FLEXPUB

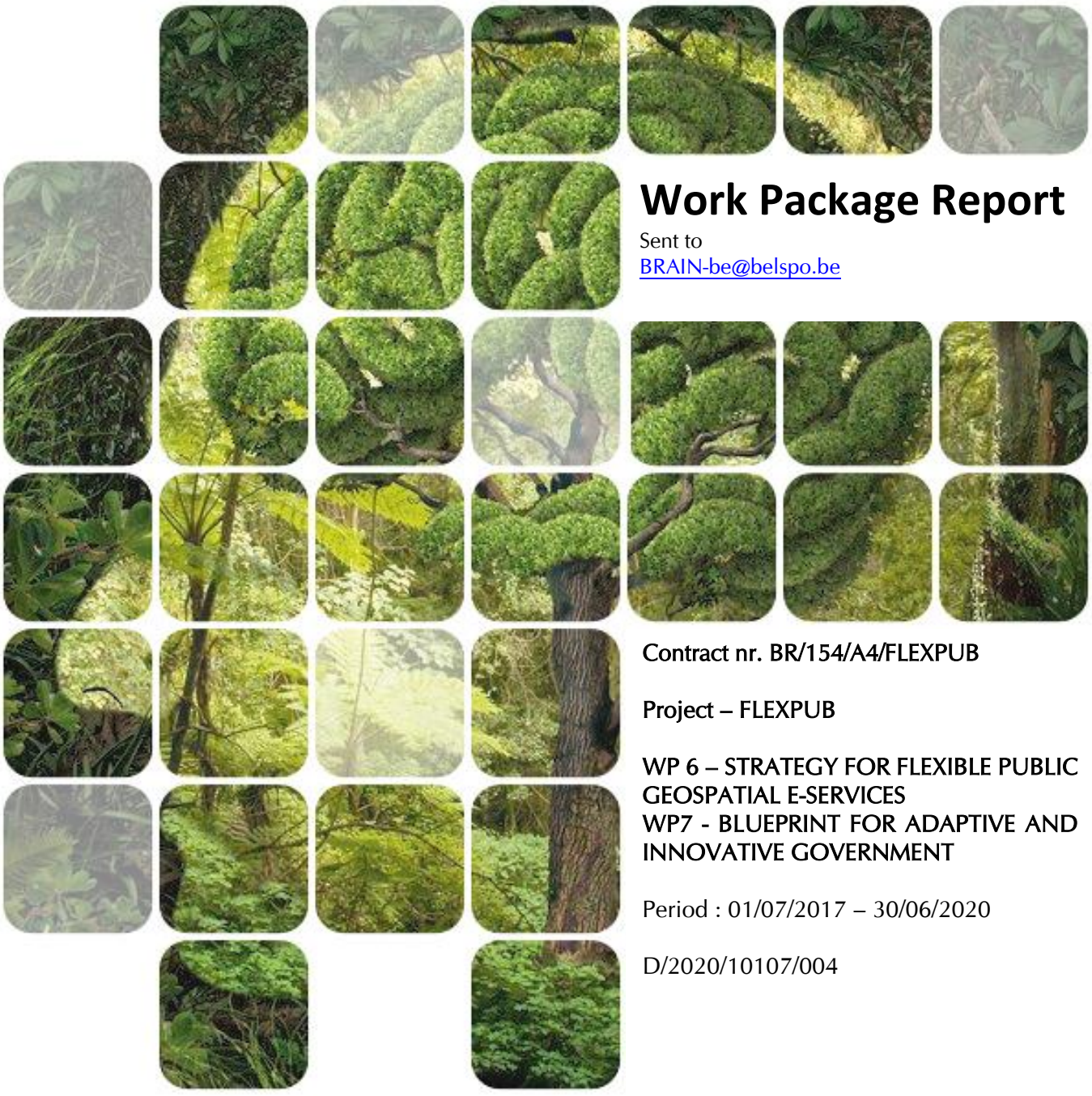
Crompvoets, Joep; Bouckaert, Geert; Snoeck, Monique; HABRA, Naji; De Terwangne, Cecile; Vanden Berghe, Ingrid; Chantillon, Maxim; Kruk, Rink ; Simonofski, Anthony; Tombal, Thomas; Kruk, Rink W.

Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

BRAIN-be

BELGIAN RESEARCH ACTION THROUGH INTERDISCIPLINARY NETWORKS



Work Package Report

Sent to
BRAIN-be@belspo.be

Contract nr. BR/154/A4/FLEXPUB

Project – FLEXPUB

WP 6 – STRATEGY FOR FLEXIBLE PUBLIC GEOSPATIAL E-SERVICES
WP7 - BLUEPRINT FOR ADAPTIVE AND INNOVATIVE GOVERNMENT

Period : 01/07/2017 – 30/06/2020

D/2020/10107/004

NETWORK

COORDINATOR

Prof. dr. ir. Joep Crompvoets (KU Leuven – Public Governance Institute)

PARTNERS

- Prof. dr. Geert Bouckaert – Prof. dr. Bruno Broucker – Prof. dr. Ir. Joep Crompvoets (KU Leuven – Public Governance Institute)
- Prof. dr. Monique Snoeck (KU Leuven – Research Centre for Management Informatics)
- Prof. dr. Naji Habra – Dr. Benoit Vanderose (UNamur – Research Centre on Information Systems Engineering)
- Prof. dr. Cécile De Terwangne (UNamur – Research Centre on Information, Law, and Society)
- Ir. Ingrid Vanden Berghe – Jan De Waele (National Geographic Institute of Belgium)

AUTHORS

1. Prof. dr. ir. Joep Crompvoets (KU Leuven – Public Governance Institute)
2. Prof. dr. Monique Snoeck (KU Leuven – Research Centre for Management Informatics)
3. Prof. dr. Naji Habra – Dr. Benoit Vanderose (UNamur – Research Centre on Information Systems Engineering)
4. Prof. dr. Cécile De Terwangne (UNamur – Research Centre on Information, Law, and Society)
5. Maxim Chantillon (KU Leuven – Public Governance Institute)
6. Rink Kruk (National Geographic Institute of Belgium)
7. Dr. Anthony Simonofski (KU Leuven – Research Centre for Management Informatics)
8. Thomas Tombal (UNamur – Research Centre on Information, Law and Society)

PROJECT WEBSITE: WWW.FLEXPUB.BE

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report summarises the main findings from Work Package (WP) 6 Strategy for flexible public geospatial e-services and WP7 Blueprint for adaptive and innovative government. As these two work packages are closely related and interlinked, it was deemed relevant to present them in the same report.

This report first presents the overall methodology followed to perform the research. The nine different steps that have been followed to develop the FLEXPUB Final Strategy and FLEXPUB Final Blueprint are described in detail. It is important to mention that the development of the FLEXPUB Final Strategy and FLEXPUB Final Blueprint has been an iterative process. This has been the aim since the start of the project, and the researchers are convinced that they managed to succeed in following this iterative approach. Besides the iterative approach that had been predefined in the project, the researchers also applied the highly relevant input from the Members of the Follow-up Committee. As the development of the Strategy and Blueprint has been strongly connected throughout the entire FLEXPUB project, it has been decided to describe the overall methodology as one. Specific methodological aspects of the Strategy and Blueprint are however outlined when relevant.

Then, the final Strategy for flexible public geospatial e-services is presented. It first contains a Strategic vision for flexible and innovative e-services, which aims to guide the federal administration for the next ten years (2020-2030). It is focused on location-based e-services, as data and information, and especially geo-data and geo-information, are key to offer real-time and valuable services to citizens, businesses and other administrative organisations. Moreover, it is built on three pillars (Openness, Participation, Collaboration) and a fundament (Geo-orientation). In order for this strategic vision to be implemented in practice, this Strategy suggest to work in three iterative cycles of three years (2020-2023; 2024-2026; 2027-2029), in order to be aligned with potential technological or organisational evolutions that might affect the roll-out of the Strategy. Concretely, this Strategy suggests, on the basis of preliminary findings, several strategic actions that the federal administrations should start working on during the first cycle (2020-2023), in order to implement the ten years Strategic vision. To implement these, this Strategy calls for the creation of a Task Force who should be responsible for the execution of these actions and who would possess the necessary coordination capacity and a dedicated budget to do so. In order to help the Task Force in this endeavour, this Strategy outlines strategic priorities to be pursued among the suggested strategic actions for the first cycle, and highlights a number of risks potentially preventing the implementation of the suggested strategic actions. The Strategy also suggests a roadmap (by making use of TOGAF) and key performance indicators (based on the SMART Approach) to be used by the Task Force in the course of the implementation. Naturally, the Task Force shall remain free to depart from these suggestions, and to define its own strategic priorities, risks, roadmap and key performance indicators.

Afterwards, the final Blueprint for adaptive and innovative government is presented. The scope of this blueprint is much wider than the narrow scope of the strategy (WP 6), which just focuses on the flexible and innovative geospatial public e-services. This generic blueprint aims to translate the geospatially oriented strategy into a vision document for an adaptive and innovative e-government at the federal level. The blueprint includes suggested principles and strategic actions for an adaptive and innovative (e-)government at the federal government level as well as the associated implications. Besides the principles and strategic actions, the blueprint also includes a vision, objectives, stakeholders, benefits, strategic areas and a governance structure.

Finally, the conclusions of this report are presented.

1. INTRODUCTION

This report summarises the main findings from Work Package (WP) 6 Strategy for flexible public geospatial e-services and WP7 Blueprint for adaptive and innovative government. As these two work packages are closely related and interlinked, it was deemed relevant to present them in the same report. The objectives of these two work packages are presented below.

WP6 deals with the development of a strategy for flexible geospatial public e-services, by consolidating the outcomes of WP2 Baseline Measurement, WP3 Requirements Analysis, WP4 Enablers and WP5 Case Studies. The scope of this strategy is narrowed down to flexible and innovative geospatial e-services. This strategy builds on existing context (outcome of WP2) and addresses the changing requirements for e-service delivery (outcome of WP3) as a foundation to achieve the flexible management of geospatial public e-services. The strategy defines a target vision and objectives in terms of the seven COBIT enablers (WP4) and incorporates the results and lessons from the case studies (WP5). An initial version of the strategy was drafted after half of the project (first presentation to the Members of the Follow-up Committee in May 2018), and was continuously improved and refined since then. The strategy includes the vision, objectives, key stakeholders, benefits, and strategic areas regarding the seven COBIT enablers as well as suggested strategic actions, strategic priorities, associated risks, a governance structure, a list of key performance indicators, and a proposed roadmap for its implementation.

WP7 deals with the development of a federal blueprint for adaptive and innovative government based on the findings of the previous WPs. As such, the scope of this blueprint is much wider than the narrow scope of the strategy (WP 6), which just focuses on the flexible and innovative geospatial public e-services. This generic blueprint aims to translate the geospatially oriented strategy into a vision document for an adaptive and innovative e-government at the federal level. The blueprint includes suggested principles and strategic actions for an adaptive and innovative (e-)government at the federal government level as well as the associated implications. Besides the principles and strategic actions, the blueprint also includes a vision, objectives, stakeholders, benefits, strategic areas and a governance structure. Here also, an initial version of the blueprint was drafted after half of the project, and was continuously improved and refined afterwards.

This report is structured as follows. Section 2 presents the overall methodology followed to perform the research. Section 3 presents the final strategy and Section 4 presents the final blueprint. Finally, Section 5 presents the conclusions of this report.

2. METHODOLOGY

INTRODUCTION

In this Section, the nine different steps that have been followed to develop the FLEXPUB Final Strategy and FLEXPUB Final Blueprint are described in detail. Some of the steps refer to research undertaken in specific WPs. For those steps, the researchers refer the readers wishing to get more details and information to the specific reports that have been written for those WPs.

Before presenting these steps, it is important to mention that the development of the FLEXPUB Final Strategy and FLEXPUB Final Blueprint has been an iterative process. This has been the aim since the start of the project, and the researchers are convinced that they managed to succeed in following this iterative approach. Besides the iterative approach that had been predefined in the project, the researchers also applied the highly relevant input from the Members of the Follow-up Committee. Therefore, the researchers would already here like to thank the Members for the strongly appreciated input in the development of the Final Strategy and Final Blueprint.

As the development of the Strategy and Blueprint has been strongly connected throughout the entire FLEXPUB project, it has been decided to describe the overall methodology as one. Specific methodological aspects of the Strategy and Blueprint are however outlined when relevant.

STEP 1: RESEARCH OF WP2 – BASELINE MEASUREMENT AND WP3 – REQUIREMENTS FOR E-SERVICE DELIVERY

The first step in defining the Strategy and Blueprint was WP2 – Baseline Measurement and WP3 – Requirements. In WP2, a picture was taken of the Belgian geospatial e-service situation, which allowed to understand the current ecosystem. WP3 focused on the identification of the requirements for the delivery of future geospatial e-services.

From a methodological point of view, those WPs made use of interviews, an online survey, focus groups and a citizens' questionnaire.

A number of key conclusions have been drawn from the research in WP2 and WP3. Those research results have been used as building blocks for the draft Strategy and draft Blueprint. First of all, it is worth to note that although there are a number of areas for improvement, the Belgian administrations have performed above average when compared to other European Union Member States, and well-above average on a global scale. Actions have been taken to move forward on the path of digitalisation from an administrative perspective and there seems to be a willingness to take it even further. However, strong challenges and requirements remain and have been defined as follows:

- Processes
    - Stakeholders' participation in e-service development
    - Divergences of opinions on private sector participation
- Organisational structures
    - Inter-organisational relations between different administrative levels and at the same level
    - Leadership for the digital agenda
- Service infrastructure and applications
    - Lack of shared hardware and software
    - Interoperability
    - User-friendliness of e-services

- Innovation Status in Administrations

- People, skills and competencies
  - Digital divide among citizens
  - Public sector attractiveness
  - Lack of financial resources
- Culture, ethics and behaviour
  - Fear of change due to the impact of technologies
  - Strong silo structure
  - Lack of sufficient political support
- Principles, policies and frameworks
  - Divergences of opinion on Open Data policies
  - Compliance with data protection and security rules
- Semantics & Location-based data

The results of the WP2 and WP3 reseach have been used in Step 2, Step 3, Step 7 and Step 9.

STEP 2: RESEARCH OF WP4 – ENABLERS

WP4 dealt with the identification of enablers, which are factors that, individually and collectively, influence whether the requirements for e-service delivery, identified in WP 3, can be achieved. This WP is the result of an ongoing research that started at the beginning of the FLEXPUB research project in 2016. The results of WP2 and WP3 have strongly influenced the direction of this research. On the basis of the identified challenges and requirements collected from the respondents, the research team created an overview of potential enablers (based on the COBIT framework) that can support the (federal) public administration in finding a way to deal with their needs and requirements.

The research for each of the enablers is based on in-depth interviews, a general questionnaire, a citizen questionnaire, focus groups, an international practice comparison, a literature review of (scientific) documents, a documents' analysis, or on a combination of those research methods. All those different approaches have contributed to the identification of good practices and possible solutions and/or contributions to deal with the identified needs and requirements.

Besides identifying good practices, solutions and contributions, this WP also devoted attention to the various risks that could prevent the implementation of the suggested enablers. For each of these enablers, a number of risks have been defined and discussed, as well as the likelihood of occurrence of those risks. Risk mitigation factors have been proposed in order to suggest actions to circumvent the risks, or circumstances that reduce the risks' impact have been suggested. Additionnaly, the consequences of the lack of implementation of the enablers were outlined in an impact assessment. Finally, a number of cross-cutting policy options were included, and a connection has been made to the Digital Belgium approach (2015-2020) which was launched under the impulse of Minister De Croo, and the Sustainable Development Goals (2015-2030) of the United Nations.

The results of the WP4 reseach have been used in Step 3, Step 7 and Step 9.

STEP 3: DEVELOPMENT OF DRAFT STRATEGY AND DRAFT BLUEPRINT

The next step, i.e. Step 3, consisted in the development of the draft Strategy and draft Blueprint.

DRAFT STRATEGY

The research team started the development of the draft Strategy in April 2018. The foundation for the document

was layed via the input from Step 1 and Step 2. First, the daily research team drafted a preparatory document, which was revised and reworked by the project coordinator. On the basis of the project coordinator's input, the document was reworked by the daily research team and sent for feedback and input to the entire FLEXPUB research team. The text was then again finalised by the daily research team, and presented – see Step 4 – to the Members of the Follow-up Committee. The draft Strategy included only the vision, objectives, key stakeholders, benefits, and strategic areas regarding the seven enablers:

- The vision is about defining a vision (and a mission) in collaboration with the stakeholders and to ensure that it aligns with the relevant existing policies;
- The objectives refer to the objectives to be achieved in collaboration with the stakeholders;
- The key stakeholders are those that strongly need to be involved in the further implementation of the strategy;
- The benefits list clearly what will happen when the objectives are achieved; and
- The strategic areas determine the key areas that must be emphasised to address the critical issues, and that need extra effort from the federal government.

All of the above was included in the draft Strategy, and the FLEXPUB research team also decided to include already the strategic actions (the key actions that must be undertaken), which were originally only foreseen to be added in the Final Strategy. Given the detailed scientific results of WP2 and WP3, and the well-progressed research for WP4, it was deemed possible to include already strategic actions in the draft Strategy, which could further stimulate the debate with the Members of the Follow-up Committee, and lead to a more fine-grained result for the Final Strategy.

Regarding the time period, it was originally foreseen to develop an Initial Strategy – or draft Strategy – for the period 2018-2025. Based on the findings from WP2 and WP3, the ongoing work for WP4, and the importance of aligning the Strategy to already existing global strategies, it was decided to immediately develop the draft Strategy for the period 2018-2030. In this way, the target time range was connected to the United Nations' Sustainable Development Goals and it was also clear for the Members of the Follow-up Committee what the overall time range of the Final Strategy would be.

DRAFT BLUEPRINT

A similar approach was followed for the draft Blueprint, for which the preparatory work resulting in a first draft started in October 2018. Similarly to the Strategy, a first document was developed by the daily research team on the basis of the results gathered via the above described steps. This text was then revised by the project coordinator, and in a later stage also by the entire FLEXPUB research team. The draft document was then further refined and reworked by the daily research team, and presented – see Step 4 – to the Members of the Follow-up Committee. The draft Blueprint was derived from the draft Strategy, thereby making the link between the flexible management of geospatial e-services and e-government. The focus in this draft Blueprint was put on the development of principles, strategic actions and possible implications:

- Principles address the formulation of a set of guiding principles to engage and enable the relevant stakeholders to develop a vision for an adaptive and innovative e-government;
- Strategic actions refer to a list of suggestions for adapting and innovating the federal e-government;
- Implications provide the consequences of the suggested strategic actions with estimated probability, impact and mitigation approach.

Furthermore, it was decided to include in the draft Blueprint already a vision, objectives and stakeholders. This was originally only foreseen for the Final Blueprint, but it was possible – for the same reasons as described above for the draft Strategy – to include already those elements in the draft Blueprint as well. Time wise, it was decided to follow the same time horizon as the one applied for the draft Strategy: 2018-2030.

STEP 4: DEBATE WITH FOLLOW-UP COMMITTEE

The next step, i.e. Step 4, consisted in the presentation of the draft Strategy and draft Blueprint to the FLEXPUB Follow-up Committee.

DRAFT STRATEGY

The draft Strategy was presented to (and debated with) the Members of the Follow-up Committee for the first time during the meeting of 29 May 2018. First, the research team took the time to present the draft Strategy, and afterwards, a selection of points described in the draft Strategy were debated with the Members. In order to stimulate the interaction, the research team made use of a digital voting tool (Slido.com). This allowed all Members to express their opinion, and after each vote the result was debated with the Members. All Members had also received the draft Strategy before the meeting. This allowed them to read the document before the meeting and to prepare feedback points that they wanted to share with the research team. It also allowed the Members to share the document within their organisation, and to provide as such feedback with a higher validity degree. After the meeting, all Members continued to have the opportunity to provide feedback to the draft Strategy. Some Members made use of this option

The following Strategic Actions were debated with the Members:

- We recommend that the federal government foresees a sustainable "Open Data funding" in order to ensure the quality, the continuity and the maintenance of the opened data, via a global federal budgetary envelope, or via the creation of "Freemium models".
- We recommend that the federal organisations work on making their data available via Application Programming Interfaces (APIs), in order to provide visibility on the data re-uses, allowing identification of "re-use success stories".
- We recommend that the federal, regional's and communities' governments harmonise their "data re-use licences", thus avoiding licensing incompatibilities' issues.
- We recommend that FPS BOSA – DG DT works in cooperation with the Belgian Data Protection Authority, in order to further educate the civil servants about the EU General Data Protection Regulation and its impact for the administrations.
- We recommend that federal organisations adopt an Agile way of working when developing their e-services and the tailoring of an existing Agile methodology, in order to be more adapted to the specificities of the federal administration and its e-services.
- We recommend that federal organisations focus on the participation of potential users in the development of e-services, to make the e-services more user-friendly, more aligned with user requirements and to potentially increase its usage afterwards.
- We recommend that each federal organisation reflects about continuous training and re-orientation possibilities that it offers where civil servants can be taught new digital skills to keep up with the evolving information society.
- We recommend that it might be relevant for the DG DT and the DG Recruitment and Development of the FPS BOSA to develop a pick-and-choose e-service project toolbox to guide civil servants in the e-service transition process.
- We recommend that the SIT is institutionalised so that this board can take advisory positions in relation to the federal organisations, the three Colleges and the government.
- We recommend that the SIT has an advisory function for a number of specific e-government non-project related topics, whereby it would have the option to rely on a majority voting system to ensure that common agreements are reached.

- We recommend that, a new organisation is created within the federal administration to deal with location-based data, bringing together different types of mapping currently spread among different federal organisations.
- We recommend that this new organisation takes up the role of geospatial service integrator for the federal administration.

DRAFT BLUEPRINT

The draft Blueprint was presented to (and debated with) the Members of the Follow-up Committee for the first time during the meeting of 22 January 2019. In line with the presentation of the draft Strategy, the draft Blueprint was first presented to the Members of the Follow-up Committee, and then debated in greater detailSimilarly than for the draft Strategy, the draft Blueprint was also shared with the Members of the Follow-up Committee in advance of the meeting. The members provided their feedback on the draft Blueprint during the meeting. The Members could also provide input to the draft Blueprint after the meeting, and chose to do so.

STEP 5: PRESENTATIONS AT INTERNATIONAL CONFERENCES

The FLEXPUB research team then presented the draft Strategy and draft Blueprint at two international conferences, in order to get feedback from the academic community:

- INSPIRE Conference 2018 – Antwerp (Belgium);
- Data for Policy 2019 – London (United Kingdom).

The feedback received from the audience, consisting of national and international researchers and practitioners, was included in the update process of the draft Strategy and draft Blueprint.

Furthermore, it was also foreseen to present (and debate about) the Strategy and Blueprint at the following conferences:

- BEGEO 2020 – Brussels (Belgium);
- INSPIRE Conference 2020 – Dubrovnik (Croatia).

Both conferences were however cancelled due to the outbreak of the COVID-19 virus.

STEP 6: RESEARCH OF WP5 – CASE STUDIES

This WP aimed to present the challenges that were faced in three case studies having a strong link to location-based data, and to echo these challenges with the key requirements for future e-service delivery by the federal administration identified in WP3 of the FLEXPUB research project. Moreover, WP5 aimed at testing the strategic actions suggested in the draft Strategy (WP6) and the guidelines suggested in the draft Blueprint (WP7) by confronting them to real-life scenarios. This iterative process allowed to refine the draft Strategy and draft Blueprint.

The three selected and studied cases are the BeSt Address Project (BeSt Address & related aspects), the exchange of cadastral information in Belgium (URBAIN & Regional Relations) and the functioning of the emergency services in Belgium (FPS Interior Affairs / ASTRID Dispatching). The first two cases make use of geospatial information which is crucial for geospatial e-services: addresses and cadastral information. Both cases are also internally oriented. This means that the focus lies on the collaboration between public administrations, and not on the relation with external non-governmental organisations. The third case is focused on a key function of the state: Offering security and safety to its citizens.

Each of the case studies contained a number of findings which are highly relevant for the overall geospatial e-services context, and can support administrations in their quest for flexible and innovative e-services. For each of the case studies, the researchers provided a number of case specific and general recommendations, based, on the one hand, on the information supplied via the respondents, the observations and the document analysis, and, on the other hand, on the project expertise in reaction to the requirements.

On the basis of this case specific analysis, a number of cross-case issues have been identified. In essence, nine cross-case issues have been identified: i) Improving data quality; ii) Aiming for interoperability and standardisation; iii) Offering trainings to the civil servants; iv) Agreeing on Open Data licences; v) Defining authoritative sources of data; vi) Improving communication; vii) Streamlining cooperation; viii) Solving financial shortcomings; and ix) Increasing user participation and inclusion.

Those case specific and general recommendations, and especially the cross-case issues, have been used to further strenghten and refine both the draft Strategy and draft Blueprint.

STEP 7: DEVELOPMENT OF UPDATED DRAFT STRATEGY

On the basis of the research results of Step 1 (WP2 – Baseline Measurement and WP3 – Requirements for e-Service Delivery), Step 2 (WP4 – Enablers) and Step 6 (WP5 – Case studies), and on the basis of the feedback received in Step 4 (Debate with the Members of the Follow-up Committee) and Step 5 (Presentation at international conferences), the draft Strategy was updated.

Furthermore, the draft Strategy was extended with a governance structure, a list of key performance indicators and a proposed roadmap for the implementation.

- The governance structure recommends a governance framework for the implementation and maintenance of the Strategy;
- The roadmap refers to a proposed implementation roadmap containing an outlined program plan and effective measures for performance monitoring/reporting, and which defines roles/responsibilities;
- Key performance indicators were also developed (in accordance with the SMART indicators as described by Bogue, 2013) for the implementation and operation of the Strategy.

Moreover, it was decided to consult the Members of the Follow-up Committee for the development of the strategic priorities and associated risks (a description of this consultaion can be found in Step 8):

- The strategic priorities rank the key strategic actions in light of their importance and provides an overview of which issues should be tackled more urgently;
- The risks are those that might prevent the implementation of the strategy. The estimated probability, impact and mitigation approach for each risk is also tackled.

STEP 8: DEBATE WITH FOLLOW-UP COMMITTEE ON UPDATED STRATEGY

Based on the previous steps, the research team aimed to discuss the updated version of the draft Strategy during the Follow-up Committee meeting of 31 March 2020. However, due to the outbreak of the COVID-19 virus in Belgium, it was decided not to organise the meeting but instead to have digital bilateral interviews with each of the Members of the Follow-up Committee. It is also important to underline that those who were not available for a digital meeting had the opportunity to provide feedback to the research team via e-mail. In total 12 meetings took place.

During the bilateral interviews, the researcher leading the interview briefly presented the project, followed by the actions taken on the basis of the results of WP5. Afterwards, the following aspects were debated with the Members of the Follow-up Committee:

- Strategic priorities (see below):
    - 9 clusters of strategic actions;
    - 3 geo-oriented strategic actions;
    - 8 missions to be pursued by a "Federal geo-organisation";
- Risks that might prevent the implementation of the Strategy;

- Governance structure, roadmap and KPIs.

Exercice to define the Strategic priorities Regarding the strategic priorities, the team has developed a specific exercice. Its aim was to define, during the bilateral interviews with the members of the Follow-up Committee, the strategic priorities to be pursued by the Task Force (whose creation was suggested in the "Governance structure" section of the updated Strategy) when implementing the Strategy. To do so, a ranking exercice was created and consisted of three steps. The first step consisted in defining priorities among the Openness, Participation and Collaboration strategic actions. The second step consisted in defining priorities among the Geo-oriented strategic actions. The third step consisted in prioritising the missions to be pursued by the "Federal geo-organisation", whose creation is suggested in the Geo-oriented strategic actions.

EXERCICE (STEP A) – OPENNESS, PARTICIPATION AND COLLABORATION STRATEGIC ACTIONS

The first step of the exercice consisted in defining priorities among the Openness, Participation and Collaboration strategic actions. Given the high number of strategic actions that were suggested for each of these pillars, it would have been too cumbersome for the members of the Follow-up Committee to rank all of them from most important to least important. Therefore, the research team decided to group all of these strategic actions in nine "Clusters of strategic actions", with three clusters for each pillar. These nine clusters are:

- **Openness**: i) Increase the uptake of Open Data; ii) Develop a common licence for all the Open data services of the Federal, Regional and Community entities; and iii) Guarantee personal data protection and security;
- **Participation**: i) Integrate the input from citizens and external users when developing e-services; ii) Tackle the digital divide both externally and internally; and iii) Stimulate the participation of internal stakeholders;
- **Collaboration**: i) Rethink organisational structures to actively serve the end-user; ii) Strengthen coordination and sharing practices within the federal administration; and iii) Strengthen coordination across governments.

The members of the Follow-up Committee were asked to rank the 9 clusters of strategic actions from most important to least important. In order to give more weight to the most pressing priorities, it was decided to use an exponentially growing scale, rather than a classic 1 to 9 scale. Accordingly, the members needed to use the following scores: 1 – 2 – 3 – 5 – 8 – 13 – 20 – 40 – 100. 1 was the lowest score and 100 was the highest score. Each score could only be used once. In order to do this exercice, the members of the Follow-up Commitee were provided with the below table (Table 1):

Table 1: FLEXPUB Ranking Exercise – Part 1: Clusters of strategic actions

	Clusters of strategic actions	Ranking
A	**Increase the uptake of Open Data** (ensure sustainable funding; raise awareness about the benefits of Open Data and provide tools to facilitate the re-use, such as APIs and user-friendly portals)	
B	**Develop a common licence for all the Open data services of the Federal, Regional and Community entities** (CC-BY or CC-0)	
C	**Guarantee personal data protection and security** (take it into account from the start when designing e-services; ensure training and sensibilisation within the administration)	

D	**Integrate the input from citizens and external users when developing e-services** (use Agile methods; increase stakeholder participation; use complementary online and offline methods)	
E	**Tackle the digital divide both externally** (citizens) **and internally** (civil servants) (multi-channel service delivery; improve data literacy; provide "Public internet access points" and "One-stop shops")	
F	**Stimulate the participation of internal stakeholders** (have more flexibility in order to recruit the much-needed IT profiles; provide continuous training; make civil servants participate to e-service development; reflect on the organisational culture; develop a repository of good practices for e-service development)	
G	**Rethink organisational structures to actively serve the end-user** (set up a multidisciplinary innovation team that could propose, develop, redesign and implement (location-based) e-services; create a Federal Working Group on Standardisation; set-up a decentralised pool of skilled IT people to be allocated for short-term missions in an administration to work on a specific project)	
H	**Strengthen coordination and sharing practices within the federal administration** (strengthen the role of FPS BOSA – DG DT, the G-Cloud and the Board of the Federal Chief Information Officers; create an "Innovation and Collaboration Funding Mechanism" for projects involving several organisations; increase the use of "authoritative data sources" and "once-only principle"; explore data sharing solutions to foster collaboration)	
I	**Strengthen coordination across governments** (build on common service and data approaches to stimulate cooperation; create an "Interfederal project fund"; designate a project facilitator for cooperative projects; create an interfederal coordination body to coordinate the policies across levels)	

Source: Personal research

EXERCICE (STEP B) – GEO-ORIENTED STRATEGIC ACTIONS

The second step consisted in defining priorities among the Geo-oriented strategic actions. Here, the members of the Follow-up Committee were asked to rank the three suggested strategic actions, namely:

- Setting up a "Federal geo-organisation";
- Setting up a federal sharing platform and catalogue for federal geo-data;
- Adopting a coordinated approach on the concept of "authoritative data source".

For this step, a classic 1 to 3 scale was used. 1 was the lowest score and 3 was the highest score. Each score could only be used once. In order to do this exercice, the members of the Follow-up Commitee were provided with the below table (Table 2):

Table 2: FLEXPUB Ranking Exercise – Part 2: Geo-oriented strategic actions

	Geo-oriented strategic actions	Ranking 1 = lowest 3 = highest
A	As successive state reforms led to a reshuffling of competences of the FPS Finance concerning cadastral information, and that the NGI is currently building up its role of geo-broker, we recommend that a "Federal geo-organisation" should be tasked with geo-data management (bringing together topographical mapping, cadastral mapping, geological mapping, aerial mapping, remote sensing and marine mapping). Furthermore, given the importance of geo-data in statistical analysis, this geo-organisation should cooperate with "Statistics Belgium".	
B	Set up a federal sharing platform and catalogue for internal federal use, containing geo-datasets and metadata, which allows the different federal organisations and civil servants to easily re-use geo data. Geo.be, the gateway platform to geo-data of the federal government, could serve as a starting point for further developing such an internal federal sharing platform.	
C	The federal and regional administrations should adopt a coordinated approach regarding the concept of "authoritative data sources", considering quality requirements for the data sources labelled as authoritative data.	

Source: Personal research

EXERCICE (STEP C) – MISSIONS TO BE PURSUED BY A "FEDERAL GEO-ORGANISATION"

The third step consisted in prioritising the missions to be pursued by the "Federal geo-organisation", whose creation is suggested in the Geo-oriented strategic actions (fundament of the Strategy). Here, the members of the Follow-up Committee were asked to rank the eight suggested missions to be pursued by this organisation, namely:

- Development and implementation of a strategy for geo-data;
- Collection, processing, and distribution of geo data;
- Development of technical building blocks for the use of geo data within (existing) e-services;
- Offer a common acquisition platform for geo data and tools;
- Continue the tasks executed by the previously existing entities that it groups;
- Function as a focal point and work in collaboration with the FPS BOSA – DG DT and the Working Group on Standardisation;
- Function as centre of expertise for geo data;
- Undertake actions relating to the opening up and sharing of geo data.

For this step, a classic 1 to 8 scale was used. 1 was the lowest score and 8 was the highest score. Each score could only be used once. In order to do this exercice, the members of the Follow-up Commitee were provided with the below table (Table 3):

Table 3: FLEXPUB Ranking Exercise – Part 3: Missions to be pursued by a "Federal geo-organisation"

	Missions to be pursued by a "Federal geo-organisation"	Ranking 1 = lowest 8 = highest
A	Development and implementation of a strategy for geo-data	
B	Collection, processing, and distribution of geo data	
C	Development of technical building blocks for the use of geo data within (existing) e-services (in collaboration with the FPS BOSA – DG DT)	
D	Offer a common acquisition platform for geo data and tools	
E	Continue the tasks executed by the previously existing entities that it groups	
F	Could function as a focal point and could work, in close collaboration with the FPS BOSA – DG DT and the Working Group on Standardisation, on the establishment and implementation of common standards derived, if possible, from other already existing standards, whether supranational (preferably) or regional.	
G	Could function as centre of expertise that: • safeguards the national fundamentals of geo-data (such as the national coordinate system); • collects and stimulates the exchange of knowledge on geo-data and e-services, in relation to both the federal organisations, and international/regional organisations; • is consulted by all federal users on matters such as standards, software, data, openness of systems or visualisation platforms; • develops instruments to support the integration of information systems, linking with national authoritative geo-data sources; • strives for the creation of an interoperability framework within which each entity (Federal and Regions) can exchange their information in an appropriate manner, within a system where all authoritative data sources are linked to each other.	
H	In order to foster the societal and economic growth and possibilities created by geo-data, it should undertake actions to: • continue on the path of opening up data; • bring together data from regional organisations and create federal datasets which have a societal and economic relevance; • create specific tools and instruments which might increase the societal and economic benefits created by the Open Data approach.	

Source: Personal research

EXERCICE (STEP D) - COMPILATION OF THE RESULTS

The results of the ranking exercices accomplished by the members of the Follow-up Committee were then compiled in an Excel sheet, in order to add-up the points that were granted to each of the clusters of strategic actions / geo-oriented strategic actions / missions to be pursued by a "federal geo-organisation". These results were then used to define the strategic priorities to be pursued by the Task Force (whose creation was suggested in the "Governance structure" section of the updated Strategy) when implementing the Strategy. These strategic priorities relate to each of the three pillars (Openness, Participation and Collaboration), which supports the relevance of these three pillars:

- **Increase the uptake of Open Data (Openness)**: While numerous initiatives have been taken by administrations in terms of Open Data, and while some administrations are more advanced than others on the topic, there is still a clear need to increase the uptake of Open Data.
- **Strengthen coordination across levels of government (Coordination)**: It is key to strengthen the coordination across the various levels of government and administrations.
- **Integrate the input from citizens and external users (Participation)**: The administrations should pay greater attention to the needs of their users and should further integrate their input. Having a truly user-oriented focus is fundamental for administrations.
- **Guarantee personal data protection and security (Openness)**: In light of the recent entry into force of the GDPR in May 2018, administrations need to ensure that they comply with this legislation.

Regarding the Geo-orientation strategic actions (fundament of the Strategy), the priority should be to focus on **setting up a federal sharing platform and catalogue for internal federal use** (containing geo-datasets and metadata). However, all Geo-orientation strategic actions are interrelated and have an impact on each other.

RISKS POTENTIALLY PREVENTING THE IMPLEMENTATION OF THE SUGGESTED STRATEGIC ACTIONS

A number of risks potentially preventing the implementation of the suggested strategic actions have also been identified in collaboration with the Members of the Follow-up Committee:

- A first risk is that if the civil servants do not feel involved in the implementation of these strategic actions, they might feel a loss of purpose in their work and might resist to these changes.
- A second risk is that some misunderstandings on the concrete implementation can occur if people coming from different backgrounds and disciplines do not use the same vocabulary.
- A third risk is if the needs of the users (citizens, undertakings and other administrations) are not sufficiently taken into consideration.
- A fourth risk is that various administrations that need to collaborate might in fact have different priorities, leading to difficulties to agree on common objectives because each actor has a silo vision. This could create difficulties to build bridges between the different levels of power.
- A fifth risk is if the procedural load and "red-tape" remain as heavy as they are today.
- A sixth risk is if not enough resources are dedicated to the implementation of the strategic actions. Indeed, money is key and a minimum level of resources is needed to go forward with these strategic actions. This risk is especially relevant in the aftermath of the Covid-19 pandemic.
- A seventh and final risk is that if there is a lack of sufficient political support for the implementation of the Strategy.

STEP 9: DEVELOPMENT OF FINAL STRATEGY AND FINAL BLUEPRINT

FINAL STRATEGY

The draft Strategy was turned into the Final Strategy on the basis of the input received from the Members of the Follow-up Committee in Step 8. Attention was devoted to the entire Strategy, and particular attention was devoted to the inclusion of the strategic priorities and the associated risks. Moreover, the governance structure, roadmap and KPIs were also reviewed on the basis of these comments. For example, the comment of the FPS BOSA - DG DT regarding to the need to adapt the structure of the document in order to provide more clarity was echoed in the Final version.

Accordingly, the first part of the Strategy has been adapted in order to outline the "Ten years (2020-2030) strategic vision for flexible and innovative e-services" recommended by the team, and developed in the context of the FLEXPUB project. In order for this strategic vision to be implemented in practice, the research team adapted the Strategy and suggested to work in three iterative cycles of three years (2020-2023; 2024-2026; 2027-2029), in order to be aligned with potential technological or organisational evolutions that might affect the roll-out of the strategy.

Concretely, the research team has suggested (on the basis of Steps 1 to 7) several strategic actions that the federal administrations should start working on during the first cycle (2020-2023), in order to implement the ten years strategic vision. These strategic actions are structured around three pillars (Openness, Participation, Collaboration) and a fundament (Geo-orientation). To implement these, the research team calls for the creation of a Task Force, who should be responsible for the execution of these actions.

In order to help the Task Force in this endeavour, the research team has suggested strategic priorities to be pursued during this first cycle and has highlighted a number of risks potentially preventing the implementation of the recommended strategic actions. This was done on the basis of discussions it has had with the FLEXPUB Follow-Up Committee Members (see Step 8). It has also suggested a roadmap and key performance indicators to be used by the Task Force in the course of the implementation. Naturally, the Task Force shall remain free to depart from these suggestions, and to define its own strategic priorities, risks, roadmap and key performance indicators if it realises, during the first cycle, that these need to be adapted.

At the end of this first cycle, the Task Force will have to define the strategic priorities, risks, roadmap and key performance indicators for the second cycle (2024-2026). To do so, the Task Force shall assess the progress made on the strategic actions during the first cycle and the effect that this had in practice, and will have to assess whether these actions are still relevant and match technological or organisational evolutions. If this is not the case, this Task Force might have to adapt these strategic actions or to suggest new ones. At the end of the second cycle, the same assessment will have to be done in order to prepare the third cycle (2027-2029). Finally, the last year (2030) should be dedicated to the rounding-up of the strategic actions in order to reach the goals set in the ten years strategic vision.

Another important modification brought to the Final Strategy is that the team eventually decided not to include the proposal to create a new federal geo-organisation. This is because this proposal was contentious for some Members of the Follow-up Committee and was judged as being probably too far reaching and unrealistic by other Members. That being said, they all agreed that an increased form of cooperation was necessary for geo data. Accordingly, the team adapted its suggested strategic action in the Final Strategy, which has been reformulated as follows:

> "[We recommend] *that, in order to increase the collaboration and coordination of initiatives in the domain of geo-data within the federal administration, the different organisations involved in the collection, management and distribution of geo-data, should intensify their collaboration via the set-up of a common meeting platform among them. This platform should, at least, gather members from the NGI, the FPS Finance, the FPS Economy – Statbel, the Federal Policy, the Ministry of Defence, the Royal Meteorological Institute and the Royal Observatory. It should however be open to all federal organisations*".

The Final Strategy can be found in Chapter 3 – Strategy for Flexible Geospatial Public E-Services of this Report. It

has also been published separately and can be found via the following bibliographical details:

> Chantillon, M., Kruk, R., Simonofski, A., Tombal, T., Crompvoets, J., de Terwangne, C., Habra, N., Snoeck, M., & Vanderose, B. (2020). *FLEXPUB Public e-Service Strategy – Strategy for Flexible Geospatial Public E-Services*. Leuven: KU Leuven Public Governance Institute.

FINAL BLUEPRINT

On the basis of the research results of Step 1 (WP2 – Baseline Measurement and WP3 – Requirements for e-Service Delivery), Step 2 (WP4 – Enablers), Step 6 (WP5 – Case studies), Step 7 (Development of updated Draft Strategy), Step 8 (Debate with Follow-up Committee) and Step 9 (Development of Final Strategy and Final Blueprint / Part I: Final Strategy), and on the basis of the feedback received in Step 4 (Debate with the Members of the Follow-up Committee) and Step 5 (Presentation at international conferences), the draft Blueprint was updated.

Regarding the Final Blueprint, a close connection was made to the Final Strategy, which has been finalised before the Final Blueprint. As the Blueprint is of a more general nature than the Strategy, it was deemed important to strongly rely on the findings which led to the update of the Strategy and to the adoption of its Final version. Accordingly, the Final Blueprint reflects the adaptations that have been made to the Final Strategy. Moreover, the transition from the draft Blueprint to the Final Blueprint led to the inclusion of a new section in the document, which focuses on the key stakeholders and the related governance structure.

The Final Blueprint can be found in Chapter 4 – Blueprint for an Adaptive and Innovative Government of this Report. It has also been published separately and can be found via the following bibliographical details:

> Chantillon, M., Kruk, R., Simonofski, A., Tombal, T., Crompvoets, J., de Terwangne, C., Habra, N., Snoeck, M., & Vanderose, B. (2020). *FLEXPUB Public e-Service Strategy – Blueprint for an Adaptive and Innovative Government*. Leuven: KU Leuven Public Governance Institute.

3. WP6 - STRATEGY FOR FLEXIBLE GEOSPATIAL PUBLIC E-SERVICES

1. TEN YEARS STRATEGIC VISION (2020-2030)

Today's ongoing and steady technological advancements change the citizens' and businesses' expectations and transform the relationship between the society and the administration. As society evolves, influenced by the wave of digitalisation that flows over an ever-more globalised world, the expectations grow for the administration to innovate in the way it works and interacts with citizens and businesses. In conjunction with those technological developments, it becomes more and more visible that the position of the administration in society is changing, moving from a leading and dominant position towards a new role as facilitator and partner.

Going digital is the future. Therefore, a clear strategic approach towards e-services is a prerequisite for the development of a strong forward-thinking federal administration. A strong federal e-government policy does not only serve the administration's organisations, but also, and more importantly, citizens, businesses and society as a whole. It provides the citizens with the necessary protection and security in this digitalised world. It also offers economic opportunities, not only via Open Data, but also via the re-use and sharing of building blocks and other digital tools.

These last years, the federal administration took crucial steps to improve its online presence by transforming existing services into e-services. Steps have been taken at project and strategic level, and different administrative levels have realised that cooperation with others is the way forward. A single and dominant position is no longer possible and feasible in a multi-level governance context.

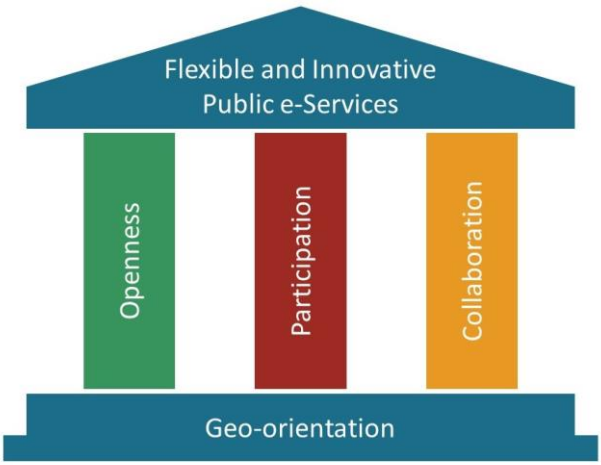
Those actions are however only the beginning of a long process, and several challenges remain to be tackled within the different administration's organisations. Although there is no silver bullet to approach the future digital developments, the federal administration can be organised in a way that allows for constant interaction and reaction to the changing demands of society. An innovative administration is capable of reinventing and transforming itself and the services that it offers, in order to match new demands and needs. This implies a need for flexibility, which in turn requires finding a correct and workable balance between independence and unity. Organisations should be able to modify their e-services if needed, but these e-services should nevertheless always remain in line with the overall federal approach and requirements.

To guide the federal administration along the way, a **ten years (2020-2030) strategic vision** is required. Not only for e-services in general, but also for location-based e-services in particular, as data and information, and especially geo-data and information, are key to offer real-time and valuable services to citizens, businesses and other administrative organisations.

This vision is envisaged as a framework that aims to establish an environment in which federal organisations and civil servants can reflect on e-government and e-service developments. This framework was built on the basis of existing frameworks, such as the "Open Government Framework", and the findings from the FLEXPUB research.

This framework lays the foundations enabling a federal administration to build flexible and innovative e-services, by relying on **Openness, Participation, Collaboration as pillars, and on the Geo-orientation as the fundament** for flexible and innovative e-services.

Figure 1: Strategy for Flexible Geospatial Public E-Services



Source: Personal Research

Openness is about sharing information and services as broadly as possible, when possible for free, in a secure and privacy compliant manner, in order to increase transparency and foster economic growth through collaboration and data re-use, and to generate value-added services.

It implies fundamental data governance reflections, rather than being content with simply opening data on a portal, as rethinking the whole information management system is a pre-requisite to achieve efficient openness. It also implies finding the right balance between budgetary autonomy and user orientation, namely between free and royalty fees' models, as sufficient funding is necessary to keep the quality of the data, and specifically its up-to-dateness, at an appropriate level.

The benefit of integrated information systems, which are a pre-requisite for Openness, is that it enables better decision-making and helps to improve on the public values pursued by the federal administration. Moreover, it can help to identify, in a timelier fashion, relevant datasets requested by re-users. Identifying these key datasets will also allow the public administration to focus their efforts and resources on the most relevant datasets, in order to maximise re-use, and the derived economic growth. This increase in re-uses will, in turn, further motivate the administrations to enhance Openness, thus creating a virtuous circle.

Participation is about involving all the stakeholders impacted by the digitalisation strategy, by taking into account their evolving requirements, needs, ideas or necessary training. This participation is essential to be able to match the expectations of the stakeholders regarding the e-services.

This implies the participation of two main stakeholder groups. The first one is composed of the external users – whether these are citizens or private or public sector organisations –, that have to participate in the development of e-services. Thanks to this participation, the e-services will be better aligned with these stakeholder's requirements and, ultimately, more widely used, not only by tech-savvy people, but by all. The second stakeholder group to consider are the internal public servants whose jobs will evolve due to the digitalisation. As they will interact with the e-services in the back-office, it is essential to accompany this change with appropriate change management actions.

Participation of different stakeholders (citizen, businesses, societal organisations or civil servants) will have several benefits for the federal administration in the context of e-service development. Indeed, an increased participation of stakeholders has been reported to improve the trust and the intention to use of e-services, a better alignment between the system and requirements, as well as gains in accuracy, usability and usefulness of the e-service.

Collaboration is about the administration's organisations embracing an ever more globalising world and society, in which they no longer act as single actors, but strive from an administration wide perspective towards alliances, cooperation and the sharing of data, tools and capacity to fulfil their tasks and duties towards a variety of

stakeholders (public, private and citizens).

It implies that federal organisations restructure their cooperation in such a way that a coordinated partnership is established, if need to be with the private sector when relevant. Via those partnerships, a common strategy can be established that guides the federal organisations in the development of their future services. At the same time, there is a need for organisational independence. Federal organisations require sufficient organisational leeway and freedom at project level to fulfil their tasks and duties, including developing their own e-services. Guidance, within the federal administration, by a single organisation, is however necessary to establish a common foundation for all, on top of which each organisation can create innovation and flexibility.

An intensified and rethought cooperation within the federal administration, and among the different Belgian administrations, will be beneficial for both the administrations and the end-users, such as citizens. It will lead to benefits such as an improved coordination, a higher level of trust among the different partners, a more efficient approach from a service delivery point of view, and – potentially – an increase in the user-satisfaction rates on the services offered by the public administrations. Although Collaboration might be considered as an internal administrative exercise, the benefits are, in the long term, especially important for the external users of the services offered by the administrations.

Geo-orientation is about generating added value by answering the increasing demand for real-time and geographical data (hereafter "geo-data"), and location-based services. This is not only relevant within a group of specialised actors, but also for actors from other policy fields, which might not always realise the potential of including a location component in their services. "What?", "When?" and "Where?" are the three simple questions that are to be considered in any e-service offered.

In order to achieve geo-orientation, information integration is a necessity. As everything happens somewhere, geo-data and systems help to understand the interrelationships between and among the issues that the administration, businesses and citizens face every day via the integration of information and visualisations based on location. With the emergence of new technologies (including sensors and Internet of Things) and the increasing amounts of data, the need for ubiquitous and authoritative location information is becoming even more pressing.

The benefits of rethinking the geo-orientation of the federal administration especially lie in the increased possibilities of combining new technologies with advanced geo-oriented information systems. Indeed, this combination offers powerful tools for the governance of the administration, as it supports both the policy making and the services offered by the administration to the end users.

2. IMPLEMENTING THE STRATEGIC VISION

The framework described above constitutes the **ten years (2020-2030) strategic vision for flexible and innovative e-services** which has been developed in the context of the FLEXPUB project. In order for this strategic vision to be implemented in practice, the research team suggests to work in **three iterative cycles of three years (2020-2023; 2024-2026; 2027-2029)**, in order to be aligned with potential technological or organisational evolutions that might affect the roll-out of the strategy.

Concretely, the research team has suggested, on the basis of preliminary findings, several strategic actions that the federal administrations should start working on during the **first cycle (2020-2023)**, in order to implement the ten years strategic vision. These strategic actions are structured around the three pillars (Openness, Participation, Collaboration) and the fundament (Geo-orientation) of the strategic vision. To implement these, the research team calls for the creation of a Task Force (see "Governance structure" below), who should be responsible for the execution of these actions. This Task Force consists of a number of key stakeholders as well as of any interested actor from the federal public administration.

In order to help the Task Force in this endeavour, the research team has outlined strategic priorities to be pursued among the suggested strategic actions for the first cycle, and has highlighted a number of risks potentially preventing the implementation of the suggested strategic actions. This was done on the basis of discussions it has had with the FLEXPUB Follow-Up Committee Members. It has also suggested a roadmap and key performance indicators to be

used by the Task Force in the course of the implementation. Naturally, the Task Force shall remain free to depart from these suggestions, and to define its own strategic priorities, risks, roadmap and key performance indicators if it realises, during the first cycle, that these need to be adapted.

At the end of this first cycle, the Task Force will have to define the strategic priorities, risks, roadmap and key performance indicators for the **second cycle (2024-2026)**. To do so, the Task Force shall assess the progress made on the strategic actions during the first cycle and the effect that this had in practice. It will also have to assess whether these actions are still relevant and match technological or organisational evolutions. If this is not the case, this Task Force might have to adapt these strategic actions or to suggest new ones.

At the end of the second cycle, the same assessment will have to be done in order to prepare the **third cycle (2027-2029)**. Finally, the **last year (2030)** should be dedicated to the rounding-up of the strategic actions in order to reach the goals set in the ten years strategic vision.

3. FINDINGS

In order for the readers to understand the context in which the strategy is established, we first outline the main findings of the FLEXPUB project. We present these according to the logic of this strategy, in terms of challenges faced by the federal administration when developing e-services.

3.1. OPENNESS

We noted that:

- many federal organisations open their data for re-use, mainly via Open Data platforms, but often lack an Open Data mind-set that goes further than simply limiting themselves to minimum compliance with the PSI Directive, because of a combination of high costs and lack of visibility on the concrete re-uses and potential benefits;
- data protection and security requirements are essential to consider when developing e-services, to improve the users' trust in e-services and government as a whole. This is especially crucial for the implementation of the EU General Data Protection Regulation and Open Data initiatives;
- federal organisations are sensitive to the citizens' privacy concerns and are well aware of the adoption of the General Data Protection Regulation, but many civil servants did not receive sufficient information about the concrete rules contained therein, which leads to anxiety about the potential effects on their work.

3.2. PARTICIPATION

We noted that:

- too often, e-services are developed on the basis of the former non-digitalised processes without sufficient consideration for the external users (citizens, businesses, other public partners etc.). Due to this lack of external consideration, the e-services are sometimes not used as much as expected, as they are not fully aligned with users' needs and expectations;
- the participation of users in the development of e-services is considered to be difficult due to a number of factors such as the heterogeneity of the users, time-consuming processes or user motivation;
- the federal organisations make continuous efforts in trying to increase the use of their e-services by citizens and businesses. However, more can be done to make all citizens participate (e.g. citizens with disabilities or those who prefer to have more "traditional" contacts with the administrations) in order to avoid a digital divide;
- federal organisations face difficulties in attracting specific strongly demanded IT profiles, which can lead to unfortunate situations where organisations are unable to rollout their e-service projects, due to a lack of internal IT skills;

- notwithstanding the actions taken by the Federal Public Service Policy & Support – Directory General Digital Transformation (hereafter "FPS BOSA – DG DT") and its predecessors, as well as those taken individually by federal organisations to change their organisational culture, there remains a resistance to change among civil servants.

3.3. COLLABORATION

We noted that:

- the lack of a common strategic approach can lead to replication of services and a waste of resources within and/or between organisations;
- the federal government has created the G-Cloud and the new FPS BOSA – DG DT with the intention of creating a shared e-government approach via the creation of a common strategy and the provision of technical e-service support to the different actions taken by federal organisations;
- digitalisation requires organisations to redesign and improve their existing services, by taking a high-level view and rethinking their processes, within and across organisations.

3.4. GEO-ORIENTATION

We noted that:

- the federal administration misses a common organisational approach towards the collection, processing and distribution of geo-data. Accordingly, the National Geographic Institute (hereafter "NGI") wishes to take up its role of geo-broker but remains restricted in its capacity to do so;
- the distribution of geo-data via the federal service integrators remains limited and a structured organisational cooperation is lacking for the development of (location-based) e-services both at the federal level and across various levels;
- strong inherent silo structures within and between organisations exist regarding (geo) data in terms of types, standards, processing, management, distribution, use, financial and legal arrangements, leading to a lack of interoperability;
- the uptake of (geo) data is hampered by the ignorance about its existence, meaning, value and sources;
- no hierarchy exists between the federal level and the regions, making it more difficult to harmonise the creation and use of geo-data. Moreover, there does not seem to be a political and common will to do so.

4. SUGGESTED STRATEGIC ACTIONS FOR THE FIRST CYCLE (2020-2023)

In light of these findings, the research team suggests several **strategic actions** that the federal administrations should start working on during the **first cycle (2020-2023)**, in order to implement the ten years strategic vision. These strategic actions are structured around the three pillars of the strategic vision (Openness, Participation and Collaboration) as well as the fundament of the vision (Geo-orientation).

4.1. OPENNESS

We recommend:

- that the federal government foresees a sustainable "Open Data funding" of the fixed and marginal costs linked to the quality, the continuity and the maintenance of the opened data at the federal level, via a global federal budgetary envelope, or via the creation of "Freemium models" (data would be shared freely, but administrations could sell the services built on top of this data to third parties), and that the same is done within each level of power (Regions and Communities);
- that the federal government tackles this "Open Data funding" issue before July 2021, as by then, it will have to transpose the amended version of the PSI Directive (Directive (EU) 2019/1024 of 20 June 2019) in Belgian law, and that this Directive imposes the obligation to share "High-value datasets" for free, without

any exceptions, and this will have a significant impact on federal administrations that are not funded at 100% by tax-payer money. The Directive also imposes to set up APIs for these data, and this should be implemented in a uniform and standardised way at the Federal level;

- that priorities should be defined in order to determine on which open datasets it should be invested the most. To do so, the organisations could take both a passive and active approach. The passive approach would consist in monitoring the number of downloads that the various datasets have had, in order to identify those that are re-used the most. The active approach would consist in setting an "Open Data working group" with representatives of the re-users (citizens, private sector, NGOs) in order to identify use cases and potential re-users, to define data quality requirements and to identify public datasets that are not yet open, but have a major economic or societal value (this could especially be relevant for authoritative data sources);
- that the FPS Chancellery of the Prime Minister – Service for Administrative Simplification and the FPS BOSA – DG DT launches awareness raising campaigns about the benefits of Open Data, as the public sector is the first beneficiary of Open Data, because it forces the organisations to invest in their information management systems and in structures that will facilitate their work;
- that the federal administrations should strive towards implementing the FAIR (Findable, Accessible, Interoperable, Reusable) principles to their data, in order to improve its quality for internal use but also in order to increase data re-use through Open Data;
- that the federal organisations provide tools and instruments facilitating data re-use, notably via standardisation and interoperability, and via the creation of a single point of contact to help re-users know where to find the specific information that they look for;
- that the federal organisations work on making their data available via Application Programming Interfaces (APIs);
- that the federal, regional's and communities' governments agree on a set of common licences for all the Open data services of the Federal, Regional and Community entities, which would replace the current licence fragmentation in order to avoid licensing incompatibilities' issues. The standard for such licences should be based on supra-national standards, namely the CC-BY[1] or the CC0[2] Creative Commons licences;
- that the Data Protection Authority, with the support of the FPS BOSA, trains the civil servants on how to implement the EU General Data Protection Regulation in their daily work (documents, templates, workshops, traineeships...);
- that the federal organisations take personal data protection and security concerns into consideration from the start when designing public e-services (Privacy-by-design), and adopt strict policies in this regard.

4.2. PARTICIPATION

In order to stimulate the participation of external stakeholders, we recommend:

- that federal organisations adopt an Agile way of working when developing their e-services. These methods allow for a more collaborative work environment between stakeholders, and will allow the integration of the input from customers and users more easily. We recommend the tailoring of an existing Agile methodology (e.g. SCRUM), in order to be more adapted to the specificities of the federal administration and its e-services;

[1] More information can be found at: https://creativecommons.org/licenses/by/2.0/be/
[2] More information can be found at: https://creativecommons.org/publicdomain/zero/1.0/deed.fr

- that the gathering of insights on key issues from external stakeholders is collected through a bi-annual assembly of participants from public administrations, the private sector, universities and civil society in general (NGOs, non-profits, etc);
- that, in light of gaining constructive feedback, federal organisations particularly focus on the participation of potential users in the development of e-services, to make the e-services more user-friendly, more aligned with users' requirements and to potentially increase its usage afterwards;
- that the public administrations implement participation through complementary methods (offline and online) and make the processing of the requirements transparent so that their impact on the public e-service is clear to users;
- that the digital-by-default approach has to be complemented with a "multi-channel service delivery" approach, allowing citizens to access the administrative services according to their own preferences;
- that appropriate steps are taken by the federal government to improve data literacy, in order to provide people with the necessary skills to interpret and use data;
- that, in order to ensure that every citizen has access to e-services offered by the federal administration, "Public Internet Access Points" (PIAPs) and "One-stop shops" (OSS) are created, where citizens can initiate, process and complete administrative tasks of various organisations from different administrative levels in one single building or webpage (based on a catalogue of services, ideally structured based on "life events"), with the help of trained supporting staff who can guide the users through the process;
- that recruitment procedures are adapted, in order to provide more flexibility in terms of diploma requirements, salaries, length of contracts or selection procedures;
- that FPS BOSA – DG DT supports federal organisations' communication campaigns (re-branding initiatives, work with newspapers, attendance to "Job days" for students, more traineeship offers for students) in order to shine more light on all the innovative projects of the federal administration.

In order to stimulate the participation of internal stakeholders, we recommend:

- that each federal organisation reflects about the continuous and flexible training and re-orientation possibilities that it offers, for instance via the creation of "Internal IT Academies" or e-learning platforms, where civil servants can be taught new skills (IT, managerial, legal, digital transformation, Agile way of working, etc.);
- that appropriate training is suggested to public servants, also at the local level, to enable them to participate in the e-service development and to work with digital tools in general. This training could draw from innovative principles such as SCRUM methods, drawings, improvisation principles, etc.;
- that – given that our attention was drawn to the need for stronger involvement, ownership, responsibility and accountability of civil servants in e-services and the development process – the civil servants are to be actively supported by their top- and middle-management to participate in the development of those e-services;
- that organisations analyse, with the support of the DG DT and the DG Recruitment and Development of the FPS BOSA, what organisational culture is present among the management, the civil servants and in their (e-)services. Indeed, if a mismatch appears between those three, an active reordering of the organisational culture and/or of the (e-)services offered by the organisation will be necessary;
- that, as e-services are part of the broader organisation and not a self-standing development, the culture around an e-services is not to be treated as self-standing either, and that an overall approach towards organisational cultural reform, including digital aspects, would be more beneficial for organisations;
- that the DG DT and the DG Recruitment and Development of the FPS BOSA develop a platform serving as a repository of good practices, of which the different federal organisations could make use when

(re)developing an e-service, to guide civil servants in the e-service transition process. This toolbox can be made available via the federal intranet or FEDWEB website.

4.3. COLLABORATION

In order to meet the demand of federal organisations to remain independent in their e-services development, as well as the demand of federal organisations to create a more structured approach towards e-government, we recommend:

- that the structures and roles of the FPS BOSA – DG DT and the FPS Chancellery – DG Administrative Simplification are further strengthened to ensure that they can provide sufficient support to the federal organisations;
- that the G-Cloud structure and the Board of the Federal Chief Information Officers, which are both voluntary collaboration bodies, are grouped into an officially established coordination body called the "E-Government Board". Membership of this Board should be obligatory for each federal organisation and meetings should take place on a monthly basis. Each organisation decides on the person representing the organisation in the Board. The Secretariat should be organised by the FPS BOSA and the members should choose a Chair among themselves. Financing of this Board and the Secretariat should be foreseen via the "Federal Innovation and Collaboration Fund" (see below).
- that the E-Government Board could:
    - take an advisory non-binding position towards the involved federal organisations, the three Colleges[3], as well as the government for a number of specific e-government non-project related topics, such as (1) the federal e-government strategy and action plan, (2) the sharing and re-use of data and e-service tools, (3) policies related to e-government,
    - ask the already existing federal Working Groups related to e-services and (geo) data to report to it on a regular basis, to ensure that all federal organisations are kept informed about new developments;
    - have the possibility to create new federal Working Groups related to e-services and (geo) data. As data and e-service standardisation is one of the main challenges for federal organisations, a federal Working Group on Standardisation should be created by the E-Government Board, with representatives of all federal organisations. Membership of this Working Group should be open for each federal organisation. The Working Group can discuss common standards and propose non-binding common standards for the federal organisations, the FPS BOSA – DG DT and the FPS Chancellery – Centre for Cybersecurity (when relevant for those organisations' competences), thereby respecting each federal organisation's competencies;
    - supervise the Task Force that is charged with the implementation of this Strategy (see below),
    - manage and supervise the funds of the "Federal Innovation and Collaboration Fund" (including decisions on the allocation of funds), on the advice of the Board's Secretariat and the Chair;
- that a "Federal Innovation and Collaboration Fund" is created to support (1) the functioning of the E-Government Board and its working groups and (2) federal organisations dealing with innovative and collaborative projects (see above). This Fund should be funded via an annual budget allocation from the federal government and should be managed by the Secretariat of the E-Government Board (see above), under the supervision of the Board;

[3] College van voorzitters van de federale en programmatorische overheidsdiensten; College van afgevaardigd bestuurders van de openbare instellingen van sociale zekerheid; College van afgevaardigd bestuurders van de instellingen van openbaar nut. / Collège des présidents des services publics fédéraux et de programmation; Collège des administrateurs délégués des institutions publiques de sécurité sociale; Collège des administrateurs délégués des organismes d'intérêt public.

- that the FPS BOSA – DG DT envisages the possibility to coordinate a decentralised pool of skilled IT people (IT architects, developers, programmers, etc.), consisting of voluntary or appointed civil servants that the organisations are willing to detach to another organisation on a project basis and for a well-defined period of time;
- that the FPS BOSA – DG DT and all federal organisations continue to implement a decentralised information management model, based on the concept of Authoritative Data sources;
- that the FPS BOSA – DG DT and all federal organisations invest stronger in the "once-only" implementation policies, so that organisations collaborate and share information more intensively, thus reducing the burden on citizens and businesses;
- that the federal organisations explore more intensively data sharing solutions (standards, licenses, platforms, etc.) to foster the collaboration between the federal organisations;
- that, in support of various organisations which do not (or only partially) possess the necessary resources to reflect on innovation within their organisation, a multidisciplinary innovation team is set-up, in conjunction with an e-government lab under the auspices of the FPS BOSA – DG DT, which could propose, develop, redesign and implement (location-based) e-services for the organisations of the federal administration. The cost of this multidisciplinary innovation team and e-government lab are to be financed by the organisation(s) making use of this service;
- that, in order to increase the leverage of Belgium in international organisations working on standardisation, the federal government participates more actively in those international standard setting organisations;
- that, for the sake of the future generations' interest in federal (geo) data, and in light of the existing Archiving Law (2009) and the two Royal Decrees (2010) on archiving, the State Archives are more strongly included in the collection and processing of data by the federal organisations, in order to ensure that the data meets the necessary archiving standards.

In order to stimulate the collaboration between the federal administration and the other levels of power, we recommend:

- that, when the different levels of government need to coordinate their policy, an interfederal coordination body is established to stimulate coordination and collaboration across the different levels of government. The tasks and necessary resources of this interfederal coordination body are to be decided by its members;
- that an "Interfederal project fund", financed by the different levels of government, is created to offer the possibility to the participants of an interfederal collaboration project involving the different levels of government, or to the participants that have to implement this project, to file a request to obtain a supporting budget from this fund;
- that for future collaborative projects between different levels of government, it should be reflected on the possibility to designate a specific project facilitator for organisational and coordination tasks, who would be paid to make the project run more efficiently and effectively (possibly through the "Interfederal project fund" mentioned above). This project facilitator could either come from one of the entities participating in the project or could be an external actor. The decisional power should remain in the hands of the participants of the project, as the project facilitator should not have decisional power, but rather provide them with the necessary support and preparatory work.
- that the different Belgian public administrations organise an exchange program for public servants, through which they can work together on projects and objectives of common interest and learn from each other's activities.

4.4. GEO-ORIENTATION

We recommend:

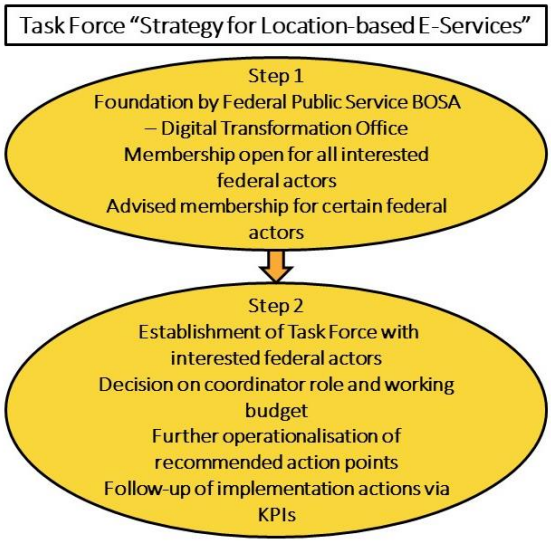
- that, in order to increase the collaboration and coordination of initiatives in the domain of geo-data within the federal administration, the different organisations involved in the collection, management and distribution of geo-data, should intensify their collaboration via the set-up of a common meeting platform among them. This platform should, at least, gather members from the NGI, the FPS Finance, the FPS Economy – Statbel, the Federal Policy, the Ministry of Defence, the Royal Meteorological Institute and the Royal Observatory. It should however be open to all federal organisations;
- that this common meeting platform is charged with the following tasks:
    - develop and implement a common strategy and objectives for geo-data,
    - develop of a common acquisition platform for geo-data and tools,
    - develop, in close collaboration with the FPS BOSA – DG DT and the Working Group on Standardisation, common geo-standards derived, if possible, from other already existing standards, whether supranational (preferably) or regional,
    - discuss and advise on the collection, processing, distribution and opening of geo-data,
    - discuss the common development of technical building blocks for the use of geo-data within (existing) e-services (in collaboration with the FPS BOSA – DG DT),
    - discuss the creation of nationwide datasets that have a societal and economic relevance, based on regional data,
    - discuss the creation of specific tools and instruments which might increase the societal and economic benefits created by the Open Data approach;
    - reflect on the opportunities generated by the technological developments (Internet of Things (IoT) geo-data, use of private sector data for public interest purposes, etc);
    - preserve the national fundamentals of geo-data (such as the national coordinate system);
    - collect and stimulate the exchange of knowledge on geo-data and e-services, in relation to both the federal organisations, and international/regional organisations;
    - strives for the creation of an interoperability framework within which each entity (Federal and Regions) can exchange their information in an appropriate manner, within a system where all authoritative data sources are linked to each other.
- that a federal sharing platform and catalogue for internal federal use is set-up, containing geo-datasets and metadata, which allows the different federal organisations and civil servants to easily re-use geo-data. Geo.be, the gateway platform to geo-data of the federal government, could serve as a starting point for further developing such an internal federal sharing platform. The platform should also include references to European and regional datasets and metadata;
- that the federal administration and the three regional administrations adopt a coordinated approach regarding the concept of authoritative data sources, taking into account quality requirements for the data sources labelled as authoritative data.

5. GOVERNANCE STRUCTURE

In order to ensure that this Strategy will be executed, a complementary governance structure has been defined. The suggested governance structure is focused on the implementation of the suggested strategic actions. In this regard, it is recommended to appoint a Task Force in order to further operationalise and implement the suggested strategic actions. This Task Force would consist of actors from the federal public administration, and membership should be

offered to all interested actors. Indeed, the implementation of this Strategy is a common exercise to which all interested actors need to be able to contribute.

Figure 2: FLEXPUB Strategic Task Force



Source: Personal Research

Nevertheless, and given the fact that this is a Strategy for Flexible Geospatial Public E-Services, it is highly recommended that the following organisations take active part in this Task Force: the Federal Public Service Chancellery of the Prime Minister – Service for Administrative Simplification; the FPS BOSA – DG DT; the National Geographic Institute; SMALS; the FPS Economy – StatBel, and the FPS Finance. This is because those actors have a link to both e-services and geospatial data, and have a connection to the federal public services, the social securityservices and the scientific institutions of the federal public administration. Therefore, they can be considered as the key stakeholders, who strongly need to be involved in the further development and implementation of this Strategy.

The FPS BOSA – DG DT shall be charged with setting-up this Task Force. Once created, in a second phase, the members shall choose among them a coordinator which can take a leading role. In order to ensure that the members of the Task Force have full ownership of it, it is up to them to decide on the specific modalities and working arrangement of this Task Force. It is highly recommended that the government assigns a working budget to the Task Force, so that staff costs and other costs related to membership and chairing of this Task Force can be covered.

The Task Force should be responsible for the further operationalisation of the suggested strategic actions, as well as for the follow-up of the implementation of the strategic actions, among others via KPIs. The E-Government Board should supervise the work of this Task Force.

6. STRATEGIC PRIORITIES FOR THE FIRST CYCLE (2020-2023)

In order to help the Task Force in its implementation of the Strategy, the research team, in collaboration with the FLEXPUB Follow-Up Committee Members, has outlined strategic priorities to be pursued among the suggested strategic actions for the first cycle (2020-2023). These strategic priorities relate to each of the three pillars (Openness, Participation and Collaboration), which supports the relevance of these three pillars:

- **Increase the uptake of Open Data (Openness)**: While numerous initiatives have been taken by administrations in terms of Open Data, and while some administrations are more advanced than others on the topic, there is still a clear need to increase the uptake of Open Data. In this regard, the priority should be set on ensuring a sustainable "Open Data funding" of the fixed and marginal costs of Open Data, and on determining on which open datasets it should be invested the most, in light of their value for re-users.

- **Strengthen coordination across levels of government (Coordination)**: It is key to strengthen the coordination across the various levels of government and administrations. In this regard, the priority should be set on building common services and data approaches to stimulate cooperation, on multiplying interfederal projects, on creating interfederal coordination bodies to coordinate policies across levels, on setting-up exchange programs for civil servants, and potentially on creating an "Interfederal project fund".
- **Integrate the input from citizens and external users (Participation)**: The administrations should pay greater attention to the needs of their users and should further integrate their input. Having a truly user-oriented focus is fundamental for administrations. In this regard, the priority should be set on increasing user participation in the development of e-services, through the use of complementary online and offline methods. Another priority is to stress the importance of resorting to Agile methods, in order to be more flexible and to better include the users' evolving needs.
- **Guarantee personal data protection and security (Openness)**: In light of the recent entry into force of the GDPR in May 2018, administrations need to ensure that they comply with this legislation. In this regard, the priority should be set on ensuring that the civil servants implement it correctly in their daily work, and on ensuring that the administrations understand that compliance is a daily challenge, rather than a "one-shot" (being compliant today does not necessarily mean being compliant tomorrow).

Regarding the Geo-orientation strategic actions, the priority should be to focus on **setting up a federal sharing platform and catalogue for internal federal use** (containing geo-datasets and metadata). However, all Geo-orientation strategic actions are interrelated and have an impact on each other. Therefore, it is important for the Task Force to take all of these Geo-orientation strategic actions into account during the first cycle.

7. RISKS POTENTIALLY PREVENTING THE IMPLEMENTATION OF THE SUGGESTED STRATEGIC ACTIONS

A number of risks potentially preventing the implementation of the suggested strategic actions have been identified. These risks will need to be taken into account by the Task Force.

A first risk is that if the civil servants do not feel involved in the implementation of these strategic actions, they might feel a loss of purpose in their work and might **resist to these changes**. This will especially be the case if there is a lack of communication towards the civil servants about the changes that will occur and how this will impact their work, and if they are not involved in this transition.

A second risk is that some misunderstandings on the concrete implementation can occur if people coming from **different backgrounds and disciplines do not use the same vocabulary**. This could result from the fact that the semantics used in the actions taken are not understood in the same way by different people, who thus do not understand each other.

A third risk is if the **needs of the users** (citizens, undertakings and other administrations) **are not sufficiently taken into consideration**. Indeed, if the administrations were to resort to participation methods simply to valorise themselves in an instrumental manner, without actually taking the input from the users into account, this could lead to discrepancies between these users' actual needs and the pre-conception that administrations have from these needs.

A fourth risk is that various administrations that need to collaborate might in fact have different priorities, leading to difficulties to agree on common objectives because each actor has a **silo vision**. This could create **difficulties to build bridges between the different levels of power**.

A fifth risk is if the **procedural load and "red-tape" remain as heavy as they are today**. Indeed, excessive administrative procedures and hierarchical structure slow down the implementation of innovative and flexible strategic actions.

A sixth risk is if **not enough resources are dedicated to the implementation** of the strategic actions. Indeed, money is key and a minimum level of resources is needed to go forward with these strategic actions. This risk is especially

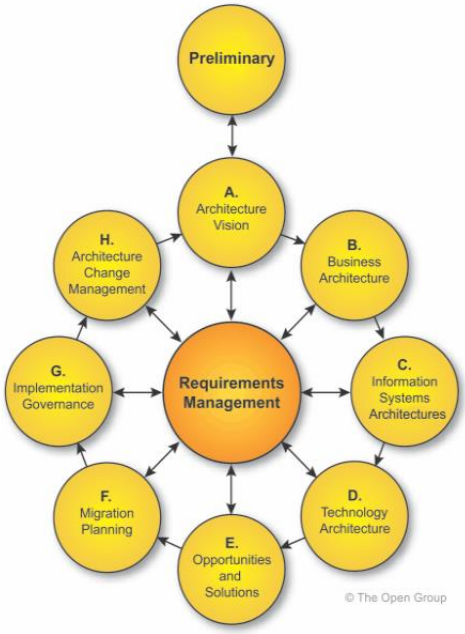
relevant in the aftermath of the Covid-19 pandemic. Indeed, because of the sanitary and economic crisis caused by this pandemic, the public administrations' budgets might be tighter than ever.

A seventh and final risk is that if there is a **lack of sufficient political support for the implementation of the Strategy**. Indeed, many of the suggested strategic actions are highly dependent on some form of political support or intervention. The Task Force will need to have this in mind and to ensure that it obtains the support it needs.

8. PROPOSED ROADMAP FOR THE IMPLEMENTATION OF THE STRATEGY

Besides the governance structure and the identification of strategic priorities and risks, a roadmap for the implementation of this Strategy is also suggested. This roadmap follows the application of an 'enterprise architecture' methodology. In that regard, The Open Group Architecture Framework (TOGAF) is an excellent lead for implementation of this Strategy. It is highly recommended that the Task Force works with TOGAF, as it ensures the use of "consistent standards, methods, and communication among Enterprise Architecture professionals" (The Open Group, 2020).

Figure 3: Open Group Architecture Framework



Source: The Open Architecture Framework – The Open Group 2020

This methodology will sub-divide the strategy into concrete actions, business, information and technology architectures with clearly defined actors, roles, resources and structures.[4] The different steps can be summarised as follows:

- **Preliminary step**: Preparation and initiation activities required to meet the business directive for a new Enterprise Architecture. In the context of this strategy, this means agreeing on the governance structure and understanding the strategic actions in-depth.
- **Architecture Vision**: Defining the scope, identifying the stakeholders, creating the Architecture Vision, and obtaining approvals by key stakeholders. In the context of this strategy, this means identifying the key stakeholders within the federal government that should align with and approve the strategic actions. Additionally, external stakeholders (representatives from other governmental levels, businesses or even citizens) should be identified so that the impact that the strategic actions have on them can be understood.

[4] More information can be found at this link: https://pubs.opengroup.org/architecture/togaf8-doc/arch/.

- **Business Architecture**: Developing the Target Business Architecture that describes how the undertaking needs to operate to achieve the business goals. In the context of this strategy, this means understanding how the business processes of the government must be transformed to implement the strategic actions before tackling the underlying information systems decisions.
- **Information Systems Architecture**: Defining Information Systems Architectures for an architecture project, including the development of Data and Application Architectures. In the context of this strategy, this means identifying and modelling which information systems are needed to implement the new governmental business processes.
- **Technology Architecture**: Developing the Target Technology Architecture that enables the Architecture Vision, and target business, data and application building blocks to be delivered through technology components and technology services. In the context of this strategy, this means making the technological choices, in a harmonized way, to support the information systems decisions.
- **Opportunities and Solutions**: Identifying delivery vehicles (projects, programs, or portfolios) that effectively deliver the Target Architecture identified in previous phases. In the context of this strategy, this means identifying the key projects, within all organisations involved, that can implement the strategic actions. This identification can be performed through the Task Force.
- **Migration planning**: Describing how to move from the Baseline to the Target Architectures by finalising a detailed Implementation and Migration Plan. In the context of this strategy, this means translating the strategic actions into actionable objectives to be implemented, in line with the priorities of the stakeholders.
- **Implementation Governance**: Providing an architectural oversight of the implementation. In the context of this strategy, this means validating the actions through the suggested Task Force and by continuously monitoring the Risks and Key Performance Indicators.
- **Architecture change management**: Establishing procedures for managing change to the new architecture. In the context of this strategy, this mean identifying "change champions" within the organisations, in order to implement the strategic actions. These champions can be identified in the projects, programs and portfolios from the "Opportunities and Solutions" step.

All of these steps can be performed in an iterative way while managing the requirements of all the stakeholders impacted by these changes in the organisation (or in this case, the federal government). In the context of this strategy, these requirements can be managed through the Task Force and through continuous contact with external stakeholders.

TOGAF can be applied best by the FPS BOSA – Digital Transformation Office in conjunction with all federal organisations, which should be part of this process. The NGI and the G-Cloud initiative should also be involved. The hiring of a dedicated consultant – expert in TOGAF, change management and enterprise architecture – can be beneficial for the implementation of the TOGAF process.

9. KEY PERFORMANCE INDICATORS

Complementary to the governance structure and the roadmap for implementation, it is suggested to define Key Performance Indicators (or KPIs) to monitor the implementation of the Strategy in general, and of the strategic actions in particular. A good practice which can be applied by the Task Force is to monitor the performance of the strategic actions via the SMART Approach. This means that the objectives of the further operationalised strategic actions are set according to the following five principles: Specific, Measurable, Assignable, Realistic and Time-related. Those principles can be defined as follows:

- **Specific**: The objectives of the strategic actions are all related to one of the four specific areas of improvement of the Strategy (Openness, Participation, Collaboration and Geo-Orientation);
- **Measurable**: The progress of each strategic action should be evaluated yearly. We suggest to use a simple scoring method for the evaluation of the actions. For each action, a score of 0/0,5/1 can be attributed in

order to quantify the state of advancement for each action. This scoring is not action-specific and is generic enough to be applied to all actions. The general scoring rules are as follows. "0" means that the action was not implemented. "0,5" means that the federal government has considered the action but has not fully implemented it yet (for example, a project is budgeted and planned or at the beginning of its lifecycle without concrete effects yet). "1" means that the action is fully implemented and has a clear effect. The evidence for this can be gathered through, e.g., reports, reviewing textual materials, interviews, excerpts from minutes, etc;

- **Assignable**: Strategic actions were assigned, when possible, to specific stakeholders within the federal government;
- **Realistic**: The constraints of the federal administration (budget cuts, change management, alignment between federal bodies) were identified in a previous step of the research and considered as constraints when formulating the Strategy;
- **Time-related**: We specify that the actions should be implemented by 2030.

10. FINAL REMARKS

This **Strategic vision for flexible and innovative e-services** aims to guide the federal administration for the **next ten years (2020-2030)**. It is focused on location-based e-services, as data and information, and especially geo-data and geo-information, are key to offer real-time and valuable services to citizens, businesses and other administrative organisations. Moreover, it is built on three pillars (Openness, Participation, Collaboration and Geo-Orientation), and geo-orientation is considered as the fundament for flexible and innovative e-services.

In order for this strategic vision to be implemented in practice, this Strategy suggest to work in **three iterative cycles of three years (2020-2023; 2024-2026; 2027-2029)**, in order to be aligned with potential technological or organisational evolutions that might affect the roll-out of the Strategy.

Concretely, this Strategy suggests, on the basis of preliminary findings, several strategic actions that the federal administrations should start working on during the **first cycle (2020-2023)**, in order to implement the ten years Strategic vision.

To implement these, this Strategy calls for the creation of a Task Force who should be responsible for the execution of these actions and who would possess the necessary coordination capacity and a dedicated budget to do so.

In order to help the Task Force in this endeavour, this Strategy outlines strategic priorities to be pursued among the suggested strategic actions for the first cycle, and highlights a number of risks potentially preventing the implementation of the suggested strategic actions. The Strategy also suggests a roadmap (by making use of TOGAF) and key performance indicators (based on the SMART Approach) to be used by the Task Force in the course of the implementation. Naturally, the Task Force shall remain free to depart from these suggestions, and to define its own strategic priorities, risks, roadmap and key performance indicators if it realises, during the first cycle, that these need to be adapted.

At the end of this first cycle, the Task Force will have to define the strategic priorities, risks, roadmap and key performance indicators for the **second cycle (2024-2026)**. To do so, the Task Force shall assess the progress made on the strategic actions during the first cycle and the effect that this had practice. It will also have to assess whether these actions are still relevant and match technological or organisational evolutions. If this is not the case, this Task Force might have to adapt these strategic actions or to suggest new ones. At the end of the second cycle, the same assessment will have to be done in order to prepare the **third cycle (2027-2029)**. Finally, the **last year (2030)** should be dedicated to the rounding-up of the strategic actions in order to reach the goals set in the ten years strategic vision.

Via this Strategy, we hope to support the federal public administration in delivering even better geospatial e-services than is currently the case. It is now up to the federal public administration to address these strategic actions, and the suggestions made in this Strategy can function as a starting point to do so.

4. WP7 - BLUEPRINT FOR AN ADAPTIVE AND INNOVATIVE GOVERNMENT

I. OBJECTIVES OF THE BLUEPRINT

Society's evolution requires governments, and their administration, to rethink their role and position in the world. **All countries face on-going social, economic and environmental challenges that cannot be tackled by States' administrations alone.** New policy initiatives have been emerging, where citizens, civil society organisations, and businesses are involved and challenge the administration by making use of bottom-up approaches and initiatives. Technology is thereby helping those citizens, civil society organisations and businesses to voice their concerns and bring their grieves to the attention of politicians and administrations. Governments have to find ways to deal with these changing situations. The existing federal administration is also challenged by other governmental levels, whether at the regional or local level. Indeed, cities and municipalities often offer a more suitable structure and proximity with the citizens that favour interaction, while regional organisations create more possibilities to deal with regional challenges. This raises the following questions: **How can the federal government, and its administration, evolve, in order to become even more adaptive and innovative?**

This question seems simple at first sight, but calls for a highly complex answer. Government plays a fundamental role, but it needs to reinvent its way of functioning. Government is driven by complex demands and challenges at the global, regional, national and individual level, builds on technology, remains in the hands of humans, connects society and facilitates interaction and society-driven solutions. To deal with these challenges and demands, the Government's administration needs to reinforce itself so that it becomes more adaptive and innovative, and the creation of a new approach is required to be able to fulfil the needs of society. Above all, and by all means, the Government should be there for its citizens, by respecting the fundamental rights and values enshrined in the social contract concluded with its citizens, and by continuing on the path of the liberal democracy. Indeed, transforming the administration, and thereby making use of digital tools and technological advancements, may undermine the rights and security of citizens, businesses or societal organisations.

The position of the Government's administration in society is changing. It is moving from a leading and dominant position towards a new role as facilitator and partner of its citizens, businesses, and other societal organisations. The Belgian federal administration is particularly vulnerable to the on-going changes because of the multiple federalisation waves it had (and has) to face and its relatively long, and silo structured, existence. The federal administration is influenced by policies developed by international (e.g. PSI Directive, INSPIRE Directive) and regional actors (e.g. address registers developed by regions, building registries) as well as by events taking place at the international and regional level. Furthermore, it is confronted with a changing civil society and new civil society organisations and movements, such as climate organisations and the growing disconnection between political parties and civil society organisations (e.g. Greenpeace, Youth for Climate).

In conjunction with this challenge, today's on-going and steady technological advancements (Artificial Intelligence, Blockchain, Big Data, Internet of Things, etc.) are expected to change the citizens' and businesses' ideas on the services offered by the administration. Technology is, as such, expected to transform the relationship between society and the administration. Citizens, civil society organisations and business have more tools to inform the administration on their expectations and the administrations is capable of being in constant contact with society. As society evolves, influenced by the wave of digitalisation that flows over an ever-more localised and globalised world, **the expectations grow for the administration's organisations to innovate in the way they work and interact** with citizens, businesses and other organisations from the same or another level of power.

The **Government's future** lies in becoming an **adaptive and participatory actor** that is organised on the **principles of openness and collaboration**, thereby making use of the possibilities provided by both human capacity and technology. The Government of the future has an administration that interacts and innovates with society and citizens, while providing the necessary structure based on the traditional bureaucracy. It serves the others, and acts as an epitome of trust. It steers towards a sustainable future with society and other governments' administration.

During the last decades, the **Belgian federal administration has taken crucial steps** when it comes to e-government

developments and reforms. Moreover, the various levels of power have realised that cooperation with others concerning the offering of services and the exchange of data and information is the way forward. Singular actions by one organisation are often no longer possible and feasible in a multi-level governance context.

The above calls for an overall view on what the Government's future should be. There is a crucial need to find a common approach regarding the path to follow. Of course, all actors should remain free to implement this common approach concretely in the manner they find best suited. This process requires out-of-the-box thinking, and will challenge actors, organisations and individuals. **Accordingly, the goal of this Blueprint is to suggest a vision on Government. Three strategic areas, nine key principles and a dozen of strategic actions are suggested to reinforce the administrations aiming for an even more adaptive and innovative Government. This Blueprint Vision** also underlines the benefits of the suggested strategic actions. It builds on the findings of the FLEXPUB project, but also exploits basic fundamental principles for an appropriate relationship between the state, society and citizens. This Blueprint starts from an e-government context, but aims to look beyond it and touch on more essential questions. Technology is, in this respect, only one of the on-going challenges that invite to question the shape of Government, while e-government is only a tool that may help to achieve it.

This Blueprint, which purposely remains general in scope, originates in the ***Strategy for Flexible Geospatial Public E-Services.*** Whereas the Strategy is focused on geospatial e-services, this Blueprint takes a broader and wider perspective with a focus on an adaptive and innovative government. The Strategy functioned as a starting point for this Blueprint. As the FLEXPUB research has focused on geospatial e-services, which resulted in the Strategy, this Blueprint is partially based on the assumption that the findings made for geospatial e-services are also relevant for the broader e-service development. In order to be aligned with this Strategy, this Blueprint also follows a ten-year timeline (2020-2030). The year 2030, and the finalisation of the United Nations Sustainable Development Goals, will offer the ideal setting to evaluate the then-achieved position of the State in relation to citizens and society.[5]

II. A VISION ORIENTED AROUND THREE STRATEGIC AREAS

Our vision of Government is oriented around three strategic areas. Those strategic areas should allow the government's administration to become more innovative and adaptive. The three strategic areas interact with each other and are complementary. Based on our research, an Adaptive and Innovative Government is one that...

A. ...**is opened towards the outside world**: Openness is about sharing information and services as broadly as possible, when possible for free, in a secure and privacy compliant manner, in order to increase transparency and foster economic growth through collaboration and data re-use, and to generate value-added services.

B. ...**takes constantly into account the evolving needs from its stakeholders**: The participation of stakeholders, whether they are citizen, businesses, societal organisations or civil servants, will enable the Government to make decisions that are more in phase with the currently existing needs and benefits of the stakeholders.

C. ...**organises itself on the needs of those it serves**: Organisations of the future will continue to provide services, thereby stimulating themselves to constantly reinvent their activities and to motivate societal organisations to do the same. This implies the need to rethink their organisational structures, depending on the service needs. Collaboration is required, implying the need to build bridges, connections and networks between the different layers within and between different administration's organisations.

III. NINE KEY PRINCIPLES FOR GOVERNMENT

The three strategic areas identified above can be further refined into nine key guiding principles that can be followed by the administration. **In line with the strategic areas, those principles should allow the Government to input the**

[5] It has to be underlined that this framework is built on the basis of existing frameworks, such as the "Open Government Framework" and the findings from the FLEXPUB research (*Open Government: Collaboration, Transparency, and Participation in Practice*, D. Lanthrop, & L. Ruma (Eds.), 2010, O'Reilly Media, Sebastopol (United States).)

suggested vision, in order to become even more innovative and adaptive.

A. AN OPEN GOVERNMENT

RETHINKS THE INFORMATION MANAGEMENT SYSTEM

Transitioning towards a truly "Open Government" implies fundamental data governance reflections, as rethinking the whole information management system is a pre-requisite to achieve efficient and effective openness. While this process has been started by the administration, it is a constant work in progress to reflect on how the information infrastructure should serve the administration's goals. Indeed, integrated information systems can enable better decision-making and help improve on the public values that the federal administration pursues. Moreover, it can help to identify, in a more timely fashion, relevant datasets requested by re-users. Being "Open" thus requires much more than uploading data on an "Open data" portal; it is a mind-set.

Furthermore, such an openness may also be required from the private sector. Indeed, there are reflections at the European level on whether data held by private companies, and deemed to be of public interest, should be shared with the administration.[6] Policymaking would strongly benefit from the potential to reuse private sector data. This requires close collaboration between the private and public sector.

ENSURES SUSTAINABLE FUNDING FOR PUBLIC DATA QUALITY AND UP-TO-DATENESS

It also implies finding the right balance between budgetary autonomy and user orientation, namely between free and royalty fees' models, as a sufficient funding is vital to keep the quality of the data, and specifically its up-to-dateness, at an appropriate level. Indeed, the value of the data for re-users is function of its nature (value-added data is more useful than raw data), quality and up-to-dateness, and Government should strive towards meeting these requirements.

GUARANTEES PERSONAL DATA PROTECTION AND SECURITY

Finally, Government shall take personal data protection and security concerns into consideration from the start when rethinking its information management system. Ensuring maximum privacy for citizens should be the norm (Privacy-by default) and the IT infrastructure should be developed in a way that ensures this (Privacy-by-design).

B. A PARTICIPATIVE GOVERNMENT

ALIGNS WITH AND TRAINS INTERNAL STAKEHOLDERS

The digital divide remains a crucial challenge in society. Government must not only tackle it externally but also within the administration. New developments in technologies and the digitalisation will allow it to redesign its processes and organisations. This profound transformation must take place in coordination with the internal stakeholders, in order to decrease their fear of losing jobs and of change in general, and to transform their previous tasks in new ones, with more meaning and added-value. Staff should also be able to acquire the necessary competencies to deal with the new technologies, not only within their own administration, but also at the local level when there is strong interaction with the higher administration.

INTEGRATES THE INPUT FROM CITIZENS AND EXTERNAL USERS

External users, such as citizens and businesses, have higher or new requirements regarding the services provided by the administration but also strive towards being recognised in a pro-active position for the service delivery. Government should organise as a platform to let the interested users take up that role. This proactive role can take several forms, from being a consumer of information to a highly active involvement in the service delivery. Examples of such involvement are app development, service feedback rounds or participation in the development of services. Ultimately, users can also be involved to redefine the role of government, in a broader debate about their needs.

[6] See the High-Level Expert Group on Business-to-Government Data Sharing, *Towards a European strategy on business-to-government data sharing for the public interest – Final Report*, 19 February 2020, available at https://ec.europa.eu/digital-single-market/en/news/experts-say-privately-held-data-available-european-union-should-be-used-better-and-more.

DEVELOPS THE APPROPRIATE METHODS AND TOOLS

Developing a participative strategy internally and externally requires a fundamental change in the existing processes of Government. Government should experiment with existing and new methods to gather the input, whether on a small scale, via group discussions, roundtables, or interviews, or on a large scale, via social media, surveys or online platforms. Those methods should be implemented in a coherent and continuous way, to ensure a lasting impact.

C. A COLLABORATIVE GOVERNMENT

RETHINKS ORGANISATIONAL STRUCTURES TO ACTIVELY SERVE THE END-USER

Developing a collaborative approach is a primordial requirement to ensure that Government becomes and acts in a user-oriented way. In turn, it will also stimulate additional collaboration. The inclusion of stakeholders, both governmental and non-governmental, as well as the need to actively provide changing services based on the evolving needs of citizens, businesses and societal organisations can only be achieved by stimulating the collaboration among different societal and government actors.

STRENGTHENS COORDINATION AND SHARING PRACTICES WITHIN A SINGLE ADMINISTRATION

Government has to make use of the digital opportunities to increase the coordination and sharing of data, information and services across different organisations of the same administration. Interoperability, a shared policy and communication approach, and intensified collaboration focused on coordination instruments within the same administration are crucial. This will require the rethinking of currently existing forms of collaboration within the federal administration.

BUILDS ON COMMON SERVICE AND DATA APPROACHES TO STIMULATE COOPERATION ACROSS PUBLIC ADMINISTRATIONS

The federal public administration has to collaborate with other public administrations, within and across national borders. A user-centric approach and global challenges force the federal administration to look beyond their own level. The public administration has to develop networks and stimulate participation with partner public administrations. It has to further intensify data exchange approaches (including geospatial data) as well as the development of common services and standards. The further development of the Belgian interoperability framework is highly recommended in this respect, thereby focusing on legal, organisational, semantic and technical interoperability.

IV. STRATEGIC ACTIONS FOR GOVERNMENT

To achieve these nine key principles, the following strategic actions are suggested. Those strategic actions should allow the Government to become more innovative and adaptive. Those strategic actions are partially derived from a more detailed and specific analysis in the ***Strategy for Flexible Geospatial Public E-Services.*** Indeed, those strategic actions are broader in scope and do not only focus on a geospatial context, but impact the Government in all of its dimensions and missions.

A. OPEN GOVERNMENT

RETHINKING THE INFORMATION MANAGEMENT SYSTEM: FUNDAMENTAL DATA GOVERNANCE REFLECTIONS

Government needs to **launch awareness-raising campaigns** about the benefits of Open Data in its administration. Indeed, opening up public information is a major change requiring a great deal of time and resources. **To motivate the administration** to engage in such a revolution, it needs to be guided and convinced that this will not only be useful for the re-users, i.e. private sector, NGOs, citizens etc., but that it is most importantly beneficial for itself. Indeed, the public sector is the first beneficiary of Open Data because it forces the administration to invest in its information management systems and in structures that will facilitate its work, and it also allows to break silos within the administration as the various departments are thereby made aware of the informational resources that

already exists internally elsewhere.

Government needs to **provide tools and instruments facilitating data re-use**. Indeed, fostering economic growth through data re-use, in order to generate value-added services, requires more than simply uploading data on an "Open data" portal. It calls for collaboration between the administration and the re-users, with the former creating the tools allowing the latter to identify quickly and efficiently the datasets that are valuable to them. This could be achieved through standardisation and through the creation of a single point of contact to help re-users know where to find the specific data that they look for. Moreover, in order to facilitate the provision of this data, Government should work on making its data available via Application Programming Interfaces (APIs).

Additionally, Government should **define priorities in order to determine on which open datasets it should be invested the most**. To do so, Government could take both a passive and active approach. The passive approach would consist in monitoring the number of downloads that the various datasets have had, in order to identify those that are re-used the most. The active approach would consist in setting an "Open Data working group" with representatives of the re-users (citizens, private sector, NGOs) in order to identify use cases and potential re-users, to define data quality requirements and to identify public datasets that are not yet open, but have a major economic or societal value (this could especially be relevant for authoritative data sources).

In order to enable re-users to combine data held by administrations of different levels of power, Government should **strive towards harmonising the various "data re-use licences"**, in order to avoid licensing incompatibilities' issue, through an agreement on a **set of common licences**, which would replace the current licence fragmentation. The standard for such licences should be based on supra-national standards, namely the CC-BY[7] or the CC0[8] Creative Commons licence. This not only requires ensuring technical standards' compatibility between the various licences, but also legal compatibility. Moreover, these licences need to be available for all on the Open data platforms, in order for the platforms' visitors to know what their rights and obligations will be if they decide to re-use the data.

Finally, in the vein of discussions currently ongoing at the European level[9], Government should engage with the private sector in order to **set the conditions for the access to public interest data held by private companies**, and deemed to be of public interest, as government policy making would highly benefit from the possibilities offered by this data sharing. This fits in the wider reflexion of the constant necessity to evaluate what is to be considered as falling within the public interest and the administration's public service mission. The key question is indeed which privately held data should be considered as being of public interest and hence should be made available to the administration? Naturally, such collaborations should be set in full compliance with personal data protection and security requirements, and should ensure the protection of the private companies' commercial interests.

SUSTAINABLE FUNDING TO ENSURE PUBLIC DATA'S QUALITY AND UP-TO-DATENESS

Government needs to **foresee sustainable "Open Data funding"** of the fixed and marginal costs linked to the quality, the continuity and the maintenance of the opened data at the federal level, via a global federal budgetary envelope, or via the creation of "Freemium models" (data would be shared freely, but administrations could sell the services built on top of this data to third parties). The same should also be done within each level of power (Regions and Communities). Ideally, this "Open Data funding" issue should be tackled before July 2021, as by then, the Government will have to transpose the amended version of the PSI Directive (Directive (EU) 2019/1024 of 20 June 2019) in Belgian law. Indeed, this Directive imposes the obligation to share "High-value datasets" for free. This will have a significant impact on federal administrations that are not funded at 100% by tax-payer money, because they will no longer be able to request a fee for these types of data. Moreover, the Directive also imposes to set up APIs for these High-value datasets, and this should be implemented in a uniform and standardised way at the Federal level.

[7] https://creativecommons.org/licenses/by/2.0/be/

[8] https://creativecommons.org/publicdomain/zero/1.0/deed.fr

[9] See the High-Level Expert Group on Business-to-Government Data Sharing, *Towards a European strategy on business-to-government data sharing for the public interest – Final Report*, 19 February 2020, available at https://ec.europa.eu/digital-single-market/en/news/experts-say-privately-held-data-available-european-union-should-be-used-better-and-more.

Government needs to **collaborate with its re-users**, in order to ensure that the public sector data is always of the utmost quality and timeliness. Indeed, while the administration uses data for its own functioning, it might not always need this data to be of a perfect quality or perfectly up-to-date to be able to provide its public services. Thus, it might not have the incentive to "go the extra-mile" to increase the quality and up-to-dateness for the re-users that require it for their own services. Therefore, creating an eco-system where public-private-partnerships (PPPs) are entered into in order for re-users to increase this quality and up-to-dateness of public data not only for their own benefit, but also for the benefit of the administration, is an avenue that should be explored (e.g. the FPS Mobility could enter into a partnership with applications such as Waze in order to get real-time data about the status of traffic jams in order to re-orient drivers, via interactive screens on the road). For instance, instead of re-using raw public data, a private sector company could be interested in partnering up with an administration in order to get access to value-added data created specifically by the administration for that specific PPP.

GUARANTEEING PERSONAL DATA PROTECTION AND SECURITY

Government should **take personal data protection and security concerns into consideration** from the start when rethinking its information management system. Ensuring maximum privacy for citizens should be the norm (Privacy-by default) and the IT infrastructure should be developed in a way that ensures this (Privacy-by-design).

To do so, Government should **provide trainings to its civil servants about the IT security measures** that they must respect, and about the existing personal data protection rules that impact on their daily work (EU General Data Protection Regulation, relevant national legislations, good practices...). This should be done in a multi-modal way (documents, templates, workshops, traineeships...).

Finally, Government should **adopt strict personal data protection and security policies**. These should not be adopted once and for all, but should be reviewed often enough to keep in touch with the new technological developments. Indeed, future technical developments will potentially affect the security of the systems, or might endanger personal data protection through the apparition of new techniques of big data collection and analysis facilitating the re-identification of individuals. In this regard, Government should conduct regular audits of its administration, to ensure that it fully respects these personal data protection and security policies.

B. PARTICIPATIVE GOVERNMENT

ALIGNS WITH AND TRAINS INTERNAL STAKEHOLDERS

Government should **take into account the input from its internal** (civil servants) **stakeholders to improve its functioning**. In order to increase the acceptance of a project and to gain input from civil servants, one must involve internal stakeholders, through interviews or group discussions for instance, to explain the project. This collection of input must ideally be done in each of the potentially impacted departments to maximise the idea generation (Human Resources, IT, Records Management, Communication, Finance, Legal etc.). Furthermore, this internal alignment will allow identifying people who could prove to be valuable resources within each department. It will also improve the sense of acceptation of the projects, as the civil servants would positively welcome the opportunity to give ideas and feedback beforehand. On a final note, one must be aware that the digital divide is present within the population but also internally between departments and between different public administrations (such as local administrations). Therefore, the explanations have to be adapted in function of the digital literacy and respective skills of the department so that Government is truly inclusive. To improve these skills, key trainings enhanced by innovative methods (e.g. SCRUM), improvisation principles, visualisation, online training tools and modules could be used.

INTEGRATES THE INPUT FROM CITIZENS AND EXTERNAL USERS

Government should **take into account the input from its external** (citizens, business or other societal and governmental actors) **stakeholders to improve its functioning**. Government should thus consider its external stakeholders as multifaceted partners.

Firstly, they can be **democratic participants** in the decision-making process of government. By engaging in

consultation, government will gather ideas from the external stakeholders without a necessary impact on decision-making. At a higher level, co-decision should be possible with decision-making shared between officials, citizens and businesses. This co-decision must be performed taking into account the representativeness of the participants with respect to the population. Secondly, citizens and businesses can be **co-creators** in order to propose better solutions and ideas and to decrease the risk of failure of the projects early in the process. Finally, thanks to the new developments in information and communication technologies, the external stakeholders can also participate as **ICT users** by proactively using the ICT infrastructure to make them feel surrounded by technology and to enable them to participate more easily. For instance, several platforms[10] can be used to collect ideas, needs and input from citizens.

DEVELOPS THE APPROPRIATE METHODS AND TOOLS

In order to collect the input, Government should consistently rely on a number of **participation methods** to develop a complementary ecosystem of participation. Interviews are a direct and simple method to gather input from the stakeholders. A representation in the project team can also be an option to determine salient intermediary stakeholders that can be considered as partners and intermediaries in different stages. Workshops allow the interaction with selected groups of different stakeholders, with the aid of innovative techniques such as visualisation tools or improvisation principles. Finally, other methods are possible such as online and off-line surveys, phone, mails, comments collected on website, dedicated platforms, social media, innovation ecosystems (living lab or hackathons) or prototyping.

Government should implement different participation methods to carefully **take into account the ideas, needs, expectations and requirements of its citizens**. The choice to use such methods, or of which method to use, depends on different context factors specific to each case: the organisational context, the users' characteristics, the project stage or the public values present in the organisation. We thus recommend that the choice is made in a coherent way with regard to these context factors. A particular attention should be set on the transparency of the requirements' processing.

By **embracing participation**, Government can expect several benefits in their functioning such as increased trust, better alignment between project and requirements or promotion of innovation.

C. COLLABORATIVE GOVERNMENT

RETHINKS ORGANISATIONAL STRUCTURES TO ACTIVELY SERVE THE END-USER

Government needs to function in a user-centric way. **Offering user-centric services will require the further and continuous development of a network of public administrations, civil servants, tools and data,** which creates the possibility for civil servants to serve citizens, business and societal organisations in an active way. This network transcends a single public administration, and also involves collaboration with the local level, which is the level mostly consulted by citizens. The intensified collaboration within the entire Belgian public administration, will ensure that users are served in a more effective way, when they need a service. Technology developments are in this respect also expected to lead to a different offering of services. Administrations now function in a fixed timeframe, whereas it can be expected that technology will reduce this dependency.

Government will be a push government. **It will offer services when users need it without them having to ask for the services. Strict implementation of the organisational interoperability and the once-only principle will be crucial in this respect**, while ensuring that public administrations remain accessible. The local level will be key in this respect as it is a key access point for citizens and businesses, but has to be supported by the higher levels. Therefore, those higher levels, together, need to support the local level in providing specific service support and general guidelines. Furthermore, to implement organisational interoperability and the once-only principle, governments will need to further develop the **concept of authoritative data**. It is of high importance that the federal administration defines, together with the three regional administrations, what the concept means and which quality requirements are set

[10] Example of citizen consultation to discuss fake news by the Belgian federal administration.

for the data sources that will be labelled as authoritative.

Government might no longer be able to deal alone with the different challenges it faces. When possible and necessary, and in the interest of serving the users, a potential **collaboration with the private sector as well as with civil society organisations** must be considered. Also, due to the 'de-pillarisation' of society, it can be questioned to what extent the current interaction between the administration and civil society via the long-existing institutionalised consultative structures remains legitimate. In this context, it should be possible to find new partners in civil society. Such a collaboration can go in various directions. It is advisable that the different societal and public administration actors meet on a regular basis to discuss strategic e-government themes which are of common interest, and to debate ongoing and future strategic e-government development. Based on those meetings, it can be agreed to take common actions. For example, some services can be developed in a partnership between the public sector, civil society and the private sector, data can be shared to optimise policies, and policies can be developed by civil society organisations with support from the public sector.

STRENGTHENS COORDINATION AND SHARING PRACTICES WITHIN A SINGLE ADMINISTRATION

It is advisable that the Government makes **use of a common and shared e-government policy and communication approach in its activities towards its end-users**. Increasing the user-centricity of the organisation requires the development and acceptance of a common external approach towards the users. This will lead towards the avoidance of confusing and contradictory messages for the users. It will require the development and acceptance of common lines of communication and presentation by the different organisations of an administration. There can be differentiation, but only based on the different type of users.

There is a need to **adopt new organisational instruments and responsibilities,** whereby organisations with horizontal responsibilities, such as the FPS BOSA – DG DT and the FPS Chancellery – DG Administrative Simplification, need to be further strengthened in order to be able to provide the necessary support towards the other federal organisations. This will increase the possibility of those vertical organisations to focus on their core tasks, and allow them to tackle challenges in cooperation with their external stakeholders. Secondly, besides the need to strengthen horizontal organisations, it is suggested that the G-Cloud structure and the Board of the Federal Chief Information Officers, which are both voluntary collaboration bodies, are grouped into an officially established coordination body called the "E-Government Board".

IT Departments within the federal organisations need to be supported and triggered to develop their mutual relations in order to increase the (re-)use of services, data, tools and information. **Together with their internal Innovation Teams, internal HR Departments, the internal organisational Management, and with the support of the FPS BOSA and the overarching approach of the E-Government Board, the IT Department needs to trigger change within its organisation and increase the use of the most recent technological tools and possibilities for offering services towards the end-users.** It is of crucial important that the IT Departments is more than technology driven. They need a clear vision and strategy that fits within the broader approach of the organisation and the overall administration so that they are able to support the wider development of the organisation and the federal administration.

BUILDS ON COMMON SERVICES AND DATA APPROACHES TO STIMULATE COOPERATION ACROSS GOVERNMENTS

Different policy fields and thematic topics are spread among various policy levels. Users, be it citizens, businesses or societal organisations, want to receive the desired public service but have no interest in being confronted with the complexity of the state structure. Therefore, it is advisable that the Government continues to develop, in collaboration with the other governmental levels, **a single portal that groups common services and public data of the different Belgian administrations**. Besides developing such a platform, a process needs to be established to continuously update the information on the available services and public data. Furthermore, **intensified collaboration and cooperation** with the other governmental levels will increase the quality and user-centricity of the services. Various possibilities exist, ranging from cooperation agreements, the creation of common organisations or the re-federalisation of certain services. In particular, the creation of interfederal coordination bodies for specific

topics has proven to be valuable.

Furthermore, it is recommended that the federal administration, together with the three regional administrations continues to **further develop the Belgian interoperability framework**, thereby focusing on legal, organisational, semantic and technical interoperability.

The European Union internal market and cross-border activities, the increased movement of people both within the European Union and outside of it, the globalisation of our markets and the ongoing security risks, enforce the need for Government to **collaborate intensively across national borders** with neighbouring countries, such as the United Kingdom, the Netherlands, Germany, Luxembourg and France, but also with supra and international organisations. In this regard, the aim has to be the intensified creation of cross-border services for businesses, and when necessary, for citizens, the increased exchange of data and the creation of common standards that can intensify the user-benefits.

Collaboration in Government, however, has to go further than just the mere exchange of data and the creation of common and shared services. The exchange of knowledge and stimulation of thoughts on potentially new and innovative approaches via **nationally and internationally organised exchange programs can stimulate all civil servants**.

V. BENEFITS OF THE STRATEGIC ACTIONS

Each of the strategic actions suggested above creates benefits for the Government. These are built on insights gained from the FLEXPUB project, academic literature, and national and international good practices.

An Open Government…	
… rethinks the information management system	
1. Launches internal awareness-raising campaigns	Allows better perception of the benefits, for all, of Open Data and motivates further engagement in this endeavour.
2. Provides tools and instruments to facilitate data re-use	Allows public data re-use by a wider variety of re-users and not only by businesses having high IT skills, providing more choice for citizens, SMEs and non-profit organisations.
3. Defines priorities in order to determine on which open datasets it should be invested the most	Allows the administrations to focus their efforts and resources on the most relevant datasets, in order to maximise re-use. This increase in re-uses will, in turn, further motivate the administrations to engage with Open Data.
4. Agrees on a set of common "data re-use licenses" that are publicly available (CC0 and CC-BY)	Allows re-users to combine data from different administrations, in order to provide more complete services across the entire Belgian territory.
5. Sets the conditions for the access to public interest data held by private companies, in full compliance with personal data protection and security requirements	Allows the Government to have access to a greater scale and scope of data, in order to enhance its policies and decision-making processes (for instance in terms of mobility).
… ensures sustainable funding for public data quality and up-to-dateness	

1. Foresees sustainable Open Data funding	Allows engaging more actively in Open Data, which is no longer seen as a costly obligation but as a benefit for all.
2. Collaborates with re-users on quality and up-to-dateness of data	Allows the provision of better services by both the re-users and the administration itself.
… guarantees personal data protection and security	
1. Takes personal data protection and security concerns into consideration from the outset	Allows the administration's organisations to be more systematic in their projects. Avoids classic legal compliance issues at the end of the project, thus reducing frustrations by the project developers.
2. Provides training to civil servants on IT security measures	Reduces the number of security incidents, which are often due to human errors or insufficient knowledge of the security risks and good practices.
3. Adopts strict personal data protection and security policies	Generates more trust from the citizens and provides them with more control on their personal data.
A Participative Government…	
… aligns with and trains internal stakeholders	
1. Takes into account the input from civil servants	Allows to increase the internal acceptance of projects and benefits from the internal knowledge.
2. Bridges the internal digital divide	Takes into account the discrepancies in terms of digital skills from the civil servants and provides solutions to decrease it.
3. Offers training to staff from the public administration, also at the local level	Ensures that staff, at federal and local level, has the possibility to participate in training, thereby strengthening skills and competencies.
… integrates the input from citizens and external users	
1. Considers external users as democratic participants and allows them to have an impact in the decision process in a representative manner	Increases the external acceptance of projects and benefits from external knowledge.
2. Allows external users to become co-creators of services	Empowers the users to provide insights in the development and to develop their own solutions.
… develops the appropriate methods and tools	

1. Understands what methods and tools bring added value to the internal and external users	Provides the organisation with information about the range of possibilities to enable participation.
2. Develops complementary methods and tools to stimulate participation of internal and external users	Develops an ecosystem of participation to maximise the collection of internal and external inputs and evaluates the impact of this collection.
A Collaborative Government…	
… rethinks organisational structures to actively serve the end-user	
1. Creates a stable internal organisational network to offer user-centric services	Promotes active and collaborative organisations, allows for increased standardisation and flexibility in service delivery towards end-users.
2. Supports local level in offering services	Strengthens local level, ensures closer relation between the administration and society, increases qualitative and inclusive service delivery.
3. Develops new collaborations with key societal actors	Strengthens the relation between the administration and society, allows for the inclusion of new approaches and ideas not put forward by current society – administration contacts.
4. Develops a common approach towards authoritative data sources	Allows the roll-out of the once-only principle, which will lead to an improved service delivery.
… strengthens coordination and sharing practices within a single administration	
1. Adopts common e-government policies and communication approaches	Increases external visibility and reinforces the approach towards society. Strengthens the brand 'federal administration', and leads to a stronger alignment on the federal e-government policy.
2. Adopts new organisational instruments and responsibilities for organisations, especially via a strengthening of the FPS BOSA – DG DT and the FPS Chancellery – DG Administrative Simplification, as well as via the creation of the E-Government Board	Allows for an increased policy focus for vertical federal organisations, and leads to a stronger position of horizontal federal organisations in horizontal policy areas. It also ensures a streamlined debate among federal organisations and the development of a common e-government policy.
3. Further strengthen the relations between the organisational Management, IT Department, Innovation Teams and HR Team and HR Teams into the Leaders of Government	Ensures constant innovation and adaptation of the leadership within each of the federal organisations.
… builds on common services and data approaches to stimulate cooperation across governments	

1. Offers services and communicates on a continuously updated single data portal for external users	Increases the use by citizens and businesses of services and data available online. Helps to achieve a digital-by-default strategy.
2. Intensifies collaboration and cooperation with other Belgian public administrations	Increases the quality and user-centricity of services, and forces organisations to rethink their service processes.
3. Intensifies cross-border collaboration for the exchange of data, services, information and best-practices	Reduces administrative burden for companies, which stimulates economic growth.
4. Continues the development of the Belgian interoperability framework	Increases the possibilities to exchange data across public administrations and organisations, increasing the service delivery quality towards users.
5. Organises exchange programs for civil servants	Allows civil servants to be innovative and critical towards their own organisation, services and approaches. Stimulates national collaboration.

VI. PRIORITIES & IMPLICATIONS

A. PRIORITIES

In order to help the Government in its transition towards becoming more adaptive and innovative, this Blueprint suggests to start by focussing on some key priorities. These priorities relate to each of the three strategic areas (Openness, Participation and Collaboration):

- **Increase the uptake of Open Data (Openness)**: While numerous initiatives have been taken by administrations in terms of Open Data, and while some administrations are more advanced than others on the topic, there is still a clear need to increase the uptake of Open Data. In this regard, the priority for Government should be set on ensuring a sustainable "Open Data funding" of the fixed and marginal costs of Open Data, and on determining on which open datasets it should be invested the most, in light of their value for re-users.
- **Strengthen coordination across levels of government (Coordination)**: It is key to strengthen the coordination across the various levels of government and administrations. In this regard, the priority for Government should be set on building common services and data approaches to stimulate cooperation, on multiplying interfederal projects, on creating interfederal coordination bodies to coordinate policies across levels, on setting-up exchange programs for civil servants, and potentially on creating an "Interfederal project fund".
- **Integrate the input from citizens and external users (Participation)**: The administrations should pay greater attention to the needs of their users and should further integrate their input. Having a truly user-oriented focus is fundamental for administrations. In this regard, the priority for Government should be set on increasing user participation in the development of e-services, through the use of complementary online and offline methods. Another priority is to stress the importance of resorting to Agile methods, in order to be more flexible and to better include the users' evolving needs.
- **Guarantee personal data protection and security (Openness)**: In light of the recent entry into force of the GDPR in May 2018, administrations need to ensure that they comply with this legislation. In this regard, the priority for Government should be set on ensuring that the civil servants implement it correctly in their

daily work, and on ensuring that the administrations understand that compliance is a daily challenge, rather than a "one-shot" (being compliant today does not necessarily mean being compliant tomorrow).

B. IMPLICATIONS

The table in Section V above outlines the positive implications for Government of each of the strategic actions contained in this Blueprint. However, it is also worth pointing out that failing to implement these strategic actions could lead to negative implications such as a lack of economic growth due to weak Open Data re-use and personal data protection; a lack of stakeholder representativity due to insufficient participation; or a lack of economies of scale in e-service development due to silo culture and insufficient coordination. In this regard, "Work Package 4: Enablers" contains an analysis of the risks that could prevent the implementation of these strategic actions, and of the likelihood of occurrence of those risks (see Table 11 in Section 11. "Risks and Impact Assessment"). The focus of that analysis thus lies on risks that could lead to the non-implementation of the suggested strategic actions. The likelihood of occurrence of these risks is then presented as being: (i) very low; (ii) low; (iii) moderate; (iv) high; or (v) very high. Risk mitigation factors are then proposed, which suggest actions to circumvent the risk, or circumstances that reduce the risk's impact. Finally, the consequences of the lack of implementation of the enablers are outlined in an impact assessment.

VII. KEY STAKEHOLDERS & RELATED GOVERNANCE STRUCTURE

In order to ensure that the Government makes the transition towards becoming ever more adaptive and innovative, key stakeholders are suggested and a governance structure has been prepared. In the first place, it is recommended that the responsibilities related to the Federal Digital Transformation, the Administrative Simplification and the Federal Innovation are grouped into a single ministerial "wallet", with a Minister dedicated exclusively to these matters. The appointed Minister would be politically accountable for this transition process.

Secondly, it is recommended that the FPS BOSA – DG Digital Transformation, the FPS Chancellery – DG Administrative Simplification and SMALS are recognised as key actors in the further development and implementation of this Blueprint. Those three actors are advised to collaborate and to meet each other, in order to determine how this Blueprint for an Adaptive and Innovative Government can be further developed and implemented. Further developing and implementing this Blueprint, will require, from those three actors, an active collaboration with the E-Government Board and the three Colleges, to ensure the support of all federal organisations.

Regarding the implementation of the FLEXPUB Strategy, a close collaboration will need to be set-up with the Task Force suggested in the Strategy for Flexible Geospatial Public E-Services.

Finally, the politically responsible actors will be responsible for assigning the necessary and required budgetary resources to ensure that the above described actors can take their responsibility and lead the federal administration on the path towards becoming ever more adaptive and innovative.

VIII. CONCLUSION

By working on those three strategic areas, nine key principles, and a dozen of strategic actions and their potential implications, we believe that the first steps can be taken towards the development of an Adaptive and Innovative Government. The Belgian federal administration has the potential to act in a much more adaptive and innovative way. We believe that this transformation process can be started (or can be pursued where it has already begun) by following the above Blueprint Vision. As pointed out in the introduction, this Blueprint purposely remains general in scope and is partially derived from the more detailed and specific analysis in the ***Strategy for Flexible Geospatial Public E-Services.***

The strategic areas, key principles and strategic actions offer ideas for the Government and stimulate the thoughts on what can be done by the administration as a whole, and by each organisation, department, team and individual civil servant.

What about the future? Where to go now with this Blueprint? This Blueprint calls for further reflection, refinement

and implementation. The **key stakeholders** suggested above (**FPS BOSA – DG DT, FPS Chancellery – DG Administrative Simplification and SMALS**) will have a key role to play in this regard. They **will need to collaborate in order to steer the administration into the future and to push and pull the administration towards the required change.**

Finally, **there is a need for the inclusion of citizens, businesses and organisations in this redevelopment process.** Without the structured input of citizens, business and organisations, there is a risk that their needs and demands will insufficiently be taken on board. Though this may appear as a complex task, it should not be forgotten that a State's authority and legitimacy rely on the social contract it has passed with its citizens.

5. CONCLUSION

This report aimed to provide the reader with a detailed overview on how the FLEXPUB Strategy and FLEXPUB Blueprint, respectively WP6 and WP7, have been created by the research team. This report describes the different steps that have been taken to arrive at the Final Strategy and Final Blueprint. In total, 9 steps were followed, which are all connected to a particular aspect of the research project. The Strategy and Blueprint form, as such, the two key deliverables of the FLEXPUB research project.

The research team would like to advise the reader of this report to also take a closer look at the other WP Reports. Those WP Reports provide a detailed account of each WP, and will make it easier to understand the content of both the Strategy and Blueprint.

Before closing this Report, the research team would like to thank three groups of people. On the one hand, the team would like to thank the members of the Follow-up Committee. All of them have made substantial contributions to the research and to the development of the Strategy and Blueprint. All the members, and their organisations, invested time and resources in this project, and we, as researchers, are enourmesly grateful for that. Their honest feedback and critical remarks made it possible to produce a strong final result, with a high validity for the Belgian federal administration, as well as for the other Belgian administrations.

On the other hand, the research team would like to thank all the people who participated and invested their time and resources in the development process of the Strategy and Blueprint described in this document, despite not belonging to the FLEXPUB Follow-up Committee. Their input has proven to be, and still is, an enourmously valuable source of information.

Finally, the research team would like to thank BELSPO, and especially Emmanuèle Bourgeois, for their support and availability throughout the project.

BIBLIOGRAPHY

The Open Group. (2020). *The TOGAF® Standard, Version 9.2 Overview*. https://www.opengroup.org/togaf