

ESTAT - Eurostat

# European Commission

## ESS.VIP.CRC.SERV Business Case “shared SERVICES”

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# 1 Project Initiation Request Information

<b>Project Title:</b>	<i>SERV (shared SERVICES)</i>		
<b>Initiator:</b>	<i>ESS.VIP Program</i>	<b>DG / Unit:</b>	<i>EUROSTAT/B3</i>
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## 2 Context

### 2.1 Situation Description and Urgency

The ESS Vision 2020 has been defined to further improve the cooperation within the ESS, especially on the modernisation of ESS statistics on a structural and sustainable basis and on the way forward for the ESS.VIP Programme 2.0.

Four main challenges have been identified: the data revolution, new metrics, the price of statistics and the future of Europe. These challenges led to the formulation of five key areas for delivering the vision: 1) identifying user needs and cooperation with stakeholders, 2) quality of European statistics, 3) new data sources, 4) efficient and robust statistical processes, 5) dissemination and communication on European statistics.

The ESS.VIP programme 2.0 encapsulates a group of projects that all together aim to implement the ESS Vision 2020 objectives. The general approach to implement the vision includes as important elements: a pragmatic and well-justified selection of collaborative implementation projects, acknowledgement of the fundamental subsidiarity and proportionality principles and the acquis communautaire of statistical legislation, elaboration of adequate supporting frameworks, development of centres of competence and establishment of suitable governance structures and mechanisms.

The project "shared SERVICES" is one of the implementation projects, defined in the ESS.VIP programme, which builds on recommendations of the Common Statistical Production Architecture (CSPA) and the ESS reference Enterprise Architecture. The project will provide guidelines for describing statistical services, recommendations for setting up appropriate governance for sharing of services across processes and among ESS and Eurostat, as well as advice on available products (incl. open source) to be used to set up service oriented architecture in an organisation.

This project supports mainly the following key areas of the ESS VISION 2020:

Key Area 1 "Identifying user needs and cooperation with stakeholders"

The project facilitates cooperation with stakeholders by enabling sharing of functionalities among ESS members (sharing with Eurostat and also among Member States)

Key Area 4 "Efficient and robust statistical process"

The project will lead to increased process efficiency by enabling commonly used services. Re-using of building blocks makes the processes more efficient and it also enables composition of new processes.

For the remaining part of this document for the project "shared SERVICES" the acronym SERV will be used.

## 2.2 Situation Impact

Traditionally information systems were developed for specific processes with limited consideration for use in other similar processes. Considering that processes have a lot of common parts it led to a situation that the same functionality was implemented several times in the same organization. This required using N times the amount of resources that would have been necessary with an intelligent re-use of functionality. However, designing information systems optimized for re-use requires a new implementation approach.

In the 1990'ties information technology industry turned to a new paradigm called "service –oriented architecture" which allows organizing information systems in reusable services. The key points of SOA are following:

- Business value over technical strategy
- Strategic goals over project-specific benefits
- Intrinsic interoperability over custom integration
- Shared services over specific-purpose implementations
- Flexibility over optimization
- Evolutionary refinement over pursuit of initial perfection ([SOAM])

Several large IT companies including Amazon, Google and Facebook set-up their systems according to service-oriented architecture which allowed them delivering innovative services in a very cost effective way. Following their lead many organizations (including financial services, health care providers, manufacturing companies etc.) started to utilize this approach in their environment.

International Organizations also wanted to reap the benefits of SOA. The European Commission also started SOA initiatives, and several DG's for example DG BUDG implemented SOA in their environment.

Common Statistical Production Architecture (CSPA) developed by UNECE also incorporates service-oriented approach to a standard architecture.

Eurostat and the ESS are also facing the challenges that were behind the service-oriented initiatives in other organizations. The same functionalities were implemented several times even within the same organization and there is a huge potential of cost saving in an intelligent re-use oriented strategy.

The project SERV aims to enable process optimization by re-use of IT services. In order to achieve that it will define the overall governance that allows sharing services within and among ESS members.

A common approach (technology, methodology) is required ensuring economy of scales, as well as integration, reusability and reuse of services. The way to develop an ESS framework for building such services, and a platform for sharing services should be elaborated within the SERV project. This includes the full scale of governance aspects (ownership, certification, training, maintenance, support ...). The project outcome should provide requirements and solutions ensuring the reusability of services across ESS.VIP and other business projects.

In order to provide business value in a reasonable timeframe, the project will also work together with business projects of the ESS VIP Programme 2.0. For example the collaboration with ESS.VIP Validation project would lead to a re-usable data validation service and validation rules registry services. Similarly, working together with the ESS.VIP ESBRS would result in a re-usable service for unique identification of enterprise groups. These services would be developed according to the guidelines defined by the project SERV, and would be published in an ESS CSPA compliant service catalogue.

The ESS production of statistics is expected to move towards a better connected infrastructure allowing secured exchange of data and metadata, improve the sharing of data through data warehousing and data integration services supported by metadata registries. A prerequisite for developing a generic service oriented approach is that the ESTAT/ESS business processes are modelled at the right level of granularity to enable the reusability of services.

To apply the principles in sharing particular functionalities an ESS CSPA compliant service catalogue, hosted by Eurostat, will enable publishing those as re-usable services. At operational level the initial ESS/Eurostat SOA (service-oriented architecture) infrastructure will provide a way to share selected services in the ESS, for which no replication is necessary. This will be introduced step by step, starting with a proof of concept.

### 2.2.1 Impact on Processes and the Organisation

The results of the project should improve concerned ESS business processes by making them:

- More flexible towards changing business needs
- More efficient by re-using common services and process automation
- Better maintainable for what concerns the technical solutions developed

Let's take an example of the structured validation service. When that service is available it can be incorporated in several statistical production processes. It will be also possible to use that service in several parts of the statistical process e.g. it could be used also before submitting data to EUROSTAT (pre-validation) and could also be used by EUROSTAT to validate the data. This shows that generic services will not only make the processes more efficient, but also add a new level of flexibility.

### 2.2.2 Impact on Stakeholders and Users

The project has a clear ESS orientation with Member States playing a key role in the project. The cooperation with Member States has been articulated at several levels:

- Management: ESSC is informed about the evolution of the project.
- Execution: An ESSnet is to be launched supporting development and implementation of Statistical Services in the ESS and sharing and distributing open source software packages.

Therefore the main stakeholders for this project are:

- Member States participating in ESSnet
- Member States identifying, certifying and providing re-usable services
- Member States using re-usable services
- Business domains like validation and ESR
- ESSC
- DIME-ITDG
- Eurostat.

The project SERV will enable delivery of re-usable services, which will bring efficiency gains for both Member States and EUROSTAT.

## 2.3 Interrelations and interdependencies

Significant investment is currently being made to allow transformation of the ESS according to the ESS VISION 2020. SERV will cooperate with other projects to ensure the new investments are made to IT systems based on re-usable services to maximise the long-term benefits.

A service-oriented approach requires enterprise-wide governance. To this aim, SERV will work closely with the Task Force on Enterprise Architecture and be aligned with the ESS Reference Architecture.

The project is intrinsically linked to the deployment of a Service Oriented Architecture (SOA) in Eurostat and the ESS. SOA is an architectural paradigm that focuses on building systems through the use of different individual "Services", integrating them to make up the whole system.

SOA offers technological solutions for industrialisation and integration of processes and the rationalisation of information systems. SOA platforms provide facilities to register common services and orchestrate them (via a process manager). Integration with other systems would require the standardisation of the communication protocol among standard statistical services and the adoption of an information model at ESS level as developed for instance in the ESSnet CORE ([CORE]). Furthermore the results of the project ESS.VIP.CRC.IMS need to be analysed in this respect.

Relations with other projects:

- ITDG adopted guidelines for sharing software (March 2014). SERV will draw on these recommendations to move beyond the simple aspects of sharing software towards the sharing of services.
- UNECE, Common Statistical Production Architecture (CSPA) V1.0. This should serve as an industry standard architecture for statistical organizations. It provides principles and guidance to standardize and combine the components of statistical production, regardless of where the statistical services are built. SERV will build on the CSPA and will aim at implementing the concept at ESS level.
- The ESSnet project CORE (COMmon Reference architecture and Environment for production of EU statistics) defined and demonstrated a proof of concept of a first platform targeting the ESS process integration. An information model for exchanging information between services has been proposed. The work on CORE is being continued by ISTAT which is putting in place a CORE v.1 platform for ISTAT production processes.
- Ongoing and ending projects, flagship projects and VIPs like Census HUB, EGR 2.0, VIP.SICON, VIP.Validation have already proposed solutions for sharing functions for business process steps in the ESS.
- In the context of the European Commission, the Interoperability Platform for Corporate Information Systems (IPCIS) which is the Service Oriented Architecture (SOA) reference platform including the related methodology is readily available for implementation i.e. development of "Services" in a SOA. This platform and methodology targets the Commission integration and rationalisation. The possibility to use this platform in Eurostat in combination with the ESS platform will be studied in the SERV project.
- Some Commission DGs have already implemented platforms for sharing services with data providers. Examples are DG AGRI for countries to validate data before submission (agricultural accounts), DG TAXUD for enabling countries to exchange information among themselves (for taxation and customs purposes). These platforms are currently optimised to provide one specific service. Their reusability in the ESS context will be studied in the SERV project in combination with ESS.VIP.CRC.ESDEN project.
- The ESDEN project will contribute to the creation of a Schengen like zone for the statistical (confidential) data of the ESS and will replace the aging current EDAMIS infrastructure. The future ESS communication network infrastructure and services will ensure adequate availability, security, confidentiality and scalability.

The service-oriented approach provided by SERV will also contribute to establishing business process management to further improve efficiency and effectiveness of the processes.

### 3 Expected Outcomes

The expected business results for the ESS are:

- Standards and a framework for interoperability, based on recommendations from CSPA and ESS Reference Enterprise Architecture, including recommendations for implementing a service oriented IS architecture.



- CSPA service catalogue (or a CSPA compliant version) available for registering ESS statistical services and hosted and maintained by the European Commission/Eurostat (a follow up action to the CSPA 2014 implementation project).
- CSPA compliant guidelines for describing statistical services available for the ESS.
- Governance put in place allowing to share services in the ESS, covering e.g. certification of services, replication of statistical services, distribution of (open source) software packages
- Service solutions respect the principle of implementation technology independence; any ESS hosting body can choose their own implementation technology as long as interoperability is guaranteed.
- A central ESS/Eurostat SOA infrastructure is available for sharing services for which no replication into a national production process is needed.
- Validation: A first business pilot has been realised in cooperation with the ESS.VIP.Validation.

Business project involvement:

- Validation: CSPA compliant validation rule registry services (to query validation rules and rule sets) and a data validation service concerning file internal validations will be developed using input from this project. Once ready it would be available for several statistical domains for which data is being exchanged in the ESS.
- ESBR: A CSPA compliant identification service for business registers. A first service description has been set up using input from this project which needs to be further developed.
- Data exchange: CSPA compliant transformation service, to support an easy introduction of standard formats like SDMX-ML and to limit or phase out stove pipe implementations of current converter tools keeping the maintenance manageable.

## 4 Possible alternatives

### 4.1 Alternative A: "Do nothing"

This would mean that no governance would be in place for sharing functionality in the ESS. Sharing of functionality would be possible on bilateral basis but not encouraged. Because of lack of governance sharing will face additional difficulties and increased risks.

**SWOT Analysis**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- No coordination with other partners is required</li> <li>- No additional dependencies are introduced</li> </ul>	<ul style="list-style-type: none"> <li>- No CSPA compliant guidelines for describing services would be available.</li> <li>- No recommendations for defining appropriate governance like certification of services at ESS level would exist.</li> <li>- No hosting of the CSPA service catalogue would be realised by Eurostat. Not having such a repository would have a negative impact on developing an ESS wide common framework for sharing services. This would decrease the level of cooperation on this topic in the ESS.</li> <li>- There would be no flexibility on deciding if a service should better be replicated into a national production process or exposed on a central ESS/Eurostat SOA as the central Eurostat/SOA would not exist and also no process would exist to manage this.</li> <li>- No ESSnet on sharing common functionalities and the related software components supporting the ESS with the implementation of service oriented organisation at ESS level would be available</li> </ul>

	<ul style="list-style-type: none"> <li>- Implementing recommendations of CSPA and the ESS reference Enterprise Architecture on ESS level would become more costly and time consuming.</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>- No additional costs</li> <li>- Better individual control of projects</li> </ul>	<ul style="list-style-type: none"> <li>- Negative experience with sharing will demotivate members to further sharing</li> <li>- ESS falls behind in sharing of functionality</li> </ul>

### 4.2 Alternative B: "Ad-hoc sharing"

All projects in the ESS (incl. ESS.VIP projects) will develop and implement services for their particular needs during the execution phase of the project. This alternative would serve the needs of the individual, domain specific, projects as no recommendations, templates have to be used. While reusability might materialise, there is no guaranty for reusing services on a wider scale without corporate coordination and guidelines. In this alternative, the maintenance effort for domain specific services is expected to stay high for the owner of the services.

#### SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- Lower cost of implementation</li> </ul>	<ul style="list-style-type: none"> <li>- No CSPA compliant guidelines for describing services would be available.</li> <li>- No recommendations for defining appropriate governance like certification of services at ESS level would exist.</li> <li>- No hosting of the CSPA service catalogue would be realised by Eurostat. Not having such a repository would have a negative impact on developing an ESS wide common framework for sharing services. This would decrease the level of cooperation on this topic in the ESS.</li> <li>- There would be no flexibility on deciding if a service should better be replicated into a national production process or exposed on a central ESS/Eurostat SOA as the central Eurostat/SOA would not exist and also no process would exist to manage this.</li> <li>- No ESSnet on sharing common functionalities and the related software components supporting the ESS with the implementation of service oriented organisation at ESS level would be available</li> <li>- Implementing recommendations of CSPA and the ESS reference Enterprise Architecture on ESS level would become more costly and time consuming.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- Fast progress as there is no need to wait till the common governance is in place</li> </ul>	<ul style="list-style-type: none"> <li>- Negative experience with sharing will demotivate members to further sharing</li> </ul>

### 4.3 Alternative C: "Common Governance and Collaboration with Business Projects"

This would mean to develop common governance for sharing services within the ESS including the usage of the CSPA service catalogue (which might be further developed based on ESS needs). Guidelines and governance will be developed to synchronise with service developments at ESS level.

The project would collaborate with business projects (e.g. Validation and ESBRS) and other ESS.VIP projects to provide tangible business benefits. It would support the transition towards the implementation of service oriented architectures at national level and at ESS/Eurostat level.

#### SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- Large benefits from the high-level of re-use enabled by the common governance and available platform(s)</li> <li>- Limited cost of implementation because development will be done in separate projects</li> <li>- Better project management by keeping boundaries of other related projects</li> <li>- Encourages initiatives of the ESS members</li> </ul>	<ul style="list-style-type: none"> <li>- Depends on collaboration of business projects</li> <li>- Introduces dependencies with project timelines</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- Utilize existing business projects</li> <li>- ESSnet will help Member States to utilize shared services for their own benefits</li> </ul>	<ul style="list-style-type: none"> <li>- - Pressing timelines of business project will lead to increased level of deviation from the defined governance</li> </ul>

## 4.4 Conclusion

The SWOT analysis supports Alternative C "Common Governance and Collaboration with Business Projects", which allows reaping the most benefits of service sharing, while reducing the risks of execution and minimising the interference to other business projects. Guidelines, standard templates and recommendations for SOA implementations will be available at ESS level. Key components as CPSA service catalogue are available and can be managed by an ESS service certification committee and/or centre of excellence. ESS partners are supported by an ESSnet project to put in practice what is being developed under SERV. Both approaches are supported: the replication of services into local production processes is envisaged and exposing suitable services on a central ESS/Eurostat SOA.

## 5 Solution description

### 5.1 Legal basis

The ESS Vision 2020 is the key reference to guide strategic decisions at ESS level for the coming years. It informs future collaborative projects in the ESS and helps to set priorities. It is also a means to communicate shared views on the future of European statistics to both national and European stakeholders.

SERV is one of the projects defined under the ESS VIP Programme 2.0 which aims at implementing the ESS Vision 2020.

The project is adhering to the subsidiarity principle. It will not provide any mandatory solutions or follow an unfounded centralized approach. The main goal is to facilitate sharing of functionality among ESS members and to define governance for supporting that.

### 5.2 Benefits

The objectives of the project are:

1. Implement governance structure to enable sharing of services (e.g. service certification procedures), to choose at ESS level on how to make a service available, by replication in a national production process or to expose a service on a central ESS/Eurostat service oriented architecture.
2. Contribute to standardising the description of identified business needs by providing CPSA compliant guidelines for describing service definitions

3. Host and maintain a CSPA service catalogue at the Commission/Eurostat containing also services identified on ESS level
4. Provide proof of concepts through supporting business projects to enable sharing of services
5. Provides guidelines and recommendations for the ESS enabling the start of national projects to realize technological solutions for industrialisation and integration of processes and the rationalisation of information systems. Provide an ESS/Eurostat SOA environment for sharing services in the ESS for which no replication is necessary.

#### Benefits:

1. An easier exchange of information at ESS level about statistical services definition including the implementations realised (software components).

2. Flexible business process

It will be easier to adapt business processes if certain generic functionalities are available as a service that can be connected to a concerned step in the business process.

3. Faster adoption of new production processes

It will be easier to compose new production processes based on a set of existing services available in the CSPA service catalogue.

4. Cost reduction on development and maintenance of information systems

Insight in existing services on ESS level will reduce the effort needed to develop new solutions and maintain existing solutions for needed business functions

5. Easier management of skills required for the maintenance of information systems

Sharing of services will reduce the variety of components to be maintained in a particular organisation. As a result, less variety of skills will be required to maintain those services.

The extent of the benefits depends how wide sharing of identified generic functionalities as services will be realized. Sharing services between ESS Members provides significant benefits. When ESS Members could also share services with members of other organisations like for example UN, OECD, IEA, the benefits would even further increase.

### 5.3 Success Criteria

The project will achieve its mandate if selected existing software developed in the ESS and Eurostat can be shared, exposed and orchestrated as statistical services using guidelines and governance developed by SERV.

The following metrics shall be used to measure success:

- CSPA service catalogue contains at least 5 reusable services designed following guidelines provided by SERV and can be hosted on a service oriented IS architecture in a Member State (e.g. by replication) or centrally on a ESS/Eurostat SOA infrastructure
- At least 2 business projects are utilizing SERV governance. This should include ESS.VIP.Validation and ESBRS.
- At least 3 ESS members published services in the service catalogue. The defined statistical services can be made easily available and reusable among ESS partners and Eurostat
- At least 7 ESS members re-use services of the service catalogue
- As a first step at least 2 ESS members use the developed central ESS/Eurostat SOA Infrastructure as a proof of concept, for sharing services for which no replication is necessary.

## 5.4 Scope

SERV aims at creating the conditions for sharing statistical services and supporting their integration in statistical production processes at national, ESS and Commission level. For statistical services to be developed SERV provides guidance for describing definitions, specifications and implementations as well as recommendations of how to implement a service oriented architecture locally including the way services could be made available in such an architecture for a local production process.

SERV uses the recommendations of

- 1) the Common Statistical Production Architecture (CSPA)
- 2) the ESS Reference Enterprise Architecture
- 3) international standards like SDMX, GSIM, GSBPM.

Furthermore the project builds on experiences made with past and on-going developments in the ESS, like CORA/CORE ESSnets, and in the EU Commission, like DG DIGIT's IPCIS platform.

The project is carried out by Eurostat in cooperation with Member States and DG DIGIT.

## 5.5 Solution impact

The table below demonstrates how the process improvements can be achieved by the solution proposed by SERV.

Process Improvement	Solution Impact Description
Higher flexibility towards changing business needs	Re-usable services will allow to: <ul style="list-style-type: none"> <li>- Define new process from existing services</li> <li>- Re-arranging services in the business process</li> </ul>
Higher efficiency by re-using common services and process automation	The following factors contribute to higher efficiency: <ul style="list-style-type: none"> <li>- Re-use of optimised services will increase efficiency of processes</li> <li>- Functionalities provided by automated services will reduce manual efforts needed</li> </ul>
Improved maintainability of technical solutions developed	Service can be developed in one place and can be re-used in various places. All changes only need to be done to a single place, which reduces maintenance efforts compared to multiple and redundant developments.

## 5.6 Deliverables

The main deliverables of the project are

- Guidelines allowing for sharing (by replication of services or by exposing them centrally) of statistical services across processes and among partners in the ESS and Eurostat (Commission). This includes recommendation of products (including open source) that can be used to set up a service oriented IS architecture on national level.
- Recommendations for governance of statistical services; including the setup of an (ESS) service certification committee and maintenance of an ESS service catalogue as part of the CSPA service catalogue.
- Hosting and maintenance of the CSPA service catalogue by the Commission/Eurostat
- An ESS/Eurostat SOA infrastructure that can be used by the ESS, Eurostat, other Commission DGs to expose those statistical services for which no replication is necessary as proof of concepts.

- Guidelines for building SOA platforms based on open source software products; to align these to the governance to be put in place for managing statistical services.

#### Current State:

During 2014 CSPA compliant guidelines for describing statistical services have been developed. A draft version is available. Furthermore a feasibility study is being carried out for which early draft material is available and this should be finalised by February 2015. The draft results for both projects give valuable input for the Analysis and Execution phases of the SERV project, they both give sufficient insight on how the main deliverables of the project will be realised. Furthermore information will already become available about existing products, needed technology, and governance and organisational aspects. The feasibility study results should support the realisation of the related ESSNET project. The conclusions of the feasibility study will allow further optimising the project execution phase, how the project deliverables can be successfully developed

Within the CSPA 2014 implementation project at UNECE level, the service catalogue team has developed a Wiki based service catalogue prototype. Eurostat will arrange the hosting of this CSPA service catalogue and started an analysis for the realisation of the hosting the CSPA service catalogue. The results of this analysis are expected in January 2015.

An ESS vision 2020 aligned ESSNET project “sharing common functionalities” has been identified in relation to the SERV project. The ESSnet project supports the development of Statistical Services in the ESS and implementing these in a service oriented IS architecture. Furthermore the management and distribution of Free and Open Source Software is a topic in the ESSnet. It is expected to contribute to defining guidelines for how software packages can be prepared and made available via service oriented architectures. Finally governance aspects like defining a centre of excellence and/or a service certification committee for the management of Statistical Services and open source software packages should be addressed.

Furthermore Eurostat started during 2014 the following initiative to gain early experiences about SOA infrastructure which will be valuable input for the SERV project:

- Set up a test Service Oriented Architecture infrastructure in collaboration with DG DIGIT using the DIGIT SOA reference environment. Make available some first statistical services. The result of this exercise should give insight if the infrastructure provided by the Commission (DG DIGIT) would be a feasible additional alternative for the ESS to share services for which no replication is necessary. It should also allow to define in an early stage of the project SERV needed further developments and/or products to be assessed.

#### Analysis phase (2014-2015):

The analysis phase will build on the actions already started as explained under “Current State”.

##### Actions:

1. Analysis of potential existing solutions / projects / reference platforms & estimate efforts needed for each of these to meet the requirements
2. Review industry standards (SOAP/REST, WSDL, UDDI) and open source solutions for building service oriented architectures

##### Deliverables:

- Interoperability document against which new services can be benchmarked,
- Identification of retained solution(s), i.e. go/no go regarding existing solution(s).
- High level description of a service oriented architecture and related governance aspects
- The definition of requirements for a "service to service" exchange protocol,

#### Execution phase (end-2015 – 2017)

##### Actions:

1. Make available a CSPA compliant service catalogue (including hosting)

2. Develop recommendations for governance: guidelines for introducing a SOA implementations in an organisation, service certification committee and/or centre of excellence
3. Definition of some services identified in other ESS and Commission DGs projects and ESS.VIP projects.
4. Building on the results of the DG DIGIT/Eurostat SOA test environment mentioned above: Configure a central ESS/Eurostat SOA infrastructure which will give more flexibility to the ESS on how to make services available: by replication in local IS architectures and/or exposed on a central ESS/Eurostat SOA. This phase includes that also first other ESS members can start using this ESS/Eurostat SOA infrastructure, as proof of concept, for sharing suitable services.
5. Testing and hosting of the implementations.

Deliverables:

- CSPA (compliant) service catalogue for managing statistical services in the ESS
- Recommendations for governance of statistical services in the ESS
- Description of service definitions, using SERV guidelines, for potentially identified generic business needs in other ESS projects. An ESS/Eurostat service oriented IS architecture giving more flexibility for distributing statistical services in the ESS.

Building up the SOA infrastructure will follow a step-by-step approach: first enabling to proof the concept of sharing services within Eurostat production process, and then also to do this by open up the possibility for first other ESS members to use that infrastructure for sharing services, which don't require replication.

#### Implementation phase (2018)

Actions:

1. Provide governance, including certification, and coordination for implementation of statistical services and open source software components.
2. Coordination and maintenance for statistical services catalogue extensions.
3. Coordinate the maintenance of statistical services.

Deliverables:

- Maintenance and extension of a CSPA compliant service catalogue
- Maintenance and extension of statistical service guidelines
- Governance, including certification, facilitation for sharing services in the ESS

Remark:

- Coordination tasks at ESS level to be carried out by an ESS centre of excellence.

After the Implementation phase is closed, the project needs to go in an Operational Maintenance phase that includes the maintenance and support of the service catalogue and the update of the governance structure in case needed.

## 5.7 Assumptions

For the elaboration of the current business case the following assumptions were made:

- Qualified human resources are available and allocated to the project in line with the planning.
- Financial resources are allocated as planned.
- IT framework contracts are in place.

## 5.8 Constraints

The project has to respect the following constraints:

- Early guidelines and a set of general principles for service implementation is needed for projects that start development software solutions.
- Successful hosting of the CSPA service catalogue alone is not enough. The project should foresee in defining a sustainable availability including evolutionary maintenance according to ESS needs.
- IS architecture related and legal constraints in Member States.
- CSPA updates are being done in a manageable way allowing the ESS to take measures in time.

## 5.9 Risks

See risks outlined at the level of the ESS.VIP programme defined to implement the ESS Vision 2020.

- Risk 1: Lack of coordination with Business Projects  
This would result in not providing the business value. In order to mitigate this risk the project will coordinate with the business projects, and also with the planned ESS.VIP Project Portfolio Management and with the Enterprise Architecture team.
- Risk 2: Governance is not followed  
This would undermine the sustainability of the approach. In order to mitigate this risk the project needs to ensure the adequate representation of members in the Service Certification Committee.
- Risk 3: Member States are not participating  
This would lead to a situation that only Eurostat would reap the benefits of the SERV project. To ensure Member States participation an ESSNet will be initiated as well as proof of concept projects to prove the business value of the approach.

## 5.10 Costs, Effort and Funding Source

The operational credits will be spent to:

- Executing Analysis tasks
- Implement Proof of Concept services
- Support configuration of service platform
- Defining SLA for the service platform
- Hosting and maintenance of the CSPA service catalogue

The budget estimate is based on the assumption that no license fees for the SOA platform needs to be paid from the project budget.



### 5.11 Roadmap

Some initial actions are already being carried out. The project should start officially in Q1 2015 to start and finalise the implementation during 2018.

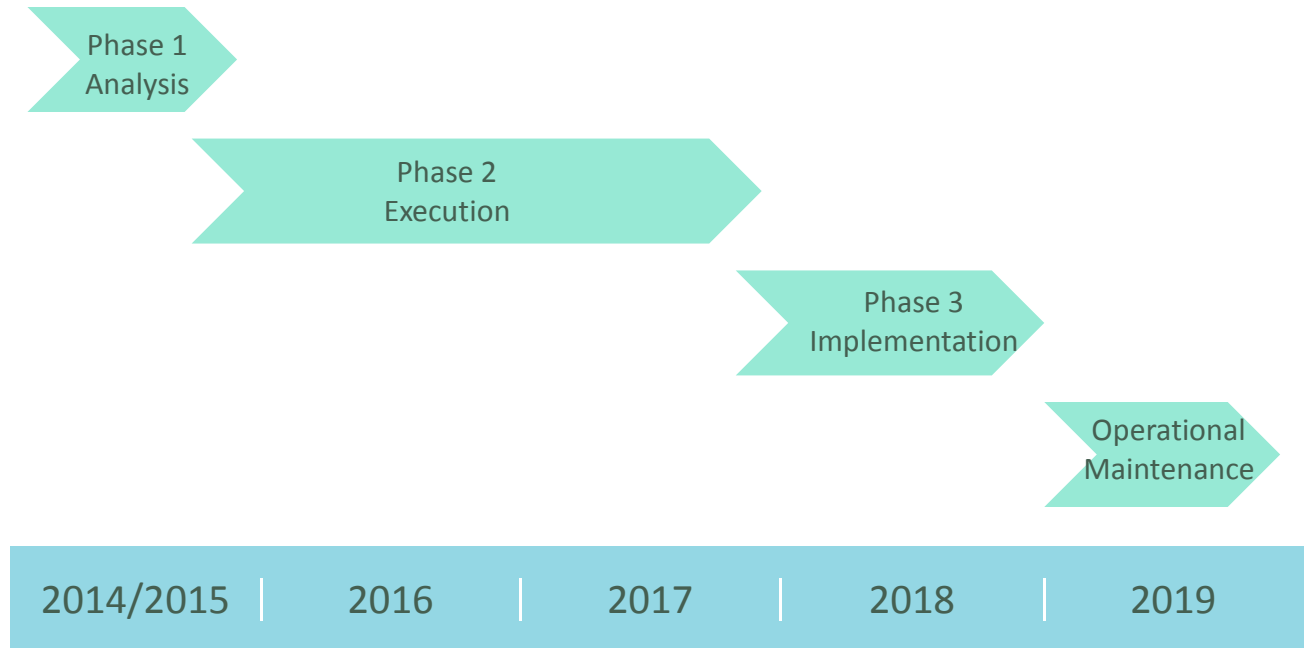


Figure 1: High-level timeline of the project

### 5.12 Synergies and interdependencies

Member States can re-use the guidelines and governance produced by this project in their own SOA initiatives.

### 5.13 Enablers

Enabler	Yes/No	Reference
ESS VISION 2020	✓	<a href="https://myintracomm-collab.ec.europa.eu/dg/ESTAT/DO.U.C.EUR/DOUCEUR/X_Cybernews/X_Cybernews/2-Management/Policies/Vision/The%20ESS%20Vision%202020.pdf">https://myintracomm-collab.ec.europa.eu/dg/ESTAT/DO.U.C.EUR/DOUCEUR/X_Cybernews/X_Cybernews/2-Management/Policies/Vision/The%20ESS%20Vision%202020.pdf</a>
PM <sup>2</sup>	✓	<a href="http://www.cc.cec/wikis/display/PM2">http://www.cc.cec/wikis/display/PM2</a>
BPM	✓	<a href="http://www.cc.cec/wikis/display/bpmatec">http://www.cc.cec/wikis/display/bpmatec</a>
CSPA	✓	
IT Related		
RUP@EC SMP@EC	✓	<a href="http://www.cc.cec/RUPatEC">http://www.cc.cec/RUPatEC</a>
ESS EA Reference Framework	✓	

## 6 Governance information

### 6.1 Project Owner (PO)

Mariana Kotzeva, ESTAT dir. B (Methodology, Corporate statistical and IT services).

### 6.2 Solution Provider (SP)

Christine Wirtz, ESTAT B.3 (IT for statistical production).

### 6.3 Approving authority

This business case will be submitted for consultation/approval to the following bodies:

DIME/ITDG

ESS Portfolio Management Office

Vision Implementation Group

ESS Committee

*Signature of the approving authority ..... Date .....*

## Appendix 1: References and Related Documents

ID	Reference or Related Document	Source or Link/Location
1	[SOAM] SOA Manifesto	<a href="http://www.soa-manifesto.org/">http://www.soa-manifesto.org/</a>
2	[CORE] CORE Information Model, January 2012	<a href="http://www.cros-portal.eu/sites/default/files//Del2.2-CORE%20Information%20Model%20v1-0.doc">http://www.cros-portal.eu/sites/default/files//Del2.2-CORE%20Information%20Model%20v1-0.doc</a>

## Appendix 2: Glossary

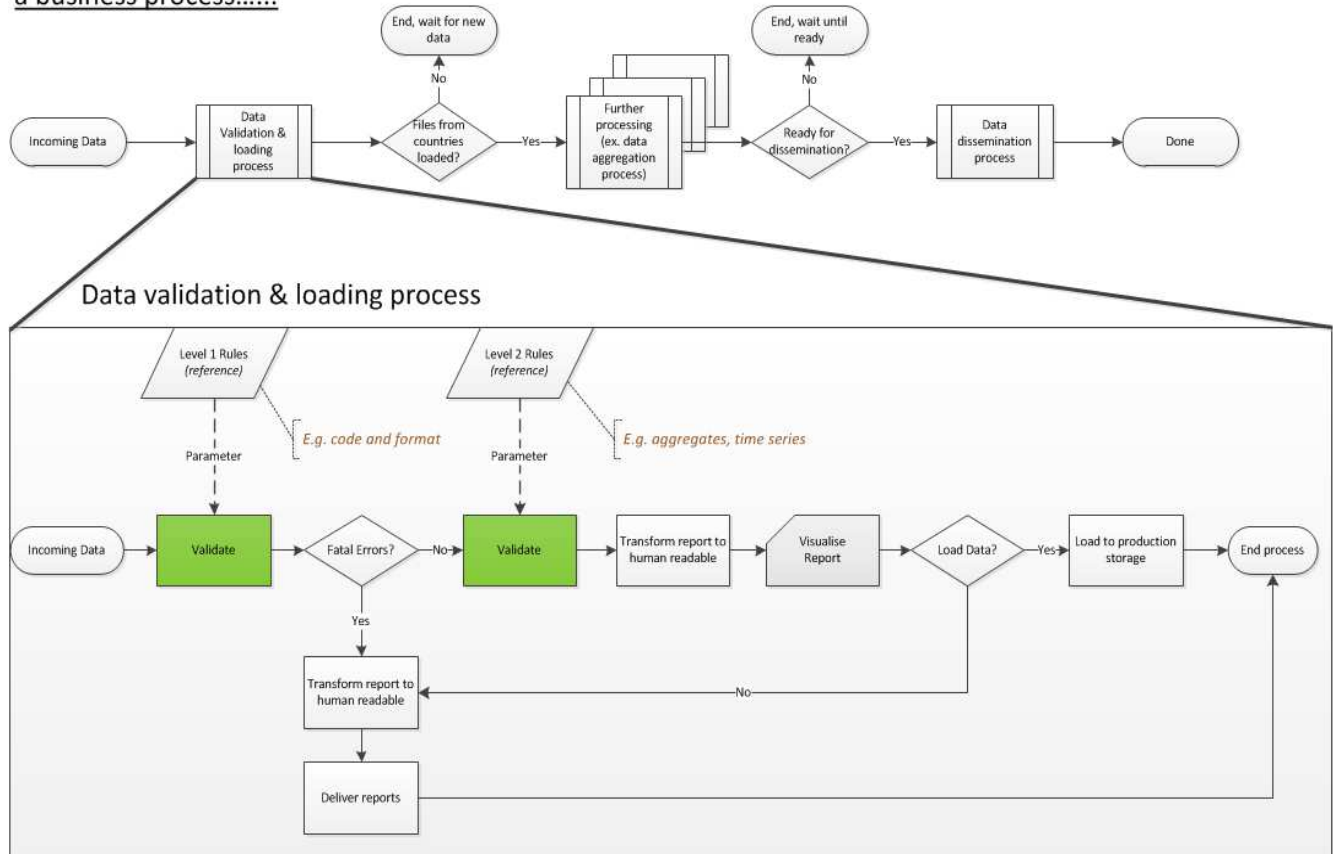
BPEL4WS	Business Process Execution Language for Web services
CORE	Common Reference Environment
CSPA	Common Statistical Production Architectue
GSIM	Generic Statistical Information Model
HLG	High-Level Group for the Modernisation of Statistical Production and Services
QoS	Quality of Service
SOA	Service Oriented Architecture
UDDI	Universal Description, Definition, and Integration
WSBPEL	Web Services Business Process Execution Language
WSDL	Web Services Description Language
XML	eXtensible Markup Language
XSD	XML Schema Description

## Appendix 3: Visualisation usage of services within a business process

This annex visualises in a simplified manner how an existing business process can use statistical services being made available in service oriented architecture. This annex aims taking away some of the uncertainty when first being introduced to implanting service oriented IS architectures. The workflow or process management play an essential role in this kind of architecture. The service catalogue contains all the information about identified (statistical) services.

Figure 1 shows a business process having a first sub process related to validating and loading data. Within that sub process a validation sub process has been repeatedly defined.

a business process.....



**Figure 1**

Figure 2 shows details of how the mentioned validation process could look like:

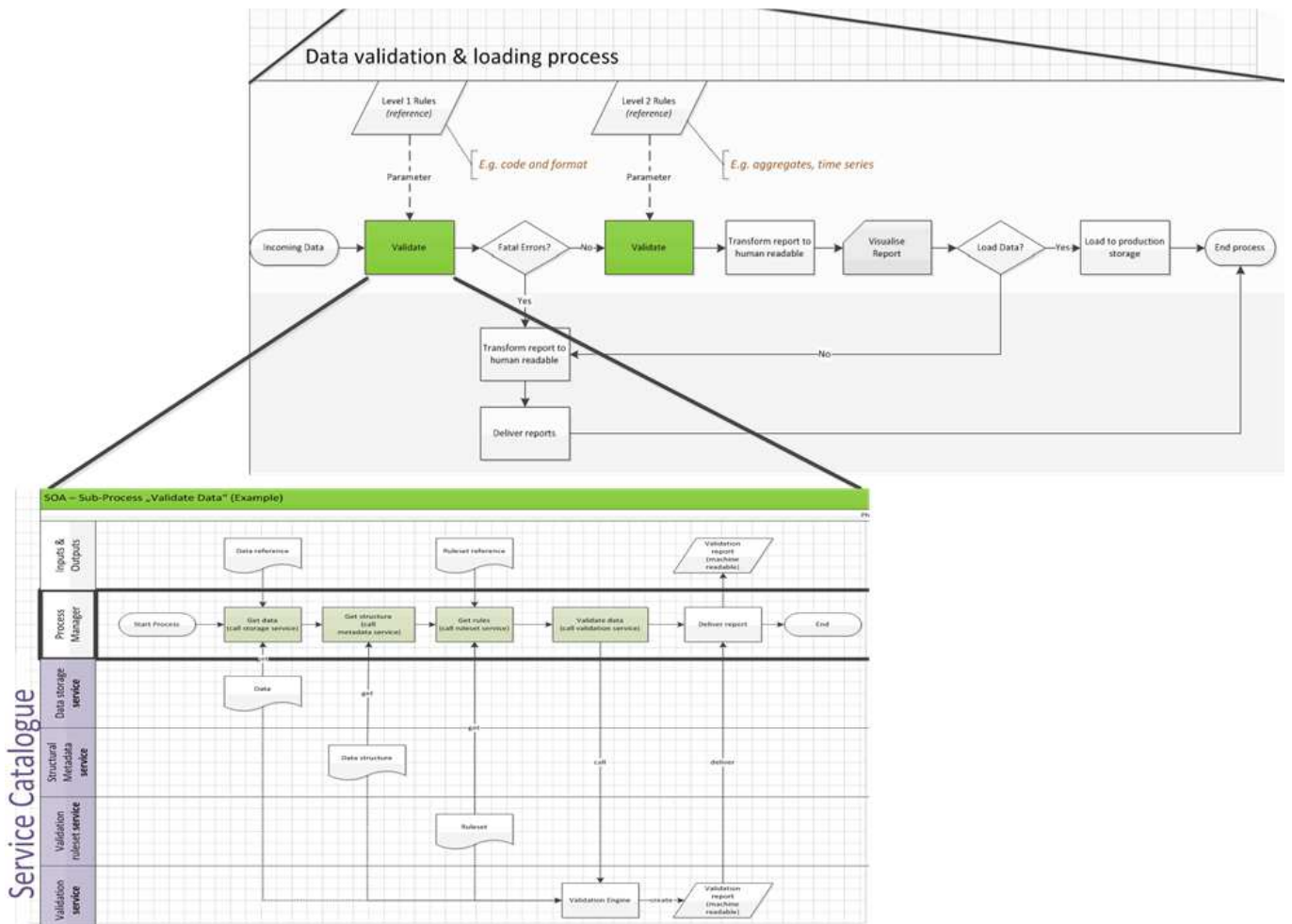


Figure 2

From the sub process Validation statistical services are being called. A process manager orchestrates these interactions with used statistical services and the service catalogue as Figure 3 presents in more detail:

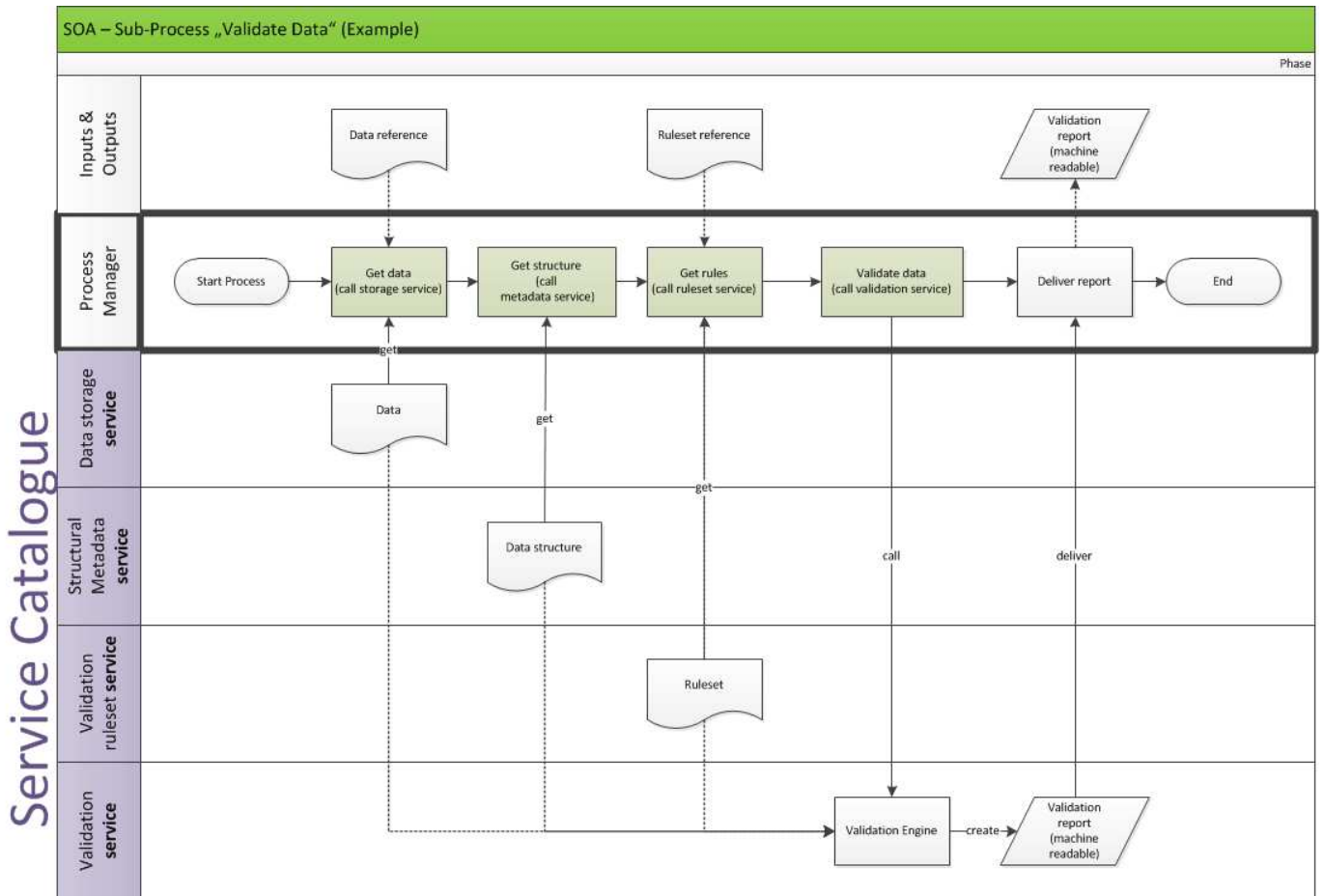


Figure 3

The meta data driven process manager “knows” how to call a statistical service by using the described method(s) in the service catalogue. It is the process manager who determines which statistical service needs to be invoked and by using which method(s) and parameter(s). This means that within a service oriented architecture a statistical service is self-contained and should never call another statistical service directly. This approach increases the maintainability of information systems. Introducing such an architectural solution does not mean that the business process currently managed by a statistical domain manager changes dramatically.

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