Open Statistical Data Interoperability Framework

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D4.2 Exploitation and sustainability plan

Co-financed by the Connecting Europe Facility of the European Union

Project full title

Open Statistical Data Interoperability Framework

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Executive Summary

Deliverable 4.2. Exploitation and sustainability plan was planned and written by the Activity 4 leader FIWARE with the strong cooperation of Engineering, INSEE and ISTAT.

What is the purpose of this Deliverable? INTERSTAT's sustainability and exploitation plan has the great added value of having been made in cooperation between public and private entities. Considering the beneficial impacts that the plan must have over the next three years, the members of the consortium, public, private and non-profit, have created a unique and heterogeneous model of sustainability that we could call a "holistic".

Through two different scientifically approved tools for analysis and implementation such as the SWOT and the business model canvas, the following topics were identified:

- **Key propositions**: what services INTERSTAT offers to the market of public administrations and private enterprises.
- **Target audience:** market segments interested in INTERSTAT (first public and private)
- **Channels:** how we reach out customers/stakeholders and form another side partners of INTERSTAT.
- **Costs and efforts:** need to be calculated in order to have an idea over the next three years
- **Limitations and barriers**: fragile aspects have been highlighted to find the cover gaps, or in some cases, mitigate potential risks.
- **The Individual exploitation and sustainability plan** for each partner but also a joint plan including common approaches concerning the continued cooperation between or among the consortium partners in future actions or projects.

How did we make it?

On 15 and 16 and 17 March 2023, at the FIWARE headquarters in Berlin, the consortium decided to meet for the last project meeting and three-days workshop to create the exploitation and sustainability plan.

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At the outset, a flipchart was compiled of all the topics related to the main questions:

What does INTERSTAT sell? Services? Solutions? Ready-to-use products?

And who are the beneficiaries? Only developers? Business managers? Only public administration managers? policy makers?

This, the first part of the workshop was therefore aimed at assessing these aspects, which led to the generic definition that: **INTERSTAT offers of services for public administrations (primarily) and private enterprises.**

In a second part, the consortium focused on the creation of the SWOT analysis. This was a key tool that enabled us to make a **wide-ranging analysis of the benefits and gaps of the services offered**. Then the Business Model Canvas that allowed us to understand **the ways in which we could reach our target group with a strong key proposition**. Both formed the basis for then creating the individual and joint action exploitation and sustainability plan for the next three years.

Chapters of this document are divided in the following way:

- **Background**: An overview of the project with the activities performed for the pilots and the services created.
- **SWOT Analysis:** first approach to the analysis which helped the consortium to clarify unclear points related to the services developed and deployed during the project life cycle.
- **Business Model Canvas:** It is the base that helped the consortium to create the individual and joint sustainability and exploitations plan.
- **Individual and Joint Exploitation plan:** it is the outcome from each partner of the consortium, taking into consideration what is the business model of the INTERSTAT services.

Creating a plan for INTERSTAT was not an easy task. Although the business model canvas is defined as: "*the simple blueprint for any business model*", creating business around data is a topic where discussion is still going on both politically and economically. Creating a sustainability and business plan for statistical data is even more difficult.

However, the experience and expertise of the consortium partners have played a key role, creating an absolutely viable basis in the next three years.

1 Background

1.1 Overview of the project

Statistical data represents a key knowledge source to support the public policy-making process but also to enable new value-added services across different domains looking at a wide range of private and public stakeholders. In this context, **INTERSTAT** plays a key role with the aim to enlarge the statistical data audience and its cross-border usages.
In INTERSTAT project was developed a framework- approaches and IT tools - that:

- enable interoperability among different national statistical portals and the European Data Portal;
- facilitate the reuse of Open Statistical Data from a technical and user experience point of view;
- achieve metadata and data harmonization for (linked) Open Statistical Data (LOSD);
- deploy innovative cross-border pilot services based on Open Statistical Data and European Data Portal datasets related to France and Italy;
- use Context Broker to publish data from different sources.

The INTERSTAT framework enables the possibility to easily create, on top of its API, cross-border applications based on LOSD: environment policies, school and delocalized facilities are the 3 ones experimented during the life cycle of the project. In addition, INTERSTAT framework provides:

- the harmonization of statistical data provided by Istat and Insee, through the adoption of common data models and the provisioning of specific tools for data mapping, querying and visualization, in compliance with the SDMX standard;
- Idra Open Data Federation Platform, for the federation and harmonization of open datasets coming from heterogeneous sources and its provisioning through standard interfaces and metadata models (e.g.,, DCAT-AP);

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- a set of open APIs based on different standards allowing the access and the sharing of the LOSD through different Open Data/Statistical Institutional Portals in Europe as well as third-party systems;
- the CEF Context Broker Building Block that will allow access to the LOSD through the NGSI-LD models and API.

INTERSTAT was funded by the **Connecting Europe Facility Programme** (CEF), under the umbrella of Horizon2020. The CEF programme funded a number of generic and reusable Building Blocks that provided core capabilities that can be reused in any European project to facilitate the delivery of digital public services across borders and sectors. In INTERSTAT the Building Block used was Context Broker, a digital platform component that enables the integration of gathered data including insights[1].

1.2 Key proposition and achievements

The INTERSTAT target group is a cluster of "customers/stakeholders" who in part possess common characteristics for which the services developed in INTERSTAT are intended. In our case, our target group consists of:

1. Public National and European Institutes of Statistics (e.g., EUROSTAT).
2. Regional and local Public Administrations (e.g., Cities).
3. Private statistics producers (e.g., survey agencies).
4. Private organizations able to share data (e.g., business).

Why should a public administration or a private company use the services implemented in INTERSTAT? What is the positive impact? We have listed, in a simple way, the aspects that are an advantage for anyone wishing to adopt our services.

- **Improve data interoperability**, support cross-borders and cross-domains data integration
- **Provide a technical framework** with r**eady-to-use** tools for LOSD management
- **Make solutions more appealing** and **easier** to use for users
- **Reduce error** in data provisioning, **save cost, less effort** for human resources

[1] For more information about Context Broker, visit FIWARE catalog.

- **Standardize data management** process through customizable pipelines
- **Reputations: solutions developed and implemented by Public Administrations and Private Companies**

During the three years of the project diverse pilots (use case) have been performed. Each pilot allowed a general end-user to query and navigate open data from specific statistical domains, linked with the population census (cross-domain analysis), comparing Italian and French figures (cross-border analysis). The pilot's services have been implemented to validate the tools provided by the INTERSTAT framework. Below a list of the three pilots (use cases) deployed:

- **Support for Environment Policies – SEP**
  The SEP is a pilot application linking air pollution and demographic data related to Italian and French regions, to highlight the most polluted areas or the population groups most at risk from pollution
- **The School for You – S4Y**
  The S4Y integrates Italian and French data concerning the resident population and educational characteristics, such as school attendance and the distribution of public and private schools
- **Geolocalized Facilities – GF**
  The GF is an example of cross-border and cross domain interoperability, linking and geolocalizing data collected in France and Italy about facilities, equipment and events and integrated with other data sources, such as the population census

The pilot applications implemented during the INTERSTAT project combine tools, methods, reference standards and ontologies which can be reused in several contexts to produce and publish Linked Open Statistical Data. The reuse is enabled through open-source software solutions and shareable application components (APIs, code scripts). **The main benefits for users are**:

- integration of data related to different statistical domains for cross-domain analysis;
- comparison of statistical data collected in different countries for cross-border analysis;
- provide a single data access to combine data from different sources and formats.

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This first section presents in a nutshell the context in which INTERSTAT is developed, the key proposition, the benefits, the target audience and what services are available.

Given the nature of the deliverable (more marketing and business oriented), The INTERSTAT consortium preferred to use less technical language. In this session and in the next, we will give more space towards the adoption of INTERSTAT services in the market, which does not only include necessarily only developers or ICT experts.

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2 SWOT Analysis

2.1 Rationale

SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis in INTERSTAT is a methodology we used to make strategic choices from the map of internal and external factors, positive or negative, that services implemented in INTERSTAT could have. The SWOT analysis helped to put into practice the design of **an effective business plan for the exploitation and sustainability plan** identified through the Business Model Canvas (which you will see in the next section of this deliverable).

To sum up, the SWOT analysis matrix is a tool used at INTERSTAT to analyze, and then understand, which **strategic decisions would be necessary, helping the consortium to create a robust and concrete strategic and exploitation plan**

During the workshop with the members of the consortium we discussed what is the main focus to take into consideration before starting the SWOT. The main aspects are listed below:

- First of all, a decision is defined as strategic if it has a **long-term impact for our target group.** and INTERSTAT's services are positioned in the target audience (public administrations and private companies);
- Secondly services offered have **benefits and a positive impact** for the organizations if they are **easily to adopt** and **replicate**;
- Third, if any services offered are **low cost and time-consuming**.

With this specific assumption, the consortium then started to work on the SWOT matrix.

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2.2 SWOT results

The SWOT analysis was performed in cooperation with the INTERSTAT consortium. This method allowed us to map out the framework in which the business model canvas to be placed. **How?** Identifying which strengths and weaknesses respectively support and have a negative impact in the business strategy; and which opportunities and threats coming from the external environment could create positive impacts in the first case and barriers in the second case.

During the intensive days of workshop, the analysis has identified the **strengths**, such as the competitive advantages, core competencies, know-how and services that give an advantage over competitors. Also, the **weaknesses**, which are the limitations or competitive disadvantages that INTERSTAT faces in the implementation of exploitation and marketing.

Regarding **opportunity**, the consortium talked a lot about the idea of a "market opportunity". The consortium identified it as an area comprising a need or even an interest of the potential buyer. In concrete terms, the analysis highlighted customer needs that could not be fully satisfied by existing market offerings and which the services offered by INTERSTAT could satisfy better than the competitors. This was an important point in our analysis that has been very easily investigated given that the potential first 'buyers' are in the INTERSTAT consortium. (e.g., statistical institutes).

An environmental **threat**, on the other hand, is an element of challenge posed by an external event or unfavorable development, which will lead, in the absence of appropriate defensive marketing action, to a decrease in interest and adoption of the services offered. Therefore, we agreed that our strategic plan must act not only based on opportunities but also on the basis of threats in order to prevent them from limiting the ability to meet the expectations of potential adopting 'customers' and the various other stakeholders.

Below are the results of the SWOT analysis. In detail, the strengths and weaknesses, opportunities and threats of INTERSTAT's services were reported.

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STRENGTH

- Description of data through **international standards**.
    - ETSI NGSI-LD standard
    - DCAT-AP/statDCAT-AP
    - SDMX
- solutions that can be **used by any public institutions** of EU member State, but not limited.
- **ready to use** useful **Open-Source** software;
- combining methods, knowledge, and tools to enhance **technical and semantic interoperability**.
- **highly customizable** data pipelines.
- **cross-domain and cross-border** interoperability.
- **simplify publication** of statistical data on Context Broker;
- inference knowledge by **integrating data** from **different domains and countries**;
- foster **data sharing** and **reuse**;
- tools can be **integrated** with **existing external systems;**
- **simplify open (statistical) data** publication on European Data Portal;
- **standardize publication methods**.
- **adoption** of **Open Standards** and **Open-Source** components to manage **LOSD**;
- **data is transparent** to the application/focus on application.

WEAKNESS

- **Need to understand** / master LOSD key concepts;
- tools are **not fully integrated in a single framework**;
- **no shared ontologies** beyond INTERSTAT project (gf, s4y...);
- **tools needed training and expertise to be used**, in relation to the specific user (data users, domain experts, statisticians etc);
- trusted brand. **What is our reputation**?;
- **lack of information about the needs** came from other PA;
- **lack of support in the usage of the tools, maintenance and update** after the end of the project;
- **lack of concise documentation** of the use of the components;
- **user has to actively customize** the pipelines/usage of the tools to solve their problems;

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- framework can be seen linked and tested only to a **limited number of concrete datasets**.

OPPORTUNITIES

- **impact** in the **European Data Strategy**;
- **easy interoperability**, easy **data sharing**;
- possibility **to interact** with other **data sources** to inference **new data**;
- possibility for the **statistical institute to use tools and processes already tested** by other institutes;
- based on open standard and **potentially extensible**.
- possibility **to reuse the approaches** defined during the project to achieve data harmonization;
- **generation of best practices** to be adopted by other NSU;
- **European data harmonized by Eurostat** based on SDMX-IM;
- **holistic approach** to data knowledge (building data network);
- thanks to data, policy makers **can increase and improve decision making**;
- **awareness** of how to improve data interoperability 'by design';
- access to an Open-Source framework **(free, no costs**);
- dissemination of the solutions/services between **European NSUs and beyond**;
- **involve in standardization groups** to incorporate the NSU requirements to the current standards;
- opening **more data,** convergence with **Data Space**;
- **save costs and reduce errors** (automatize process that before were manual);
- provide data in a **machine readable** format with **reduced effort**;
- **users can exploit open solutions** provided by the framework to meet their needs on their own accord.

THREATS

- **Reach out stakeholders**, and **convince to adopt**, primarily PA;
- **steep learning curve**/difficult to master;
- there are **concurrent standards**;
- **No policies** and/or changing of policies and/or diverse policies among EU member States. E.g., **Investment in the European Data portal**. Is it going to work in the future? Is it stable? Is it permanent?

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- **lacking promotion** from tech **standard authorities**;
- **complexity in the deployment** of a complete framework solution for any other NSU;
- **lacking support for the framework** usage and future evolutions.

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Here the overall view of the SWOT:

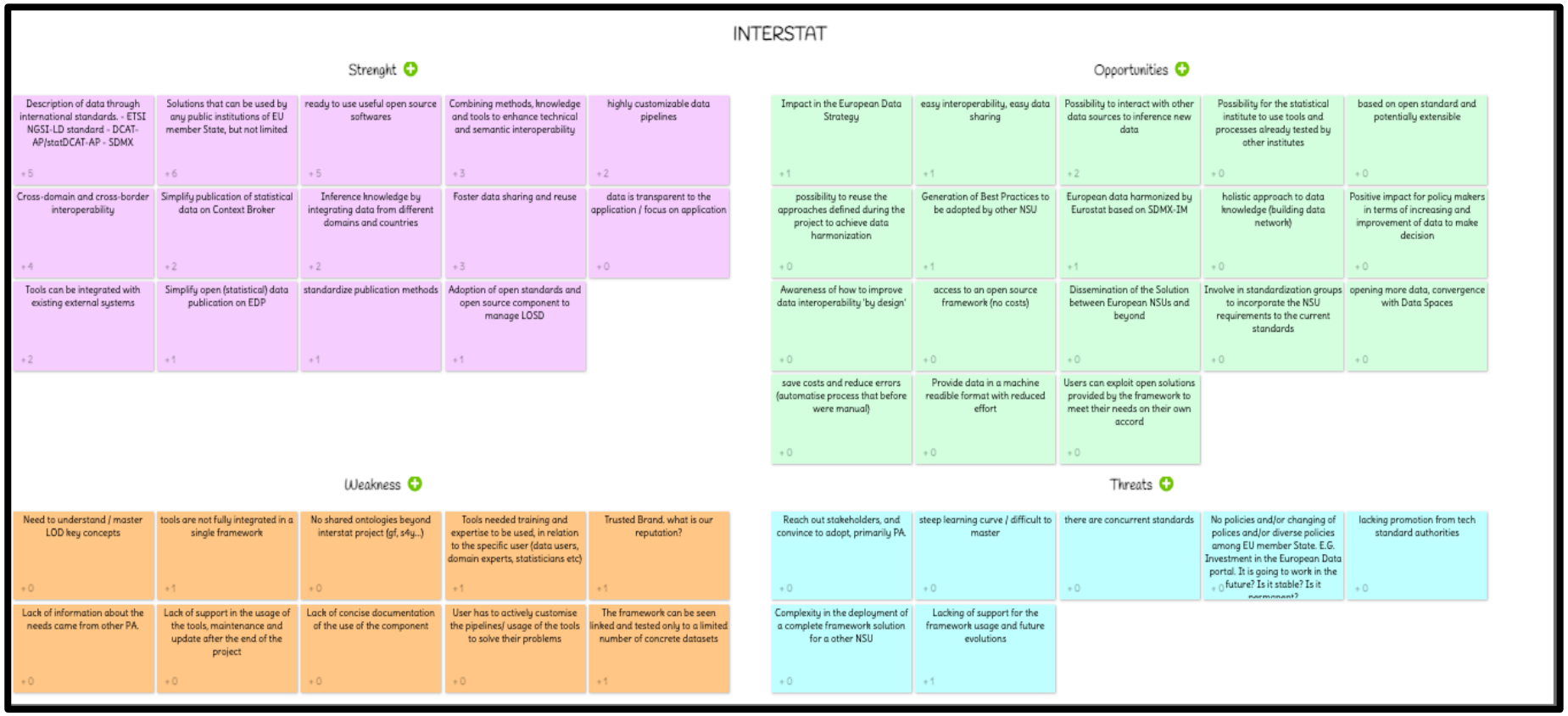

Figure 1 - SWOT Analysis

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2.3 Highlights and main takeaways

An honest analysis can only start with the weak aspects. Even so, the consortium strongly believes there are absolutely no weaknesses and threats that cannot be turned into highlights and opportunities respectively. In this section, we show the **5 strongest points (strength and weakness)** rated by the consortium compared with **5 most fragile points (threats and weakness).**

Interesting outcomes came from this exercise:

	Strength	**Threats**
01	Description of data through international standards (ETSI NGSI-LD standard, DCAT-AP/statDCAT-AP, SDMX	There are concurrent standards
02	Solutions that can be used by any public institutions of EU member State, but not limited	Reach out stakeholders, and convince them to adopt, primarily PA
03	Ready to use useful Open-Source software	Steep learning curve/difficult to master
04	Ready to use useful Open-Source software	Lacking support for the framework usage and future evolutions
05	Save costs and reduce errors (automatise process that before were manual)	Complexity in the deployment of a complete framework solution for another NSI (National Statistical Institute)

It appears that difficulties that may come from the external environment, e.g. threats, can be covered (even partially) because for INTERSTAT they represent strengths. For example, services offered are more than available for Public Administrations, but it is difficult to reach out and convince them to

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adopt. As mentioned, **the most 5 opportunities for weaknesses are also compared** and interesting results can be found.

	Opportunities	Weaknesses
01	Provide data in a machine-readable format with reduced effort	Tools needed training and expertise to be used, in relation to the specific user (data users, domain experts, statisticians etc…)
02	Easy interoperability, easy data sharing	Lack of support in the usage of the tools, maintenance and update after the end of the project
03	Generation of best practices to be adopted by other NSI	Trusted Brand. What is our reputation
04	Impact in the European Data Strategy	No policies and/or changing of policies and/or diverse policies among EU member States. e.g. Investment in the European Data portal. Is it going to work in the future? Is it stable? Is it permanent?
05	Users can exploit open solutions provided by the framework to meet their needs on their own accord.	Lack of information about the needs came from other PA

The SWOT analysis certainly made it possible to create a knowledge base on what limits and what potential INTERSTAT's services can offer.

A final reflection on the analysis concerns the use of the context broker. It was emphasized many times by the consortium that the use of the context broker was highly innovative in the field of statistical data and how in the future it can truly create if not revolutionize the way data is studied, analyzed and made available in the context of European statistical institutions.

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3 Business Model Canvas

3.1 Rationale

The creation of a business model canvas was a strategic tool for us. Given the complexity of creating a strategic plan for the positioning and sustainability of the services offered by INTERSTAT in the next 3 years -especially in the area of statistical data - the creation of a business model canvas in cooperation with all the members of the consortium certainly helped in the development of a robust plan. The workshop on the creation of the Business Model canvas simplified complex and technical concepts by making them understandable to everyone contributing to the creation of the exploitation and sustainability plan for the next 3 years.

The business model canvas - which is usually a tool for managers of large companies or entrepreneurs of innovative start-ups - was actually an ideal tool to get a clear and schematic view of what INTERSTAT's services can do.

In this specific section, the results of the business model are reported, highlighting the actions found that cover threats and weaknesses of the SWOT, the value proposition that helps in the exploitation and sustainability plan (both joint and individual), which also includes the activities that can help to reach the market segment we are interested in.

3.2 Results

The business model was implemented for INTERSTAT taking into consideration the following aspects:

- **Customer Segments** or Customer Segments;
- **Key Proposition**, e.g. the value of the services offered for each segment;
- **Channels**, e.g. the channels through which to reach Customers/Stakeholders;

- **Customer Relationships**, the relationships established with the customer;
- **Revenue Streams**, the revenues generated;
- **Key Resources**, the key resources to be used;
- **Key Activities**, the key activities to make the business model effective;
- **Key Partners**, the key partners with whom it is intended to ally in order to create value for the customer/stakeholders;
- **Cost Structure**, the cost structure for resources, activities and key partner

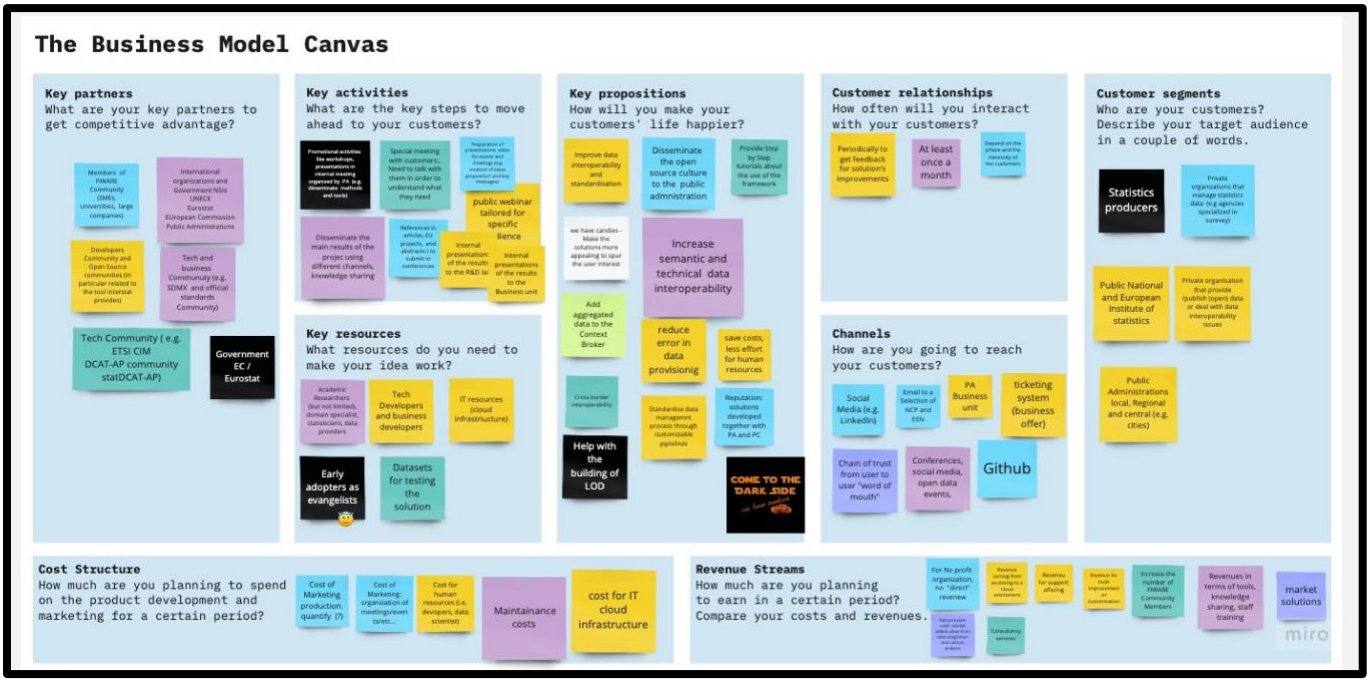

Figure 2 - Business Model Canvas

Customer Segments or Customer Segments.

In the SWOT analysis phase, the target group was always divided into macro-areas public administrations (primarily) and private enterprises. In the business model development phase, the target group was 'segmented' in the following way:

1. Statistics producers.
2. Public National and European Institutes of Statistics.
3. Local, Regional and central (e.g., cities) Public administrations.
4. Private organizations that manage statistical data (e.g agencies specialized in survey).
5. Private organizations that provide /publish (open) data or deal with data interoperability issues.

For each of these segments, a specific strategic plan was created to reach out themes with a proper offering.

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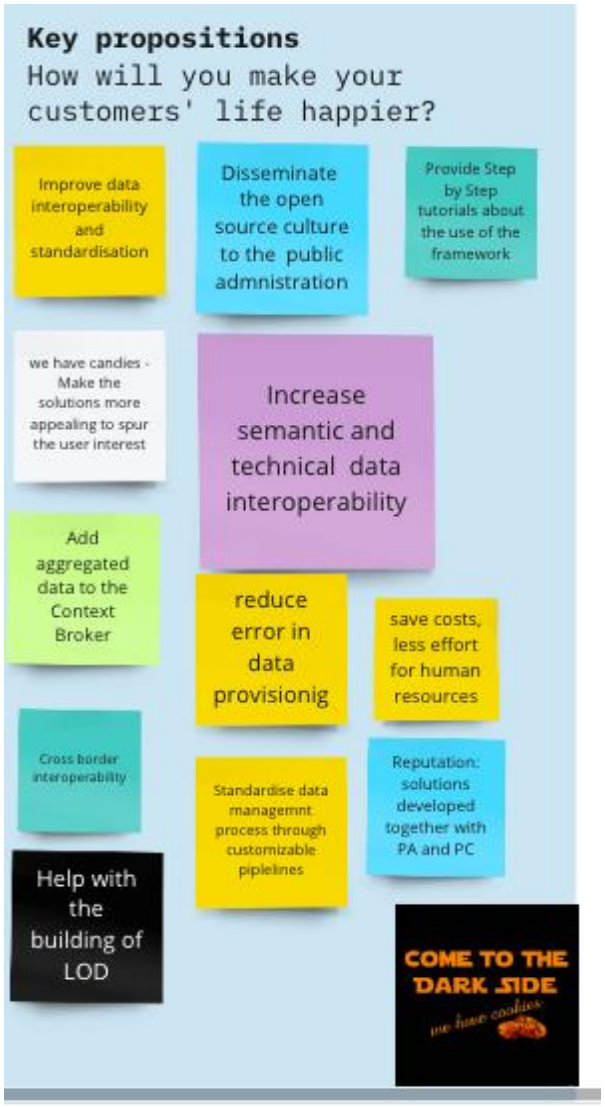

Key proposition

There are specific values that INTERSTAT brings. All these key aspects below cover the needs of each segment identified in the previous section.

1. Improve data interoperability and standardization.
2. Disseminate the open-source culture to the public administration.
3. Provide Step by Step tutorials about the use of the framework.
4. We have candies - Make the solutions more appealing to spur the user interest.
5. Increase semantic and technical data interoperability.
6. Add aggregated data to the Context Broker.
7. Reduce error in data provisioning.
8. Save costs, less effort for human resources.
9. Cross border interoperability
10. Standardize data management process through customizable pipelines.
11. Reputation: solutions developed together with PA and PC.
12. Help with the building of LOD.

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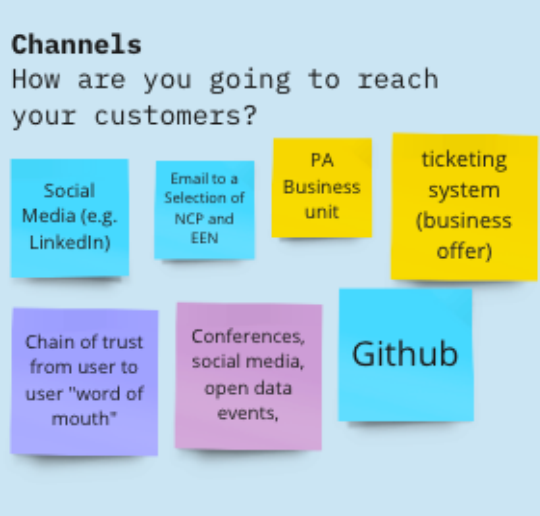
Channels



One key aspect of the business model canvas is to identify the specific channels through which to reach Customers/Stakeholders:

1. GitHub.
2. PA Business unit.
3. Social Media (e.g., LinkedIn).
4. Email to a Selection of NCP and EEN.
5. Chain of trust from user to user "word of mouth".
6. Ticketing system (business offer).
7. Conferences, events (for topics like open data).

In order to reach our target audience and introduce INTERSTAT's key proposition, it was decided to make use of classic marketing and communication tools (e.g., social media and participation at events) as well as channels closer to developers such as GitHub. Convince public administrations to use and adopt the INTERSTAT offering is not an easy task, but the fact that the offerings are endorsed by the Institutes of Statistics partners of the consortium for sure is an added value.

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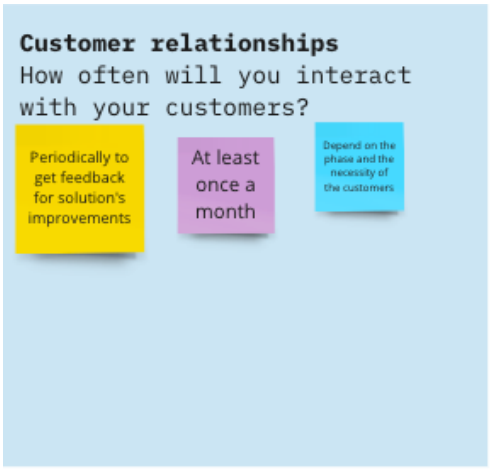
Customer Relationships.



The relationships established with the customer and the frequency of the contact depend on the kind of customers. According to the experiences of the consortium, interaction with public bodies could not be frequent like the private companies. Taking into consideration this aspect, below a list of potential time to be spent, even if is difficult to calculate:

1. periodically to get feedback for solution's improvements.
2. Depends on the phase and the necessity of the customers.
3. At least once a month.

Revenue Streams.

The analysis of Revenue Streams was quite difficult, given the presence of public administrations and non-profit organizations. However, some “indirect” benefits were identified. For example, in the case of FIWARE Foundation, the increase in the number of (fee-paying) members of the Community,

The revenues generated can be:

1. for No profit organization, no "direct" revenue. Increase the number of FIWARE Community Members.
2. Revenue coming from accessing a cloud environment.
3. Revenue for support offering.
4. Revenue for tools improvement or customisation. Revenues in terms of tools, knowledge sharing, staff training.

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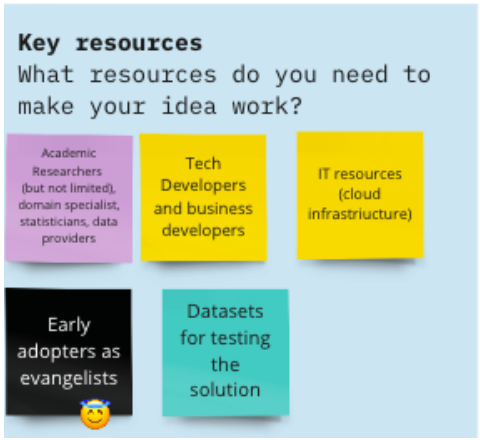
5. Data provider role? Market added value from data integration and custom analysis.
6. Consultancy services.
7. Market solutions.

Different from the FIWARE Foundation, is the case of Engineering, which, as a large enterprise, will be able to benefit by selling consultancy to support its services offered by INTERSTAT.



Key Resources.

The positive aspect is that key resources to be utilized for the sustainability of the project are included, or at least can be easily recruited by each organization and specifically:

1. Technical and business developers.
2. IT resources (cloud infrastructure).
3. Early adopters as evangelists.
4. Datasets for testing the solution.
5. Academic Researchers (but not limited), domain specialists, statisticians, data providers.

Key Activities.

The key activities to make the business model effective are also Linked to the individual exploitation plan (see chapter 5) of the project' partners.

1. Promotional activities like workshops, presentations in internal meetings organized by PA (e.g., disseminate methods and tools).
2. Special meeting with customers: Need to talk with them in order to understand what they need.

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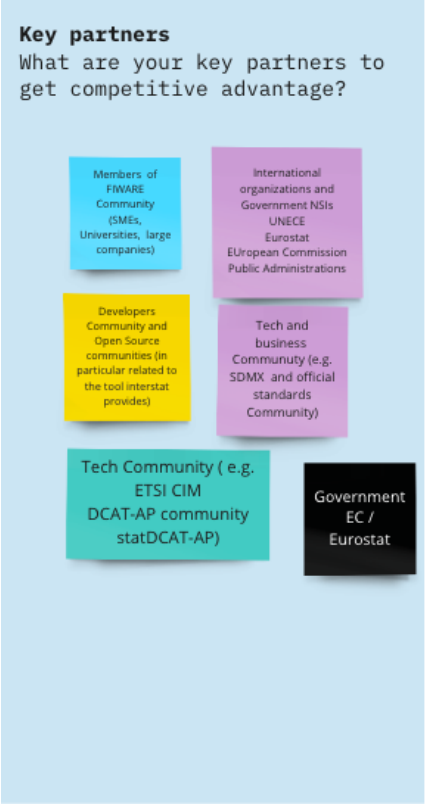
3. Preparation of presentations, video for events and meetings (e.g creation of value proposition and key messages).
4. public webinar tailored for a specific audience.
5. Internal presentations of the results to the R&D lab.
6. Internal presentations of the results to the Business Unit.
7. References in articles, EU projects, and abstracts to submit in conferences.
8. Disseminate the main results of the project using different channels, knowledge sharing.

All the activities are related to promotional activities, even if in the SWOT analysis and also in the individual exploitation plan of the project's partners activities related to the technical documentation equipment provided and support were some of the key points identified as important for the sustainability plan.



Key partners.

The key partners with whom it is intended to ally in order to create value for the customer/stakeholders are:

1. International organizations and Government (e.g NSIs UNECE, Eurostat, European Commission, Public Administrations).
2. Members of FIWARE Community (SMEs, Universities, large companies).
3. Developers Community and Open-Source communities (in particular related to the tools INTERSTAT provides).
4. Tech and business Community (e.g., SDMX and official standards Community).
5. Tech Community (e.g., ETSI CIM DCAT-AP community statDCAT-AP).
6. Government EC /Eurostat.

Key partners are an important aspect to emphasize. As also highlighted in the SWOT analysis one of the external threats could be the lack of support from the EC and the strong competition with standardization companies. The results of the business model clearly indicate as key elements the

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support of future CEF-like programs or supporting EC policies, as well as the need for partnerships with standardization companies. Thus, the external threat must become a partner in order for INTERSTAT's sustainability plan to make sense.

Cost Structure.

The cost structure for resources, activities and key partners are:

- Cost of Marketing production (estimated costs, maximum ten thousand euros in 3 years).
- Cost of Marketing: organization of meetings/events/etc... (Estimated costs, maximum twenty thousand euros in the next 3 years).
- Cost for human resources, e.g developers, data scientists (estimated costs, maximum 90 thousand euros in three years).
- Maintenance costs (non-estimated costs).
- Cost for IT cloud infrastructure (non-estimated costs).

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4 Individual exploitation plans of the consortium partner's

4.1 FIWARE

4.1.1 Organization Profiles

The FIWARE Foundation is the legal independent body providing shared resources to help achieve the FIWARE mission by promoting, augmenting, protecting, and validating the FIWARE technologies as well as the activities of the FIWARE community, empowering its members including end-users, developers and rest of stakeholders in the entire ecosystem. The FIWARE Foundation is open: anybody can join contributing to transparent governance of FIWARE activities and rising through the ranks, based on merit. FIWARE Foundation is a non-profit organization that drives the definition and encourages the adoption of open standards (implemented using Open-Source technologies) that ease the development of smart solutions across domains such as Smart Cities, Smart Energy, Smart AgriFood and Smart Industry, based on FIWARE technology. Founded in 2016, the foundation has AWS, Atos, Engineering, NEC, Red Hat, Telefónica, and Trigyn Technologies among its Platinum members. Only by truly eliminating the existing technical and commercial obstacles hindering the effective usage of meaningful data, smart digital solution providers will be able to move forward and drive the market up, based on FIWARE technology. Using FIWARE technologies, organizations can capture the opportunities that are emerging with the new wave of digitalisation brought by combining the Internet of Things with Context Information Management and Big Data services on the Cloud. Using FIWARE technologies, developers can gather context information at large scale from many different sources.

FIWARE also helps to easily process, analyse and visualize managed context information, easing the implementation of the smart behaviour and the enhanced user experience required by next-generation Smart Applications

4.1.2 Potential Business Exploitation

There are three main ways in which FIWARE will be able to exploit the results of the project, through three different consistent and strong programs that FIWARE has been running for years:

- FIWARE Marketplace
- FIWARE iHubs
- FIWARE Accelerators

FIWARE Marketplace

FIWARE Marketplace helps users and their customers find innovative and the best open-source-based products and services and grow revenue by identifying customer needs and repeatable solutions leveraging FIWARE technologies and FIWARE partner ecosystem, at scale. Offers are provided by the FIWARE community, may it be companies, organizations or cities, and are FIWARE validated. FIWARE Marketplace is the comprehensive shopfront of all validated FIWARE products. Products are regularly promoted and featured through different classical and digital marketing channels such as social media, Newsletters, conferences, brochures, and also brought to trade shows and presented to the media, press or to analysts. The FIWARE Marketplace is ideal for organizations who are looking to build and launch products, solutions and services to support their customers' digital transformation journeys. Product proposals are evaluated by FIWARE Experts (though a mainly technical evaluation) receiving a formally submitted application. Once our FIWARE Experts have positively evaluated the proposal, the product will be added to the FIWARE Marketplace according to its category. The final step is the maximum global promotion of the product for all forever.

What is the benefit? The Marketplace is FIWARE's business tool, it currently hosts 200 solutions. Including GreenMov solutions in the Marketplace that have achieved a pilot in the project's European cities will be a highly prestigious added value for FIWARE. It will also be an added value for the project itself. The pilots will have global promotion, a visibility that will help position the solutions developed in the public administrations, but not limited, market more easily. The services developed in INTERSTAT

will be added in the FIWARE Marketplace and will make it visible for a wide range of European stakeholders.

FIWARE iHubs

FIWARE iHubs focus on building communities that will, in turn, enable local digital businesses to thrive not only at a regional but on a global level. They support companies, cities, and developers in their innovation and digitalization journey by offering easy access to Open-Source technologies, business development support, and community building. The main challenge for companies, cities or territories willing to be more competitive in the current digital economy is the lack of internal resources to access disruptive technologies, tools and solutions. When knocking on the door of a FIWARE iHub with an idea in mind, rest assured that you will not leave empty-handed. Rather, you will leave with a way forward. By accessing the iHubs' services, private companies, public administrations, universities, and research institutions benefit from regional multi-partner cooperation towards innovation, as well as building strong connections, which may help to bring results outside the boundaries of their given region.

What is the benefit? IHubs are the flagship of FIWARE's business model. In the frequent meetings and training, usually project results will be presented, so as to "train" and make stakeholders aware of successful outcomes. Often these results are exploited, especially by the universities around the iHubs. It is important for FIWARE iHubs to always have results and new projects to present. In addition, many iHubs cooperate with Public Administrations, like cities, that are interested in the management of statistical data to create better decision.

FIWARE Accelerators

FIWARE Accelerator Program supports Incubators, Technology Parks, Venture Capital Companies and Digital Innovation Hubs with training and coaching services. It offers technical assistance and business opportunities to highly innovative SMEs and Startups with scalable business models. In addition, FIWARE Foundation can provide SMEs and startups with some important ingredients to create a successful business and a strong Startup brand.

FIWARE continuously looks for SMEs and Startups from the digital and software sector with teams motivated and determined to successfully create compelling Open-Source solutions. In this context

What is the benefit? In this context, the project results may be useful to present to Accelerators that have SMEs and startups specialising in data management for Public Administrations.

Under the business point of view, FIWARE see three different key outcomes:

- **FIWARE in the Context Information Management**

FIWARE Context Broker is integrated in the technical architecture developed in INTERSTAT, Context Broker makes it easier, faster and free. Solutions developed in INTERSTAT will leverage the Open Source developers' Community of FIWARE to maintain and further develop the basic software components.

- **Companies and Cities Adoptions**

Including services developed in INTERSTAT in the FIWARE Marketplace means to have access to a shopping window for highest visibility. We will leverage the FIWARE Marketplace to support by winning campaigns for launching and expanding business adoption of the services developed in the INTERSTAT project.

Below is a table of stakeholders belonging to FIWARE Ecosystem to whom the results of the project may be presented. The goal is to introduce ready-to-adopt solutions for public administrations and private companies.

Target Group		Description
1.- FIWARE Users		Those looking for cost-effective & interoperable solutions not locked in any single vendor. They are live testimonials of FIWARE Success through the experience of their vendors (the FIWARE adopters – (Independent SW vendors and Systems / Solution Integrators)
1.1	The Public Sector & EC	Including Governments and the EC in the digital transformation of industries, services and cities. Governments & Cities that need to deploy Smart Solutions for the welfare and progress of their citizens: - solutions that utilize data from several systems operated by different organizations - solutions that can be shared between cities, industries, etc. - solutions that help to enable sustainable business ecosystem for companies that innovate in the area IoT

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1.2	Enterprises	In the digitalization of processes using IoT and starting from most promising sectors such as Industry, Smart Cities, Smart Agrifood and Smart Energy
1.3	Solution Integrators (Large Companies & SMEs)	Companies that integrate different software solutions to offer better services to their clients. They use FIWARE technologies to gather Context Information and process it in order to perform smart actions.
1.4	Application and Solution Providers	Companies are already providing Smart Solutions.
2.- Independent Software Vendors and Systems / Solution Integrators (Large and SMEs)		Potential new members and Platform providers. They want to develop solutions based on Standards.
3.- Start-Ups & SMEs		SMEs and Start-Ups willing to provide with FIWARE compliant solutions and enter the FIWARE Marketplace.
3.1	Potential Powered by FIWARE Solutions	Companies willing to develop new Smart Solutions based on FIWARE technology. Powered by FIWARE SOLUTIONS
3.2	Potential FIWARE Ready Device Manufacturers	Potential FIWARE Ready Device Manufacturers & SW Providers - Companies that produce IoT hardware & software easily connected to Powered by FIWARE Solutions
3.3	Potential FIWARE "RedHats"	Companies specialized in FIWARE technology are able to provide 24/7 support to FIWARE users.
4.- Developers		Independent programmers who, although they are probably working in the IT department of a company, are willing to experiment & engage with software and technology.

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5.-Universities, R&D and Technology Centres	Giving them easy access to the FIWARE technologies to be leveraged in their R&D projects and curricula. Technical universities & research organizations boosting innovation projects with a practical application. They are potential iHubs.
6.- International organisations, associations and networks	IIC, TM Forum, OASC, NIST, OPAF, etc.
6.- KOLs	High influential bloggers, standard bodies & strategic analysts in terms of Future Internet trends.
8.- Consultants	Strategic consulting firms, focused on digital transformation, that provide business advisory services.
9.- Accelerators & Investors	FIWARE Foundation developed an accelerator programme in 2020. 10 Accelerators are on board ready to disseminate in their ecosystem of SMEs and Startups smart solutions, especially in Smart Mobility sector. https://www.fiware.org/community/fiware-accelerator-programme/

Plan for the next 3 years:

- **Big events.** FIWARE Global Summit, from 2023 to 2026, presentation, promotion, (audience +450K), other events,
- **Promotion**. Press/BlogSpot/references in EU projects/quotes, from 2023 to 2026, maximum 3, (audience Global)
- **Publications.** Articles/quotes in cooperation with FIWARE Scientific Advisory Board and other members of the Community, from 2023 to 2026, maximum 3, (audience Global)
- **Webinars.** Webinars, Online events, etc. from 2023 to 2026, slides presentations, etc.., FIWARE Community, but not limited.

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4.2 INSEE

4.2.1 Organization profiles

The French National Institute of Statistics and Economic Studies is a Directorate-General of the Ministry for the Economy and Finance. Insee's mission is to collect, analyse and disseminate information on the French economy and society across the entire French territory. Insee operates with total professional independence. To carry out its work, Insee mobilises a wide range of skills and recruits civil servants and non-tenured employees into new careers every year.

The information produced by Insee is relevant to public authorities, government bodies, local authorities, social partners, businesses, the media, researchers, teachers, students and private individuals. It enables them to deepen their knowledge, conduct studies, prepare forecasts and take decisions. In order to satisfy its users, Insee is always ready to listen to their needs and adjust its work accordingly.

Insee is an active contributor to the European Statistical System, either as a direct participant, or by coordinating the positions of the different Ministerial Statistical Departments.

4.2.2 Potential Business Exploitation

Insee's work is outlined in this section: - we have implemented a method for building open and reproducible data pipelines, - we explored the concept of a systematic transformation from Data Cube to NGSI-LD through two implementations - we showed the possibilities but also the difficulties of producing cross-domain and cross-border data aligned with the FAIR principles

We also provide collaboration opportunities and achievable objectives for the next 3 years.

One of the main objectives of INTERSTAT is to provide "standards, methodologies and tools to achieve data harmonisation in the field of (linked) open data statistics". True to this goal, we have implemented several data pipelines that provide a blueprint for building open and reusable data pipelines (and with this to be on par with the FAIR principles).

Those pipelines manage several data sources and data formats, proving that the data integration can be made at several maturity level. For example, in the SEP pipeline, the Italian and French census data are retrieved as raw CSV files and then transformed as an RDF graph. For the Global Facilities pipeline, Italian museum data is queried through a SPARQL endpoint and handled directly as a graph. More

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generally, we proved through our method the integration between cross-border and cross-domain data sources.

The pipelines make use of a set of data platforms. We already mentioned different types of endpoints for source data, but we also use various solutions for handling data at different steps of the pipelines, from file-based system to a graph database and finally the Context Broker.

Because we are using a state-of-the-art solution for designing and building pipelines - Prefect - we can provide an undocumented model for the dataflow as well as a UI for monitoring the execution of the pipelines. Both are media for providing open documentation. Moreover, the choice of Prefect and Python helps us to stay true to the data science ecosystem and practices.

We believe the method is thorough enough to collaborate with data producers that aim to disseminate their data via the European Data Portal (NSIs, SDMX and DDI users) and build an even more grounded solution that would operationalise existing ontologies in order to make the process even more fluid.

The Data Cube vocabulary is a standard for publishing multi-dimensional data, such as statistics, on the web. The model underpinning the Data Cube vocabulary is compatible with the cube model that underlies SDMX (Statistical Data and Metadata eXchange).

A huge amount of multi-dimensional data is disseminated on the web using SDMX, in particular that produced by Eurostat.

In order to facilitate the reuse of Open Statistical Data, the principle of developing a converter from SDMX to NGSI-LD has been initiated. This converter takes as input SDMX (serialized in Turtle) and aims at generating NGSI-LD (JSON-LD) to communicate with FIWARE Context Broker using ETSI NGSI-LD.

The idea is to make it possible to push statistical data expressed using Data Cube into the Context Broker. Subsequently, a scope of the data of interest should be defined for pushing the most relevant statistical data into the Context Broker.

In addition to this syntactic approach (a Turtle serialization is needed), a more generic implementation based on a semantic approach has started. It is about relying on a series of transformation rules using Shapes Constraint Language (SHACL). This approach will allow us to be more extensible, for example to be more easily compatible with other standards like DDI-CDI. More details are available here.

Both implementations are still in progress. This work has enabled progress to be made on the following topics: - DCAT usage (how to attach metadata to a DCAT profile) - Feedbacks on NGSI-LD, in particular JSON-LD specifications.

The semantic interoperability implementation between the world of statistical data and the FIWARE Context Broker is promising but has not been completely achieved.

An important goal of the INTERSTAT project was to develop cross-border data-based applications and services. The three pilots proposed were quite illustrative of this ambition. The development of the corresponding data pipelines and client applications during the project showed that creating cross-border information systems is still a difficult task to fulfill due to lack of data accessibility or documentation, and problems of technical or semantic interoperability, even in domains where harmonisation is very high like census data. Combining data from different sources (e.g., population with air quality) is hindered by difficulties in geospatial integration, comparisons over time, etc.

These problems show that a lot of work remains to be done to achieve data FAIRness, but they also prove that the approach of using cross-domain and cross-border use cases is actually a good strategy for improvement, subject to better involvement of end users. Insee intends to convey this message to its partners in the European Statistical System and to work on the development of collaborations in this area.

Thanks to the efforts made by the partners, steps for facilitating the publication of statistical data via the Context Broker (first implementations of tools, lessons learned...) has been achieved within the framework of the project. The implementation of a complete solution reusable and reproductible still need to be achieved and would represent a real innovation for the statistical community. We plan to keep working on this subject.

In 3 years: the vision we have on next three years horizon results from the considerations highlighted in the previous sections.

- Statistical data conforming to the **SDMX can be automatically published in the Context Broker** with associated structural metadata;
- **Feasibility tests** are realised for the publication of statistical data conforming to other standards, in particular DDI-CDI;
- **Partnerships** are set up in the European Statistical System to collaborate on the publication of cross-border statistical datasets that are easy to find and reuse;
- **Statistical data published** is better harmonised and interoperates with other types of data ; in particular, it is easier to integrate along the geospatial and temporal dimensions.

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4.3 ISTAT

4.3.1 Organization Profiles

The Italian National Institute of Statistics is a public research organisation. It has been present in Italy since 1926 and is the main producer of official statistics in the service of citizens and policy- makers. It operates in complete independence and continuous interaction with the academic and scientific communities. Deeply rooted in its mission, the production and communication to the community of high-quality statistical information, analyses and forecasts contribute to the knowledge of Italy's environmental, economic and social dimensions at various levels of geographical detail, thus assisting all members of society (citizens, administrators, etc.) in decision-making processes. This mission is accomplished in complete independence and in accordance with the strictest ethical and professional principles (UN Fundamental Principles and European Statistics Code of Practice) and most up-to-date scientific standards.

Since 1989, Istat has been performing the role of directing, coordinating, and providing technical assistance and training within the National Statistical System (SISTAN). Istat is responsible for the planning of SISTAN's activities, within the framework of the National Statistical Programme, ensuring also the coherence and quality of data produced and the protection of statistical confidentiality.

Istat promotes the coordinated development of the information systems of public administration and their use for statistical purposes. This would increase the information available, maximizing the integration of sources while minimizing the statistical burden on respondents. In performing this role, Istat is currently involved in the development of the "National Data Catalogue" to allow the interoperability of the information systems of public administration and thus enabling the applicability of the "once-only" principle for the exchange of data and information.

Istat is a member of the European Statistical System and works with other organisations within the international statistical system. Namely, Istat is an active member of the ESS Committee, UN Statistical Commission, UNECE Conference of European Statisticians, OECD Committee on Statistics and Statistical Policy (CSSP), UNECE High Level Group on Modernisation of Official statistics.

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4.3.2 Potential Business Exploitation

The INTERSTAT project is one of the several initiatives aligned with Istat's institutional goal of performing, endorsing and enhancing research activities, to improve the statistical process and increase the quality of official statistics. The pilot applications are a relevant outcome of the action, demonstrating the feasibility of cross-border and cross-domain interoperable solutions.

The main outcomes of the project to consider for the definition of the exploitation plan are:

- The increase of semantic interoperability, based on the adoption and the reuse of meta-ontologies, domain ontologies and common data vocabularies;
- The data pipelines developed during the INTERSTAT project for the pilot applications;
- The improvement of technical interoperability through the use of technical standards such as SDMX;
- The set of tools available in the INTERSTAT framework for producing and publishing Linked Open Statistical Data.

Starting from these high-level achievements, the exploitation plan includes both ongoing activities which will continue in the next years, and specific tasks to share and promote the project results. More in detail, the main tasks scheduled in the next three years to exploit the results of the project are:

- An internal **workshop** to present the main results of the project and share the knowledge, the expertise and the lessons learned with the colleagues employed in other Divisions;
- **Enhance the data pipeline** developed for the pilot applications. During the INTERSTAT project, Istat in cooperation with OBDA Systems and Sapienza University of Rome has developed a new methodology to model aggregated data (macro-data), through a meta-level ontology linked to the domain ontology describing the individual data (micro-data) to aggregate. The benefits of this new approach could be further tested and explored to enhance semantic interoperability in large surveys, such as the population census;
- **Adopt the ontology**-based approach in other use cases, to increase cross-domain interoperability. So far, the Ontology-Based Data Management (OBDM) [1] approach has been adopted to develop the Italian Integrated System of Statistical Registers (ISSR) [2], a reference data frame supporting several steps of statistical surveys. Based on this approach, data sources have been linked through ontologies, used also to query the integrated statistical

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registers. This paradigm could be applied in other statistical areas, for example to highlight the relationship and the coherence between the concepts of related domains;

- **Networking with external initiatives** launched to increase interoperability. As a partner of the European Statistical System, Istat has a key role in national and international projects, promoted to build capabilities for improving data interoperability and reuse. The INTERSTAT framework can contribute to the development of the High Value Datasets and the National Data Catalogs (NDCs), to foster data digitization and sharing across all Member States and not only. Istat participates as a project implementer in the creation of the National Digital Data Platform (PDND) which aims to make data interoperable between Public Administrations. The PDND will offer administrations a central catalog (NDC) and APIs that can be consulted and accessed through e-services, thus avoiding citizens having to provide the same information several times to different administrations in compliance with the "once only" principle;
- **Reuse of INTERSTAT tools**, not only for producing or publishing LOSD, but also to improve other phases of the statistical process, such as the code lists or other metadata management, the validation of the conceptual model before starting the implementation activities, quality assessment of the different data sources to integrate, or enhance process documentation based on the expertise acquired.

The tasks described above are summarized in the following table.

EXPLOITATION PLAN - ISTAT	YEAR1		YEAR2		YEAR3	
	6	12	6	12	6	12
1 - Knowledge sharing events						
2 - Enhance the data pipeline						
3 - Test the ontology based approach in other statistical domains						
4 - Networking with external initiatives						
5 - Reuse of Interstat tools, metaontologies and technical standards						

Figure 3 - ISTAT's exploitation plan

These activities may be modified or postponed work in progress, due to unexpected events, or risks concerning: i) the management of data confidentiality or privacy preserving issues; ii) changes of users' needs; iii) emerging phenomenon to be investigated; iv) new data sources, such as unstructured big data sources which may need further analysis of core concepts and specific tools for data processing. Furthermore, some barriers which could hinder the implementation of the exploitation plan may concern: i) timeliness constraints related to other core business functions, reducing the resources to invest in the scheduled activities; ii) harmonization of the priorities set out by the different stakeholders

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to involve; iii) enhancement of data interoperability and reuse through trainings for IT staff and data users. Most of the barriers described above can be overcome by detailed regulations, arrangements or agreements, specifying the goals to achieve, the timeline and the roadmap to follow.

Potential partners who can help Istat in the exploitations plan are firstly all members of the European Statistical System, as well as other data providers or users, such as: Public administrations, the scientific community and Academia.

The actions listed in the exploitation plan will improve the reuse of official statistics, enriching available information concerning relevant areas. As a result, the stakeholders who could gain advantages from the planned activities are: citizens, private enterprises, local and national policy makers, Public institutions, researchers and media.

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4.4 ENGINEERING

4.4.1 Organization Profiles

Engineering Ingegneria Informatica S.p.A (ENG) is the head company of the ENGINEERING Group. ENG was founded in 1980 and the Group is the Digital Transformation Company, leader in Italy and expanding its global footprint, with around 12,000 associates and over 60 offices in 12 countries, spread across Europe, the United States of America and South America.

The Engineering Group supports the Digital Transformation of public and private organizations in several sectors, with a complete offer combining system and business integration, outsourcing, cloud services, consulting and proprietary solutions. ENG designs, develops and manages innovative solutions for all market segments, including Digital Finance, Smart Government & E-Health, Augmented City, Digital Industry, Smart Energy & Utilities, Digital Media & Communication.

Since 1987 ENG's capability for innovation is supported by its Central Unit of Research & Development, organized across 5 development laboratories specialized for research areas. With around 40 million Euros in annual investments in R&I and a team of around 450 researchers, ENG plays a leading role in research, by participating currently in over 80 national and international research projects.

Also, ENG takes part in several international research initiatives, working with various organizations on the definition of strategies for the growth and competitiveness in the main emerging ICT sectors. Specifically, ENG is among the main ICT players that support the FIWARE initiative. ENG is co-founder of the FIWARE Foundation, aiming at supporting FIWARE activities and the principles of openness, transparency and meritocracy which work as the pillars of the FIWARE community. Moreover, ENG is core partner of EIT Digital, member of EIT Climate-KIC, full member of BDVA, member of ECSO, EOS, IDSA, Water Europe, partner of AIOTI, founder of NESSI and participant to the 5G-PPP initiative. ENG is also Day-1 member of GAIA X.

ENG participates in INTERSTAT through the Open Public Service Innovation (OPSI) Lab, part of R&D Unit. The Open Public Service Innovation (OPSI) Lab works on the themes of Innovation for Public Sector, Social Innovation and Smart Cities, currently coordinating and participating in several European and national projects on topics such as urban data platform, data/service interoperability, privacy

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management, open government, open innovation, social participation, urban mobility, smart water management, sustainable urban ecosystems, resilient communities and open service innovation. The OPSI Lab takes care also of transferring R&D knowledge and results towards ENG's Business Units addressing the Smart City and Central & Local Government markets.

4.4.2 Potential Business Exploitation

Engineering will exploit the results of the project thanks to knowledge transfer activities usually performed by Open Public Service Innovation (OPSI) Lab, part of the R& D Unit, towards the Public Administration Business Unit. Having a holistic view of Smart City concept, one of one of needing main objectives is to provide a complete suite of IT solutions supporting a Municipality that wants to become Smarter. The Engineering Public Administration department has a long experience in IT solutions for the Public Administration sector (both at central and local level). The Research and Innovation Department is supporting it by introducing and pushing for latest innovation paradigms, in particular concerning the bottom-up approach thanks to the involvement of city stakeholders. Engineering has been a partner of Italy's Central Public Administration since the end of the 1980s. Engineering accompanies Ministries, Authorities, control bodies and social security bodies towards new public-private interaction models for service provision and organizational models to concentrate ever-decreasing resources on "core" activities. Engineering is also a partner of Italy's Digital Agenda workgroups, in the realm of their six strategic axes that have been identified: Infrastructure and security, Smart cities, E-Government, Digital competences, Research and innovation, and E-Commerce. In Local Public Administration, Engineering works with local public bodies to innovate internal services for citizens and companies: from complete management of IT assets to the electronic conversion of administrative proceedings.

In this context the INTERSTAT exploitation strategy of Engineering will cover different aspects:

Open Datasets expertise and role in the open-source community: the technical achievements reached in INTERSTAT will reinforce Engineering expertise and knowledge in the field of open data and data interoperability. Thanks to years of work in this domain and related research project, the R&D lab already acquired a large expertise in open data management during its whole life cycle. In particular the OPSIab developed and maintains Idra, an open source, open data platform (Generic Enabler of FIWARE)

that is one of the key components of the INTERSTAT framework. Thanks to INTERSTAT Idra has been improved in terms of new capabilities and disseminated in different project events (for instance inside the Open Data projects cluster organized by INTERSTAT) in which new collaborations have been established for the further development and adoption of this tool in new contexts. So INTERSTAT contributed to continue the evolution and exploitation of Idra platform in the future enlarging the interest on it by external stakeholders including developers and public administrations.

Business opportunity through the adoption and evolution of INTERSTAT framework: INTERSTAT delivered an open-source framework that supports the users in the overall pipelines of the Open Data management, with a specific verticalization on the Linked Open Statistical Data. Engineering will directly exploit the INTERSTAT framework through a direct collaboration between the R&D lab, that participated in the project, and the different Business Units interested in the business proposition of the INTERSTAT results. In particular Engineering will identify specific capabilities of the INTERSTAT framework that can be further evolved or integrated with existing business products in order to satisfy specific client requirements. The main domain in which this process will be executed will be the Public Sector one, in which Engineering has a strong presence, in particular in Italy: open data management and publication are capabilities requested by Public Administrations and ENG already offered solution for their implementation that will be further improved thanks to the assets developed in INTERSTAT. Moreover, working together with national statistical institutes (specifically INSEE and ISTAT partners of the project) helped ENG to better improve its knowledge of the statistical domain in order to design and propose useful and interoperable solutions for the statistical partners (already part of Engineering portfolio).

Data spaces for public sector and High Value Datasets: another relevant topic for the exploitation plan in Engineering is the contribution that the INTERSTAT results (technical and methodological) can provide in the context of "Common European Data spaces" inside the data strategy which aims at creating a single market for data to ensure Europe's global competitiveness and data sovereignty. Engineering with its presence in different European initiatives, related to data spaces, such as IDS, FIWARE, BDVA and GAIA-X, thanks to the results achieved in INTERSTAT, can propose data interoperability solutions tailored for the public sector. For instance, some of the components of the INTERSTAT framework have been already identified as possible building blocks for Public Sector Data space enablers.

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Time Plan

In the next 3 year the exploitation plan of ENG will be focused on the following activities:

- Identification of most relevant INTERSTAT framework components, in relation to the requirements and needs of Public Sector stakeholders, and their integration in existing solutions for (open) data management.
- Definition of new models of open data management based on as-a-service approach, through the offering of INTERSTAT framework capabilities in the cloud together with specific technical support, in order to offer to public and private clients an all-inclusive solution for the complete data management pipeline.
- Promotion of INTERSTAT technical results, with a specific focus to Idra and Context Broker for statistical public and private institution through a strict collaboration with the ENG Public Sector Business Unit and the Communication department.
- Contribution to the definition of Public Data Space architectures and components through the reuse and improvements of INTERSTAT framework tools inside specific European initiatives (such as GAIA-X), but also through the participation in new European Research and innovation projects related to the Common European data spaces strategy.

4.5 Next Steps: process for a Joint sustainability and exploitation plan

In this specific chapter, a diagram was created to explain how we will reach some objectives in the next three years. It is clear that a common effort came from the consortium to sustain the project's results and to push the adoption of the services in a faster way.

Even if it is true that each partner of the consortium will follow a certain personal approach according to the needs of their own organization/company, we also thought that a common process would help the exploitation of the results much more and much better.

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For this reason, a process has been created. The two main macro actions to support the sustainability and exploitation plan are:

1. **promotional and marketing actions,** belong primarily to FIWARE and Engineering with the support of INSEE and INTERSTAT.
2. **technical and development supports,** belong primarily to Engineering, INSEE and ISTAT with the support of FIWARE.

For each of these two macro areas, below you find a schema to follow with a specific task leader.

In the case of **promotional and marketing actions**, FIWARE will lead this process. FIWARE will produce articles, blog posts, marketing material to publish in websites, community space, social media etc. FIWARE will also mention INTERSTAT in EU projects, webinar co organized with relevant institutions like Eurostat and will ask the support of the ether partners to review communication material and/or participate in webinars/events, etc. This activity is primarily finalized to bring on board customers/stakeholders.

See the workflow below.

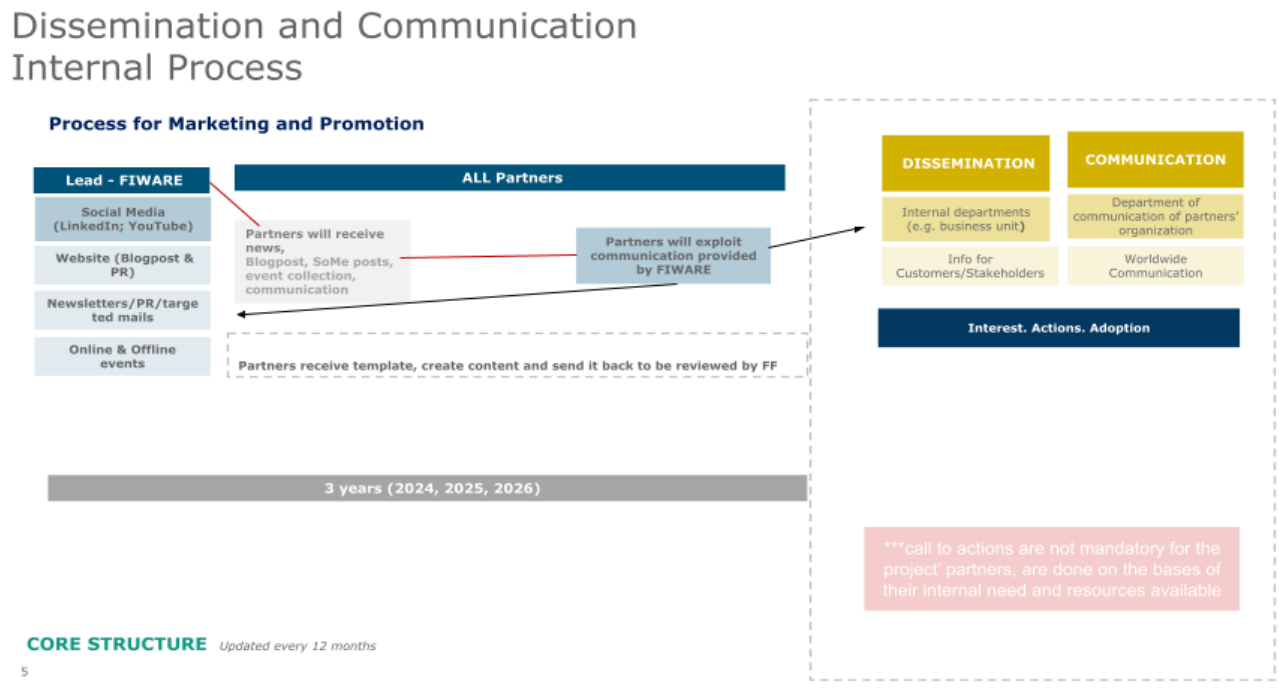

Figure 4 - Dissemination & Communication internal process

Technical and development supports.

For technical and development supports, the task leader is Engineering.

Once the customers/stakeholders are on board, it will be necessary to support them in development and adoption of the services provided by INTERSTAT. In this case, Engineering will ask for support according to the needs of the customer/stakeholders. For example, if it is necessary to have more explanation about the pilots, ISTAT and INSEE will be contacted. On the other hand, if it is necessary to have support for some components, such as Context Broker, FIWARE will provide help. Of course, organization of meetings /trainings are in the scope of this activity.

See the workflow below.

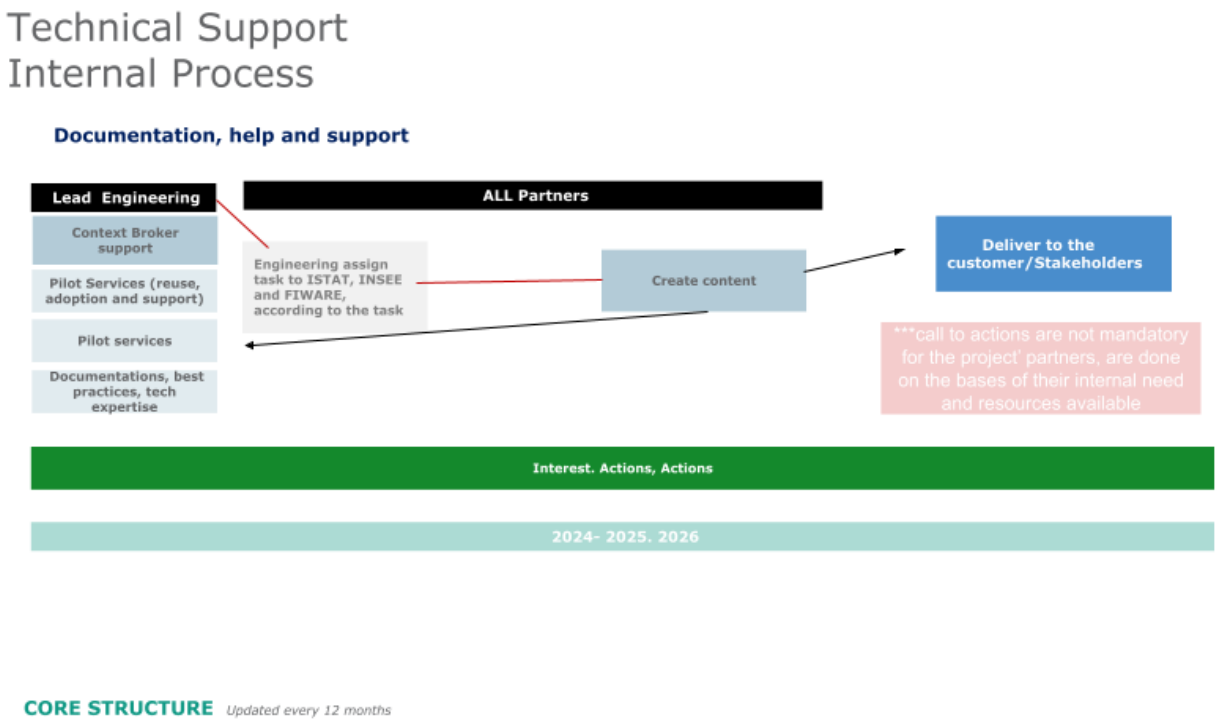

Figure 5 - Technical Support Internal Process

Important note. This scheme is indicative and should be considered according to the internal needs of each organization. It will be followed where and when possible, though it is held in high regard by all project members.

Conclusion

In these three years of the project, some goals have not been easy to achieve mainly because of the pandemic. Communication, such as the stakeholder engagement part, suffered slightly. Creating a solid sustainability plan necessarily includes a set of activities to involve potential stakeholders.

Despite this, the project went ahead and the exploitation and sustainability plan was created by involving the consortium members representing the target group (public administrations and private companies).

SWOT analysis and the business model canvas were designed and integrated as part of the sustainability and exploitation plan. These methods certainly helped in the construction of the individual exploitation and sustainability plan.

The plan will be put into practice now and will be valid for the next three years, considering the possible barriers that each project partner may potentially encounter.

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