
    - Within the organizations but partly inspired by external contributions;
    - In collaboration with external actors.
- **The satisfaction with the innovation developed** within the organization, within the organization but inspired by others and in collaboration.
- **The status of innovation,** which is the degree to which innovations have been tested or implemented in the organizations. Innovations can either be:
    - Piloted or experimented in the organization;
    - Implemented by or in the organizations.

With regards to the development of innovations in the last three years, all types of organizations developed on average to a relatively low or moderate extent policy, technological, services or process innovations. Respondents indicate that innovations related to organizational processes are relatively more developed than other types of innovations. It is found that federal organizations are most involved in the development and/or implementations of process innovations. Moreover, looking at the significant differences between the types and sizes of organizations reveals that FWI/ESF and small organizations are least frequently involved in the development and/or implementation of innovations.

The origin of innovation varies according to the type of organizations. Innovations in Public Institutions of Social Security (OISZ/IPSS) are mostly developed internally. Federal Scientific Institutions (FWI/ESF), in turn, develop the largest share of their innovations in collaboration with external actors. Federal public services, ministries and federal public planning services (FOD/SPF, POD/SPP), as well as Public Institutions (ION/OIP), develop on average an equal share of their innovations internally as in collaboration with external actors. As compared to other types of organizations, the Public Institutions of Social Security (OISZ/IPSS) develop significantly a larger share of their innovations internally, but a lesser share of their innovations in collaboration with external actors.

The satisfaction with the developed innovations is on average for all types of organizations moderate to relatively high regardless of the origin of the innovation. There are differences between types of organizations when it comes to piloting or experimentation of innovation. Piloting/experimenting is significantly less common in Federal Scientific Institutions (FWI/ESF). The degree to which organizations implement innovations is relatively high in all organizations. Overall, innovations are more commonly implemented than piloted.

Innovation development, origin, satisfaction and implementation: In short

All types of innovations are commonly developed in the federal organization. Innovations relating to organizational processes are a little more developed than other types of innovation. **The way in which innovations are developed in each type of organizations is rather different.** As compared to other organizations, Public institutions of Social Security (OISZ/IPSS) develop a larger share of their innovations internally, but less innovation in collaboration with external actors. In other organizations, the share between innovation developed internally and in collaboration with external actors is similar**. Overall, organizations are relatively well satisfied with the developed innovations**, even if tend to be a little more satisfied with innovation developed internally. Finally, **those innovations are implemented to a rather high extent** in all organizations.

7.1 Overview of the conditions for innovation

Collaborative innovation depends on several conditions. Those conditions are structured around five categories:

- **Organizational environment** includes the conditions relating to the culture of the organization, the presence of collaborative red tape, the degree of stress and the commitment of employees;
- **Organizational capacities** refer to the capacities public organization have to possess in order to be able to innovate.
- **Characteristics of the collaboration**, including the extent of collaboration, their size, their composition;
- **Characteristics of the information exchange process,** which include trust and the generation of new knowledge;
- **Autonomy, organizational control and priority, and interference of and discussion with the responsible minister** which includes the autonomy and the control employee face in their home

organizations, the priority given to innovation by the organizations as well as the discussion with and interference by the responsible ministers.

The next sections discuss the main descriptive results on the presence of those conditions in the organization.

7.1.1 Organizational environment

The organizational environment is composed of the organizational culture, the level of organizational red tape and collaborative red tape, the level of commitment of the employee as well as the level of stress in the federal ministries and agencies.

Both administrative and non-administrative cultures are to be found in federal organizations, although not necessarily in the same organization. The administrative culture emphasizes internal control and formal rules, while the non-administrative culture emphasizes the achievement of performance, social relations and creativity. This mix indicates that federal public organizations and agencies value the achievement of objectives, trust and creativity as much as stability and continuity. On average, the two different cultures are to be found to a moderate or to a rather high extent across the federal organizations.

The items on organizational red tape can be divided into two different factors. Higher scores are given to the factor which refers to budgetary red tape. Whereas the non-budgetary red tape is on average present between a rather low and a moderate extent in all types of organizations, the budgetary red tape is scored higher, with the highest scores in the FWI/ESF. Comparatively, managers in the social security agencies (OISZ/IPSS) report relatively the lowest levels of budgetary red tape, although still considerable in its presence. A same pattern is found concerning collaborative red tape, which are rules that constrain collaboration. OISZ/IPSS report the lowest level of collaborative red tape.

The federal respondents report that employees in their organization have on average to a high extent organizational commitment. The level of stress, in turn, differs between Institutions of Public Utility (ION/OIP) and the other type of organizations. The environment in Institutions of Public Utility (ION/OIP) is perceived as significantly more stressful.

Organizational environment— In short

In all federal ministries and agencies a mix of administrative and non-administrative culture is present. **Rules constraining employees work and collaboration are present to a moderate extent** in all organizations. **The level of commitment is relatively high** in all organizations. **Stress is highest** in Institutions of Public Utility (ION/OIP).

7.1.2 Organizational capacities

The reports explored three types of organizational capacities:

- **Connective capacities** are the capacities to establish links and facilitates exchange between different actors. They exist at three levels. At the individual level, connective capacities refer to the individual ability to build relationship between actors and link their ideas and interest. At the intra-organizational level, connective capacities refer to processes or resources that facilitates

exchange of information and collaboration within an organization, between different organizational units. At the inter-organizational level, connective capacities refer to processes or resources that facilitates exchange of information and collaboration with external organizations.

- **Learning capacities** are the capacities organizations have to use knowledge. We looked at them at two levels. At the intra-organizational level, learning capacities refers to the capacity of organization to adjust existing practices based on new insights. At the inter-organizational level, learning capacities refers to the extent to which organizations experiment and learn with actors outside of the organization.
- **Innovative capacities** are the capacities to implement and develop innovations. Those capacities are divided between processes and resources.

When it comes to intra-organizational connective capacities, processes and resources that facilitate exchange between units of one organization are, overall, to a similar extent present, but there are significant differences according to organizational size. Capacities that facilitate collaboration between organizational units are present to a higher extent in large organizations, as compared to smaller ones. The level of intra-organizational capacities is significantly higher in larger organizations. Differences also exist between organizational types. Intra-organizational connective capacities are significantly lower for Federal Scientific Institutions (FWI/ESF).

Compared to the other types of capacities, the federal organizations score low on inter-organizational connective capacity. The level of inter-organizational connective capacities is present to a rather low extent in all organizations. Again, significant differences exist between small and larger organizations and between organizations types. Inter-organizational capacities facilitating collaboration with external organizations are on average particularly low in small organizations, as well as in Federal Scientific Institutions (FWI/ESF).

Furthermore, respondents report that individual connective capacities are to a moderate extent present in their organization. A minority of respondents report these capacities to be present in a rather high to a very high extent.

Results show that learning capacities at both the intra and inter-organizational level are not strongly developed. Overall, organizations possess learning capacities to a moderate extent. However, capacities that facilitate learning within the organization as well as with external organizations are present to a significantly higher degree in large organizations, as compared to smaller ones. Those capacities are present to a relatively low extent in Federal Scientific Institution (FWI/ESF), and to a higher degree present in Public institutions of Social Security (OISZ/IPSS).

Both the innovation capacities in terms of processes (plans, policies and procedures) and resources for innovation are not that strongly developed in the Federal government; on average they are present in a rather low to a moderate extent. However, as with learning capacities, differences exist between types of organizations. Innovative capacities in terms of processes are on average higher in Public institutions of Social Security (OISZ/IPSS), as compared to other types of organizations, but even in these organizations, only about 40% of the respondents report these capacities to be present in a rather high to a very high extent. The result is similar for innovative capacities in terms of resources. Public institutions of Social Security (OISZ/IPSS) have higher capacities in terms of resources as compared to other types of

organizations, and are lower for Federal Scientific Institution (FWI/ESF). For all types of organizations, innovative capacities in terms of resources are less present than capacities in terms of processes.

Organizational capacities— In short

Processes, rules and resources facilitating exchange between actors, learning and innovation are on average present to a moderate extent in the federal organizations. Resources for innovation as well as processes, rules or resources facilitating collaboration within members of an organization are less present. **Differences exist between organizations of different size and type.** Overall, organizational capacities are present to a larger extent in large organizations, as compared to smaller ones. With regards to organizational type, Federal Scientific Institution (FWI/ESF) have lower organizational capacities, as compared to other types of organization. They are, on the contrary, relatively higher in institutions of Social Security (OISZ/IPSS).

7.1.3 Characteristics of the collaboration

This report explores three characteristics of collaboration:

- **The type of collaboration** refers to the aim pursued by organizations when they start collaboration. A distinction is made between collaboration where at some point the aim was to develop an innovation and others type of collaboration;
- **The size of collaboration** is the number of actors with whom an organization usually collaborates;
- **The type of actors** with whom organizations collaborate;

With regards to the type of collaboration, all types of organizations collaborate to develop innovations or for other reasons. Respondents indicate that their organization(al unit) collaborates more often with the aim to develop an innovation than they do for other purposes. Again the engagement in such collaborations differs substantially between, but also within organizations. Furthermore, federal organizations engage on average relatively more in small-sized collaborations compared to large-sized collaborations to develop innovations.

With regards to the governmental actors within the Belgian public landscape organizations collaborate with, over half of the respondents of the OISZ/IPSS and the FOD-POD/SPF-SPP report that their organization(al unit) collaborates with other federal ministries and agencies in the same policy area in a rather high to very high extent.

Collaboration with other federal organizations from different policy areas is a little less common. Federal Scientific Institutions (FWI/ESF) are the type of organizations who collaborate the least with other federal organizations active in different policy areas. The FOD-POD/SPF-SPP report the highest level of collaborations with other federal bodies which belong to other policy areas, albeit that they engage in such collaborations on average to a moderate extent.

Collaboration with organizations from different governmental levels is rather limited, particularity for institutions of Social Security (OISZ/IPSS). The level of collaboration with research institutes is higher, but disparities amongst types of organizations are higher as well. Those type of collaborations is particularly

high for Federal Scientific Institution (FWI/ESF), and low for institutions of Social Security (OISZ/IPSS). They are also more common for small-sized organizations. Moreover, collaboration with citizens and non-profit organizations is rather scarcely practiced within the federal government as well. A vast majority of respondents report such collaborations to be non-existing or only present at a limited extent. This holds for all the types of federal organizations.

With regards to other non-governmental or non-Belgian actor organizations collaborate with, collaboration with private actors is the most common. Collaboration with private companies is practiced on average relatively more than collaboration with citizens and non-profit organizations which are rather scarcely practiced within federal government. But such collaborations are still rather limited, although the variety among and within types of organizations organizations is substantial.

Collaboration with European or International institutions varies according to the type of organizations. Institutions of Public Utility (ION/OIP) collaborate with them most often, while institutions of Social Security (OISZ/IPSS) seem to be the least engaged in such international or European collaborations.

Characteristics of collaboration— In short

Results for the type of collaboration and the size of collaboration are similar across all federal organizations. **All organizations collaborate on average as much to develop innovation than for other reasons—both to a moderate extent**. **Organizations collaborate on average to a slightly higher extent in small-size collaboration of four actors or less.** With regards to the type of actors with whom organizations collaborate, **federal organizations collaborate more with other federal organizations active in the same policy field**. Collaboration with non-federal organizations and research institutes is rather low, except for Federal Scientific Institutions (FWI/ESF). **All types of organizations collaborate on average more with private actors than with citizens and NGOs.** Collaborations with citizens and non-profit organizations are rather scarce.

7.1.4 Information sharing and knowledge acquisition

The organizational environment is composed of the level of information sharing with others outside the organization and knowledge acquisition, which is the knowledge acquired as a result of the collaboration. The knowledge acquired consist of knowledge about (1) policy content (2) the collaborative partners (3), the external users or citizens and (4), knowledge about the priority of their responsible ministers. The characteristics of information sharing includes control over partners and the risk that organizations take when they share information, as well as the knowledge they acquire as a result of the collaboration.

On average, all types and sizes of organizations in the federal government generate knowledge to the same moderate extent when they collaborate with other parties. With regards to information sharing, organizations control on average, to a moderate extent, the information given and the behavior of other organizations with whom they collaborate. At the same time, organizations are on average ready to take moderate risk and give all necessary information to the organization with whom they collaborate, even if giving that information could be detrimental. Organizations acquire knowledge to a moderate extent as a result of their collaboration. Knowledge about the content of the policy, the interest of the collaborative partners, the interest of the users and citizens as well as the priority of their responsible ministers is on average acquired to a moderate extent.

7.1.5 Autonomy, organizational control and priority, and interest and interference of politics

This category includes five elements:

- The autonomy the employee has in their organizations;
- The control exert by the organization over their employee;
- The priority given by the organizations to collaborative innovation;
- The extent to which the responsible minister is interested in the innovation process;
- The interference of the responsible minister towards the innovation;

With regard to the organizational sphere, employees of all federal ministries and agencies have on average a moderate level of perceived autonomy and organizational control. The perceived priority towards the innovation exerted by the organization is moderately present as well. With regards to the political sphere, discussion with the responsible minister on the collaborative innovation is rather low. Significant differences exist according to the size and the type of organization. The amount of discussion concerning the innovation is lower for small organizations and Federal Scientific Institution (FWI/ESF), and larger for Institutions of Public Utility (ION/OIP). In this last type of organization, the interference by the responsible minister is moderate. Responsible ministers give, overall, a moderate level of priority to collaborative innovation. Again, disparities exist according to the size and the type of organizations. The priority given to collaborative innovation is lower in small-sized organizations as well as for Federal Scientific Institution (FWI/ESF). The interest of the responsible ministers is, in turn, higher for Federal public services, ministries and federal public planning services (FOD/SPF, POD/SPP).

Autonomy, organizational control and priority, and interest and interference of politics – In short

Staff active in collaborations for innovations in all types of organizations experience on average a moderate level of autonomy and organizational priority. The interest and interference of the responsible minister towards the collaborative innovation is lower in small organizations and in Federal Scientific Institution (FWI/ESF).

7.2 Effect on innovation

To what extent do the conditions presented above influence innovation? This section develops the main conditions that influence (1) the extent to which policy, process, service and technological innovations were developed (2) the origin of those innovations (3) the respondent's satisfaction with innovations and (4), the extent to which they have been piloted and/or implemented.

7.2.1 Extent of innovation developed

For the development of any type of innovation, the organizational environment is important. Specifically, the development of innovation is positively influenced by the extent to which organizations have a non-administrative culture. Organizations that value the achievement of objectives, relationship building and creativity develop more innovations.

The development of policy, technological, process and services innovations is significantly positively related to all connective, learning and innovative organizational capacities

Looking at the characteristics of collaboration, the extent to which organizations participate in collaboration aimed at innovation positively influences the extent to which they develop policy, technological, services and process innovations. When actors collaborate with the clear goal to innovate, they tend to develop more innovations. In addition, the participation in both small and large sized collaboration foster the development of innovations of any type. Collaboration with some type of actors is more important for some types of innovation than for others, but collaboration with all different types of actors results in the development of more innovations.

With regards to the information exchange process, the development of any type of innovation is also driven by the extent to which organizations acquire new knowledge. Learning about the policy content, the interest of their partners, the interest of their users or the citizen, as well as the political priorities is hence important for the development of any type of innovation.

Finally, we see that the extent to which the organization prioritizes collaborative innovation positively influences the extent to which organizations develop any type of innovations, just as autonomy and political interference do. Interestingly, in addition to organizational priority, the development of policy innovation also depends upon the extent to which the responsible minister is interested in the process.

Development of innovations— In short

Overall, the report confirms that **collaboration aiming at developing innovation is an important driver** for the development of policy, technological, services and processes innovations. The collaboration can be in **small-sized or large-sized arrangements**. The different types of actors with whom a federal organization collaborate all influence the different innovations. Innovation is further supported when those collaboration lead to **the acquisition of new, useful knowledge** about the policy developed, the interest of the various stakeholders or the political priority of the responsible minister.

At the organizational level, **a non-administrative culture** centered around the achievement of objectives, relationship and creativity foster the development of innovation. Possessing rules and processes specifically designed for innovation is crucial for the development of any type of innovation. The capacity to regularly adapt organizational practices in light of new insights is also of great importance, except for policy innovations. In addition, individual connective capacity—the extent to which an organization possess staff members that are able to build relations between actors and connect their different ideas matter for the development of policy and services innovations. Finally, the development of all innovations is further supported when collaborative innovation is a priority of the organization, when the employee perceives autonomy and when the responsible minister interferes with the process**.**

7.3 Origin of innovation

Overall, few conditions explain the origin or the source of innovations, that is the relative proportion of innovations developed within the organization, developed internally but inspired by external contributions and developed in collaboration with external actors. The organizational environment has no influence on the origin of innovations.

Surprisingly, concerning organizational capacities, it appears that individual learning capacity, which is the extent to which an organization has staff able to build relationship and connect ideas negatively influence the proportion of innovations organizations develop within their own organization.

When digging into the characteristics of innovations, the proportion of innovations organizations develop internally, inspired or not by external contributions, is negatively affected by collaboration with private companies. Contrary, collaboration with private companies positively influences the proportion of innovations developed through collaboration with other organizations: federal organizations that collaborate with private partners tend to develop more innovations in collaboration with external actors.

The characteristics of the information exchange process during collaboration has no influence on the origin of innovation.

Origin of innovations— In short

The proportion of innovation developed in collaboration with external actors in federal organizations depends on the extent to which the development of innovation is the goal of the collaboration, and the extent to which organizations collaborate with private partners. Organizations giving a higher priority on collaborative innovation are organizations developing to less innovation internally, as compared to other sources of innovation.

7.4 Satisfaction with innovations

Having a non-administrative culture is a good indicator for the satisfaction with the developed innovations. It is positively related to the satisfaction of internally developed innovations, internally developed but inspired by external contributions or developed in collaboration with others. This means that organizations that value the achievement of objectives, relationship building and creativity are more satisfied with the innovations they developed. On the contrary, budgetary red tape has a negative effect on the satisfaction with innovations developed in collaboration with others.

Concerning the different capacities that an organizational can possess, we see that satisfaction is explained by all types of the studied capacities, regardless of the way in which innovations are developed. **Connective capacities** (intra, inter, and individual), **learning capacities** (intra and inter) and **innovation capacities** (concerning procedures and resources) **all positively influence the satisfaction of internally developed innovations, internally developed but inspired by external contributions or developed in collaboration with others.** This is also the case for the attitude of the superior towards the innovations. The more positive, the more satisfaction with the developed innovations, regardless of the origin of the innovation.

When looking at conditions relating to the characteristics of the collaborations, we see that same pattern. Collaborations aimed at creating an innovation, collaboration with federal actors (either from the same or another policy domain), knowledge acquisition, autonomy and organizational control all positively influence the satisfaction with innovations regardless of the origin of the innovation. Furthermore, we see that collaboration with every type of actor leads to more satisfaction, except for collaboration with private companies. Collaboration with private companies does not lead to more satisfaction. Collaboration with all other actors does lead to more satisfaction, but it depends on the innovation origin. For example,

collaboration with citizens only leads to more satisfaction with the innovation when it is developed in active collaboration. This is also the case for organizational priority, political interference and the size of the collaboration. These characteristics lead to more satisfaction but only for certain innovation origins.

Satisfaction with innovations — In short

Respondents in organizations **with a non-administrative culture** are in general more satisfied with the developed innovations. In terms of **organizational capacities**, both all connective, learning as innovation capacities lead to more satisfaction of innovation, regardless of its origin. Also, collaboration in both small as large sized arrangement leads to a higher level of satisfaction with the developed innovations, although this is dependent on the origin of the innovation. This is also the case for collaboration with other actors. Collaboration with all types of actors results in higher levels of satisfaction, but only for one or two types of innovation origins, being innovations which are developed either internally, internally but inspired by external contributions or developed in active collaboration with others. **Only collaboration with federal actors (either from the same or another policy domain) leads to increased levels of satisfaction for innovations regardless of their origin.** Noteworthy is that collaboration with private companies is the only type of collaboration that does not result in higher levels of satisfaction.

Moreover, higher levels of knowledge acquisition, perceived autonomy from the organization and organizational control also leads to higher levels of satisfaction regardless of the innovation origin.

7.5 Piloting and implementation of innovations

This report distinguishes between the extent to which innovations are piloted or experimented with by federal organizations and the extent to which innovations are implemented by or within federal organizations. In both cases, the organizational culture has an important effect. Federal organizations with a non-administrative culture tend to pilot or implement innovations to a higher extent. A non-administrative culture is hence quite important for innovation, as it also supports the development of innovations and the satisfaction with innovations.

Important organizational capacities for piloting or experimentation are the learning (both inter as intra) and innovation capacities (both concerning processes as resources) capacities. These are indicators for the level of piloting of experimentation. A positive attitude of the superior towards collaboration and innovation is important a well. However, we see that concerning the organizational capacities only intra-organizational learning and innovation processes concerning processes have a significant positive relation with the level of implementation of the developed innovation. Piloting and implementation seems hence to depend on the extent organizations have internal organizational processes directed towards learning from external partners and innovation.

Finally, looking at the characteristics of the collaboration, the pilot or the implementation of innovations is positively influenced by the extent to which organizations collaborate with the aim of innovate. In other words, organizations engaged in collaboration that deliberately pursue innovation, pilot or implement those innovations to a higher extent. We also see a positive influence of small-sized collaborations, which tend to be more favorable context for innovation piloting and implementation. Concerning collaboration with others, only collaboration with other federal actors in another policy domain leads to a higher degree

of implementation. None of the collaborations with specific actors leads to more piloting/experimentation.

Furthermore, the extent of knowledge acquisition as well the employee autonomy and the organizational priority have a significant positive influence on the extent to which organizations pilot or implement innovations.

Piloting or implementing innovations— In short

In general**, organizations with a non-administrative culture** pilot or implement innovations to a higher extent**.** Capacities in terms of innovation processes and intra-organizational learning are particularly important: **organizations possessing rules and processes specifically designed for innovation and learning from others** pilot or implement innovations to a higher extent. Small-sized collaboration deliberatively pursuing innovation seems the most favorable context to pilot or implement innovation. Lastly, knowledge acquisition, autonomy of the employee and priority of the organization towards the innovation is positively related to the extent of actual implementation of the innovation.

7.7 Key recommendations

Based on the results we give the following recommendations:

7.1.1 Capacities

The results show that the connective, learning , and innovation capacities are all positively related to the development of policy, technological, service, and process innovations. Moreover, the presence of these capacities also lead to a higher extent of satisfaction with developed innovations. We thus recommend to pay attention to the development of all these capacities. Below we give recommendations how that can be done.

7.1.1.2 Intra-organizational connective capacity

Our results show that the organization should possess a sufficient amount of intra-organizational connective capacity. It leads to the development of innovations and to more satisfaction with them. Intra-organizational connective capacity is the way to which an organization facilitates connecting with others within the own organization and it is recommended to strengthen this. To do so, we recommend the following:

Recommendation 1. Organize regular work-related social activities. Social activities are a great way to let employees get to know each other. When employees are more familiar with each other it becomes easier for them to work together and share information. Not only because the burden of going to someone they do not know is reduced, but also because employees have a better awareness of who has a certain expertise or responsibility within the organization.

Recommendation 2. Stimulate collaboration between different organizational divisions. Innovation is driven by collaboration. Therefore it is recommended that different organizational divisions work together to gain new insights and learn from each other. That way the organizational division can break out of the group think that might be present. Instead they can be inspired by colleagues who can add new insights.

Recommendation 3. Provide sufficient opportunity for informal information exchange within the organization. Sometimes the best ideas are not created in formal meetings, but in the office's pantry while drinking a coffee with co-workers. For that reason is it important that the organization facilitates an environment where people can informally come together to discuss certain issues. That way, issues which are not discussed in formal meetings can still be taken care of and an informal setting can also stimulate the discussion of things which are not suitable for plenary meetings.

Recommendation 4. Facilitate systems or procedures to effectively share information and knowledge within the organization. In order to be able to easily reach co-workers and share information and knowledge with each other it is important to set up systems or procedures within the organization to do so. These can be easy arrangements like weekly meetings where heads of the organizational unit keep each other updated on the things they are doing. Another example is an intra-web where employees can easily see what is happening in the organization, on which they can reach out to each other or on which they can collaborate. The possibilities are endless as long as it stimulates information and knowledge circulation within the organization.

7.1.1.2 Inter organizational connective capacity

Next, having inter-organizational connective capacity is beneficial for the development of innovations and its satisfaction. Inter-organizational connective capacity is the way to which an organization facilitates connecting with others outside the own organization. The following is recommended:

Recommendation 5. Establish policies and routines for management of collaborative arrangements and network activities. It is important that the organization is able to effectively participate in collaborative arrangements and is able to identify opportunities in the network outside the own organization. It is therefore recommended that the organization has policies and procedures such as e.g. stakeholder management, strategic environment management to optimally make use of its environment.

Recommendation 6. Invest in roles or functions for management of collaborative arrangements and network activities. It is recommended that employees of the organization are able to connect with others outside the own organization. It is important that positions are created where employees have to deal with actors outside the organization and that are filled with employees who are skilled in the management of collaborative arrangements and network activities.

Recommendation 7. Facilitate training about how to act effectively in collaborative arrangements. In order to ensure that the employees of the organization can effectively participate in the collaborative arrangements, it is important that they receive some training in this matter. Not only will this make the collaboration more efficient, but it will also increase the likelihood that the employee is able to get the best for the organization out of the collaboration. One can think of training concerning e.g. negotiation, stakeholder analysis and environment management.

7.1.1.3 Individual connective capacities

Next to focusing on the processes and procedures in the organization as a whole, it is also important that the organization has certain staff members who can easily connect with others as our results show that this is an indicator for the development of and satisfaction with innovations. We provide the following recommendation:

Recommendation 8. The organization should invest in staff that has capacities to connect (with) others and connect ideas.

As the collaborative innovation process is driven by a synergy of different ideas and insights it is important that the organization has staff that is skilled to connect these insights and can use them to move forward in the process. The organization should support and train staff to develop competencies that enable them to do this, but also that enables them to connect interests of different parties. Almost everyone in a collaborative arrangement has different interests. It is important that the organization trains or selects staff that is able to see how opposing interests can be connected in order to create a win-win situation, or at least prevent a situation where actors will not collaborate with each other anymore.

Moreover, it is important is that the organization selects or trains individuals to effectively build and maintain trusting relations with other parties outside the organization. That way collaboration with parties outside the own organization can be stimulated. Likewise, attention should be paid to have staff that is not completely new to working with actors from outside the own organization. Their experience can be used to avoid common pitfalls and to come to a more effective way of working. However, the organization should not forget to train and support staff that is new to collaboration so the organization does not become too dependent on employees with much experience in collaboration.

These mentioned points should have special attention when training or hiring staff.

7.1.1.4 Intra-organizational learning capacity

The organization should also pay attention to both the intra as inter-organizational learning capacity. First we provide recommendations to increase the intra-organizational learning capacity. This is the extent to which the organization facilitates learning within the organization. We found that this capacity is positively related to the development of innovations, its satisfaction and the amount of experimentation and implementation. We thus recommend the following:

Recommendation 9. Develop routines to reflect on what new insights and knowledge mean for the organization and adjust policies and routines regularly to new insights or techniques. Sometimes it seems easier to ignore new insights and continue with old practices. To be able to change and reflect on old practices and new insights it is recommended that the organization develops routines to structurally reflect on this. This can be done for example by implementing planning cycles in the organization. That way the organization can structurally evaluate how new insights can be used in the organization. It is important that the organization does not stick to old procedures but that policies and routines are frequently updated. Organizations that are not blind to new insights or techniques have a larger intra-organizational learning capacity and are therefore more effective in developing innovations.

Recommendation 10. Reflect whether the organization learns optimally from the experiences of employees. The organizations in our study range from small-sized (less than 250 people) to large-sized (more than 1000 people). Regardless of its size they are large enough to consist of a severe amount of people who learn things overtime, develop themselves and gain experience. This can all be beneficial to the organization, so the organization should be able to benefit from this and learn from it. Especially in relation with innovation it is very important that the organization is able to learn from the experiences of the people in the organization who have to work with the innovation.

7.1.1.5 Inter-organizational learning capacity

The other type of learning that should be stimulated is inter-organizational learning. Inter-organizational learning is the extent to which the organization learns from parties outside of the own organization and

this capacity is positively related to the development of innovations, its satisfaction and the amount of experimentation. To develop this we recommend the following:

Recommendation 11. Stimulate joint learning with and from other parties outside your organization. The premise of collaborative innovation is that innovation is spurred by combining different insights from different actors. Therefore, the organization should stimulate looking across organizational borders and to jointly learn. Only then collaborative innovation can be established.

Recommendation 12. Use pilots and experiments to test new solutions with other parties outside your organization. Piloting and experimenting with the developed innovations is a good way to see if the innovation actually works and how it should be adjusted. Doing this shows a good learning ability, because the organization is willing to test what they have developed and do not shy away from having some extra pairs of eyes on the innovation to learn from.

7.1.1.6 Innovation capacity (process – wise)

We found that the innovation capacities concerning processes are related to the development of innovations, the satisfaction, the experimentation and implementation of these innovations. We give two recommendations to improve the innovation capacity process-wise.

Recommendation 13. Make innovation part of the plans and routines at the level of the organization, organizational divisions or staff. When innovation is part of the plans in the organization it becomes a routine to look for innovative ways to solve problems in the organization. That way it is stimulated to be innovative and not to grab back too easily on existing procedures when problems occur. Establishing clear policies and procedures for innovation can also help to facilitate an innovation-oriented culture in which employees know how to act accordingly.

Recommendation 14. Connect regular and innovation processes in the organization. When innovating, the organization should ensure that it does not stop the regular processes (for which the organization was established) by just focusing entirely on the innovation. Instead the innovation and regular processes should exist next to each other and if possible reinforce each other. In other words, the organization should be able to innovate while continuing the regular processes.

7.1.1.7 Innovation capacity (resource – wise)

Our results show that the availability of sufficient 'innovation' resources in the organization leads to the development of all types of innovations, a higher satisfaction and to more experimentation with them. Therefore, the organization should also have enough innovation capacity concerning resources. We recommend the following.

Recommendation 15. Make sure that HRM pays attention to innovativeness of employees. It is important that the organization has employees that are willing to take up the initiative to innovate, are out-of-the-box thinkers or are not resistant to change. Thus, HRM should pay special attention to the innovativeness of employees and if possible stimulate this. They should do this in different facets of the HR-cycle: in recruitment and selection when hiring new staff, in training, in career support, in personnel evaluation, et cetera.

Recommendation 16. Allocate resources such as money and time to both regular tasks and innovation and make sure that this is sufficient to fulfill them. Similar as stated in recommendation 14, regular tasks should be able to continue while an innovation is developed. Consequently, the organization should not

move all the resources from the regular task to the innovation and hence basically close down the regular operations of the organization. Contrary, the innovation should not just be a side project that receives little attention in terms of resources. A good balance is required.

Recommendation 17. Use ICT and new technologies to innovate. It is recommended that the organization stays up to date with the latest ICT developments to be used in the development of innovations. The premise of this report is that collaboration is stimulated by collaboration with other parties. ICT provides an efficient way to get in touch with other actors outside the own organization, but also to share information quickly within the own organization. The organization should enable the employees to work with the latest e-resources to facilitate this. Moreover the organization should be open to the rapid developments in ICT, especially when these can stimulate innovation.

7.1.2 Collaboration

Recommendation 18. Increase collaboration with different types of actors. We recommend to collaborate with different types of actors. When other types of organizations or concepts are not included in the statistical models, it was found that collaboration with almost all actors have a significant effect on the development of the different types of innovations. It also leads often to more satisfaction with the developed innovations.

Especially important are collaborations with private actors and other federal ministries or agencies in the same policy area. When all types of organizations were added to the model we found that collaborations with private companies leads to the development of technological, service and process innovations. Innovations developed with federal ministries or agencies in the same policy area has a positive effect on the development of policy innovation, service innovation and process innovation. Additionally, when innovations are developed in active collaboration with other federal ministries or agencies in the same policy area (and not just inspired by or only internally developed) it leads to more satisfaction with these innovations.

Moreover, we recommend to increase collaboration with actors with whom the organization does not collaborate frequently. We found that collaboration with certain types of actors should be stimulated more as collaboration with them has an effect on the development of innovations but are to a limited extent present in the federal administration. Especially collaboration with citizens, organizations from different governmental levels, non-profit organizations and knowledge institutions should be increased as this is currently scarce.

7.1.3 Organizational factors

Recommendation 19. Develop a positive attitude towards collaboration as well as innovation at the top-level of the organization and make innovation a priority for the organization. We found that the development of innovations, the satisfaction and experimentation with them is positively related to a positive attitude of the superior of the respondent towards innovation. We argue that it is beneficial for the process that the managers on the top-levels develop a positive attitude towards innovation or otherwise that an employee tries to convince its superior of the need for innovation. The development of the innovation should be a priority. But, of course, the regular tasks of the organization should not be affected (too much) by the development of the innovation (see recommendation 17).

Recommendation 20. Make sure that the staff of your organization, who are active in collaborative arrangements for innovation, receives enough autonomy in the collaborative arrangement. When the representative of the organization in the collaborative arrangement aimed at innovation perceives that he/she gets a sufficient amount of autonomy to act as he/she sees fit in the innovation process it leads to a higher extent of developed innovations of all types, a higher amount of satisfaction and implementation. So, give the representative of your organization should receive enough autonomy in the development of innovations.

Recommendation 21. A minister being concerned with the innovation is helpful. The results show that when respondents experience interference from their responsible minister (or cabinet) that the development of all different types of innovations are stimulated. A recommendation would be to try to make the minister aware of the innovations in progress, so he or she can interfere when necessary. On top of that, the development of policy innovations is stimulated when the innovation is actively discussed with the responsible minister (or cabinet).

7.1.5 Knowledge acquisition

Recommendation 22. Create a collaborative environment that supports effective knowledge exchange between actors. Knowledge acquisition during collaboration is crucial for the development of innovations. Different types of knowledge are useful and lead to innovation:

- knowledge about the policy content, which refers to knowledge about the content of a policy/process/method (1);
- knowledge about other actors involved in the collaborative innovation arrangement, which includes knowledge about their expectations, their ways of working and their resources (2);
- knowledge about the expectations of users or the citizens and (3);
- knowledge about the priorities of their responsible political principals (4).

All of those types of knowledge are important for the development of innovation. Knowledge about the content ensures that the innovation designed is based on scientific insights and is not merely the product of interests disconnected from the reality. Knowledge about the collaborative partners as well as innovation users or citizens is important for the development of innovations that addresses all stakeholders' interests and needs. Finally, knowledge about the priority of their responsible ministers ensures the innovation is politically supported.

We hence recommend creating a collaborative environment that supports effective knowledge exchange on this diversity of topics between actors. Listening carefully to everyone, build trust amongst partners so they feel free to share information, develop informal channels of communication by organizing informal activities are important elements for such knowledge acquisition.

In order for this knowledge to be useful in the long-term, we recommend the establishment of internal mechanisms of knowledge management allowing the organization to safeguard and use the knowledge created. See also the recommendations concerning learning and innovation capacities.

7.1.6 Non-administrative organizational culture

We found that a non-administrative culture fosters the development of innovation, is associated with a higher level of satisfaction with the innovation developed and positively affects the level of implementation

of the innovations. The values of a non-administrative culture should complement rather than compete with values associated with an administrative culture, such as control. To stimulate this non-administrative organizational culture we recommend the following:

Recommendation 23. Encourage entrepreneurship in the organization. The findings show that an organization which is an entrepreneurial, dynamic place is positively related to innovation. Employees should be able to take on own initiatives and to take on projects or activities that might not be strictly part of their job/role. Supervisors should create an open and safe climate that stimulates creativity amongst employees. Giving trust and autonomy to employees but also being receptive for bottom-up ideas are, therefore, important organizational values that should be propagated by every supervisor. Moreover, organizing brainstorm sessions amongst employees and providing training regarding entrepreneurial behavior could be facilitating entrepreneurship as well.

Recommendation 24. The organization should be result-oriented, and aim at goal accomplishment. Our findings suggests that results orientation and goal accomplishment are part of the non-administrative culture which leads to innovative outcomes. Therefore it is recommended to adopt a leadership style based on mutual trust and management by results rather than command and control. This can be achieved by setting objectives in consultation with the employees, and thus by giving them enough job autonomy.

Recommendation 25. Reduce the amount of red tape where possible. Burdensome rules are detrimental to the development of innovations. It should be monitored that no red tape, specifically burdensome rules that hinder collaboration, is created in the organization and is reduced as much as possible. That way innovations can be developed without too much restrictions which is essential for out of the box thinking and being able to give leeway for the implementation of innovations.

References

Andriopoulos, C., & Lewis, M. W. (2009). Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation. *Organization science*, *20*(4), 696-717.

Bekkers, V. J. J. M., Tummers, L. G., & Voorberg, W. H. (2013). From public innovation to social innovation in the public sector: A literature review of relevant drivers and barriers. Rotterdam: Erasmus University Rotterdam.

Bommert, B. (2010). Collaborative innovation in the public sector. *International public management review*, *11*(1), 15-33.

Borghans, L., Heckman, J. J., Golsteyn, B. H., & Meijers, H. (2009). Gender differences in risk aversion and ambiguity aversion. *Journal of the European Economic Association*, *7*(2-3), 649-658.

Borins, S. (2000). Loose cannons and rule breakers, or enterprising leaders? Some evidence about innovative public managers. *Public administration review*, *60*(6), 498-507.

Bozeman, B. (1993). A Theory of Government "Red Tape" Journal of Public Administration Research and Theory: J-PART, 3(3), 273-303. Retrieved from http://www.jstor.org.kuleuven.ezproxy.kuleuven.be/stable/1181785

Bozeman, B., & Feeney, M. K. (2011). Rules and red tape: A prism for public administration theory and research. ME Sharpe.

Büschgens, T., Bausch, A., & Balkin, D. B. (2013). Organizational culture and innovation: A meta-analytic review. Journal of product innovation management, 30(4), 763-781.

Chen, G., & Williams, D. W. (2007). How political support influences red tape through developmental culture. Policy Studies Journal, 35(3), 419-436.

Damanpour, F., Walker, R. M., & Avellaneda, C. N. (2009). Combinative effects of innovation types and organizational performance: A longitudinal study of service organizations. *Journal of management studies*, *46*(4), 650-675.

De Vries, H., Bekkers, V., & Tummers, L. (2016). Innovation in the public sector: A systematic review and future research agenda. *Public administration*, *94*(1), 146-166.

DeHart-Davis, L. (2009). Green tape: A theory of effective organizational rules. Journal of Public Administration Research and Theory, 19(2), 361-384.

Gieske, H., van Buuren, A., & Bekkers, V. (2016). Conceptualizing public innovative capacity: A framework for assessment. *The Innovation Journal*, 21(1), 1.

Gieske, H., George, B., van Meerkerk, I., & van Buuren, A. (2019). Innovating and optimizing in public organizations: does more become less?. *Public Management Review*, 1-23.

Hartley, J., Sørensen, E., & Torfing, J. (2013). Collaborative innovation: A viable alternative to market competition and organizational entrepreneurship. *Public administration review*, *73*(6), 821-830.

Klijn, E. H., & Koppenjan, J. (2016). *Governance networks in the public sector*. Routledge.

Koppenjan, J. F. M., & Klijn, E. H. (2010). *Managing uncertainties in networks: a network approach to problem solving and decision making*. Psychology Press.

Leach, W. D., Weible, C. M., Vince, S. R., Siddiki, S. N., & Calanni, J. C. (2014). Fostering learning through collaboration: Knowledge acquisition and belief change in marine aquaculture partnerships. *Journal of Public Administration Research and Theory*, *24*(3), 591-622.

Ljungholm, D. P. (2014). The pervasiveness of red tape in public organizations. Geopolitics, History, and International Relations, (1), 117-122.

Mael, F., & Ashforth, B. E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of organizational Behavior*, *13*(2), 103-123.

May, P. J. (1992). Policy learning and failure. *Journal of public policy*, *12*(4), 331-354.

Moon, M. J., & Bretschneiber, S. (2002). Does the perception of red tape constrain IT innovativeness in organizations? Unexpected results from a simultaneous equation model and implications. Journal of Public Administration Research and Theory, 12(2), 273-292.

Oomsels, P. (2016). Administrational Trust: An empirical examination of interorganisational trust and distrust in the Flemish administration. (Unpublished doctoral dissertation or master's thesis). KU Leuven.

Osborne, S. P., & Brown, L. (2011). Innovation, public policy and public services delivery in the UK. The word that would be king?. *Public administration*, *89*(4), 1335-1350.

Pandey, S. K., Coursey, D. H., & Moynihan, D. P. (2007). Organizational effectiveness and bureaucratic red tape: A multimethod study. Public Performance & Management Review, 30(3), 398-425.

Quinn, R. E., & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. Management science, 29(3), 363-377.

Schultz Larsen, T. (2015). The Ambivalent Relations Between Bureaucracy and Public Innovation: The Case of the Successful Failure of Dial Police. *International Journal of Public Administration*, *38*(2), 92-103.

Sørensen, E., & Torfing, J. (2011). Enhancing collaborative innovation in the public sector. *Administration & Society*, *43*(8), 842-868.

Stazyk, E. C., Pandey, S. K., & Wright, B. E. (2011). Understanding affective organizational commitment: The importance of institutional context. The American Review of Public Administration, 41(6), 603-624.

Tuurnas, S. (2015). Learning to co-produce? The perspective of public service professionals. International Journal of Public Sector Management, 28(7), 583-598.

Van Dijck, C., Steen T. (2017). Co-producing innovation: the role of red tape. NIG conference. Maastricht, 9-10 November 2017.

Walker, R. M., & Brewer, G. A. (2008). An organizational echelon analysis of the determinants of red tape in public organizations. Public Administration Review, 68(6), 1112-1127.

Zaheer, A., McEvily, B. & Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, (9), 141-159.

Zammuto RF and Krakower JY (1991) Quantitative and Qualitative Studies of Organisational Culture, Research in Organisational Change and Development 5: 83-114.

Appendix A : Responses

	Ascribed	Non-deliverable	Absent entire survey period	Total that received suvey	Total filled in	Response rate
N1	44	3	1	38	15	39.5%
N2	418	26	5	387	140	36.4%
N3	1429	53	19	1357	473	34,8%
Total	**1891**	**82**	**25**	**1782**	**628**	**35.2%**

Table 70. Response

Type of organization	Highest level	Second highest level	Third highest level	Total
FOD-POD/SPF-SPP	4	51	254	309
FWI/ESF	7	30	46	83
ION/OIP	2	16	24	42
OISZ/IPSS	2	43	149	194
Total	**15**	**140**	**473**	**628**

Table 71. Response per managerial level and organizational type