A STRATEGY FOR FLEXIBLE GEOSPATIAL PUBLIC E-SERVICES

2020 - 2030

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A STRATEGY FOR FLEXIBLE GEOSPATIAL PUBLIC E-SERVICES 2020 – 2030

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Prepared by the FLEXPUB research group

Table of content

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 constitute the beginning of a long process. However, several challenges remain to be tackled within the different administrative organisations. Although there is no silver bullet approach to 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.
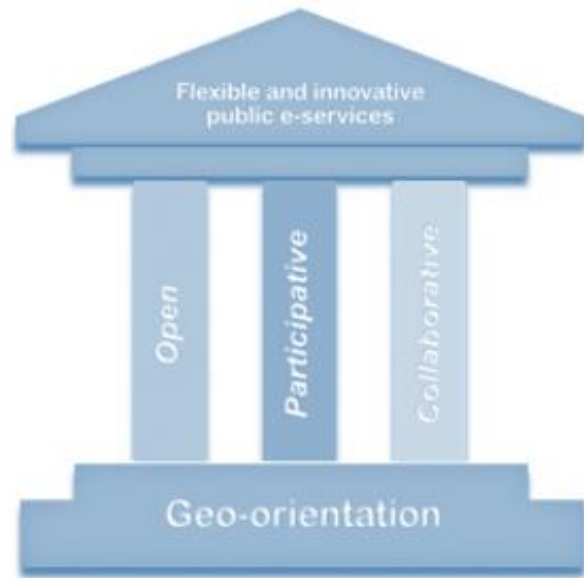

Figure 1 - Strategy for Flexible Geospatial Public E-Services

2 Openness, Participation, Collaboration and Geo-orientation

2.1. Openness

Openness is about sharing information and services as broadly as possible, when possible for free, in a secure and privacy compliant manner. Openness increases transparency and fosters economic growth through collaboration and data re-use, and to generate value-added services.[1]

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.

2.2. Participation

Participation entails 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

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[1] The icons related to the Pillars and Fundament retrieved from flaticon.com.

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.

2.3. Collaboration

Collaboration is about the administrative organisations embracing an ever more globalising world and society, in which they no longer act as single actors, but strive for 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.

2.4. Geo-orientation

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.

3   Implementation Cycle

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 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 can freely depart from these suggestions, and define its own strategic priorities. Furthermore, the Task Force can set out its own risks, roadmap and key performance indicators. If during the first cycle, it realises that these are needed 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 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 order to reach the goals set in the ten years strategic vision

4   Research 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.

4.1.   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 on the potential effects on their work.

4.2.   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.

4.3. 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.

4.4. 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.

5 Strategic Actions

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).

5.1. 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 for 100% funded 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 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[2] or the CC0[3] 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.

5.2. 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;

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[2] More information can be found at: https://creativecommons.org/licenses/by/2.0/be/

[3] 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.

5.3. 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[4], 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;

- 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;

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[4] 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 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.

5.4. 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.

6 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.

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 security services 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.
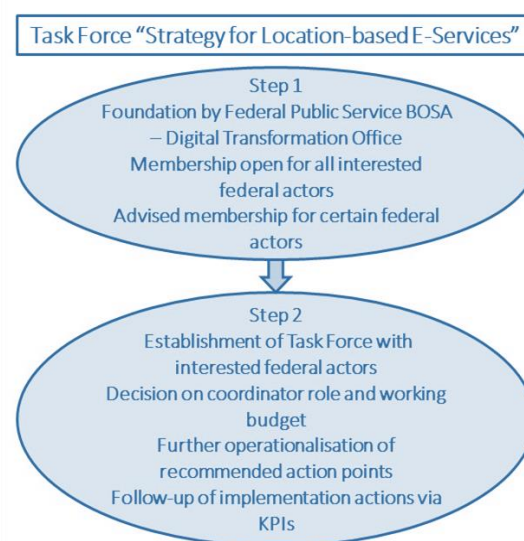

Figure 2 – Strategic Vision Task Force

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.

7 Strategic Priorities

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:

7.1. Increase the uptake of Open Data

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.

7.2. Strengthen coordination across levels of government

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".

7.3. Integrate the input from citizens and external users

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.

7.4. Guarantee personal data protection and security

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).

7.5. Federal sharing platform and catalogue

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.

8   Associated Risks

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

9   Implementation Roadmap

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). 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.

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
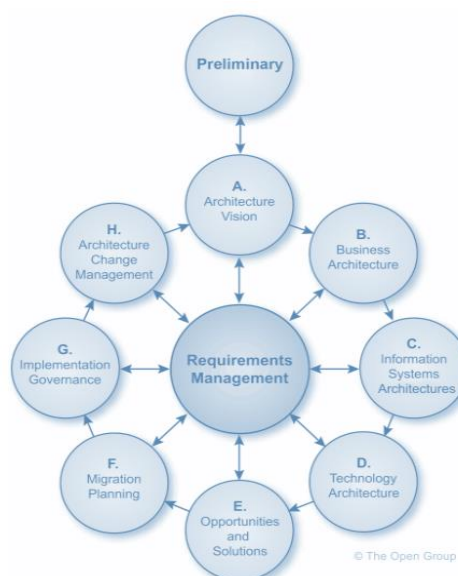

Figure 3 – The Open Group Architecture Framework

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

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.

10 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 using 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.

11 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 working 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.

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