3.6 IMPROVING STATISTICAL DATA AND METADATA DISCOVERABILITY AND ANALYSIS (2018.03)

3.6.1 IDENTIFICATION OF THE ACTION

Service in charge	ESTAT B.1
Associated Services	ESTAT B.2 (LISO), ESTAT B.3, ESTAT B.5

3.6.2 EXECUTIVE SUMMARY

Semantic technologies have created new opportunities and expectations with respect to metadata and data discovery and analysis. In order to retain its position as leading providers of statistical information and to contribute to the modernisation of public administration by engaging more with citizen and businesses, National Statistical Institutes (NSIs) in charge of collecting and disseminating official statistics in the EU must uplift their data accessibility, discovery and analytics capabilities and follow a proactive approach in meeting the needs of their key users.

Firstly, end users of EU statistics are looking for better discoverability of open/public data. In this context, this action aims at improving discoverability and use of official statistics data through leveraging the rich European Statistical System (ESS) statistical metadata assets (concepts, codes, nomenclatures …) using semantic technologies. To this end the project will built on existing and, where needed, develop semantic models for describing these statistical metadata assets. The statistical metadata will thus be made machine readable, discoverable and active in data querying and data integration jobs. This will contribute, on one side, to easing access to EU statistics and, on the other side, create the conditions for a wider semantic interoperability and accessibility of statistical data produced by public administrations in general. External data brokers (collecting and reusing data) will also benefit from well-established semantic metadata standards encouraging them to align with these standards and thus boosting the (re)use of statistics published by government agencies.

Secondly, policy analysts in charge of the design and evaluation of government policies have to embrace the complexity of societal and economic changes. This requires analysing always more detailed official statistics and enriching them with available external information. Currently the official data are publicly available but their usage is rather tedious as they require quite some technical skills to access and combine them and a good knowledge of the concepts involved. In this context, this action will provide an intuitive and integrated data analytics workbench and metadata driven services to explore, combine and analyse seamlessly a broad variety of data sources (potentially crossing borders) leveraging the wealth of official statistics and the richness of metadata assets compiled in the ESS. The technical infrastructure will be designed and built with a view to being shared across statistical organisations (common statistical metadata platform, reusable metadata services) but also to being reused by any public administration willing to improve the accessibility of its own data assets. The project will be based on business outcome driven pilots and on collaborative work.

The deployment of the enhanced capabilities in member states will build on the tied cooperation between statistical agencies and government service providers making use of data.

3.6.3 OBJECTIVES

The main objectives of the action are

1) to improve semantic interoperability and discoverability of official statistics produced by national statistical institutes by a) exposing as machine readable objects (semantic Web) the key ESS statistical metadata assets; b) packaging and deploying a set of services for statistical metadata management
2) to improve the accessibility of EU statistics and to provide data analytics capabilities to end users and policy analysts while ensuring adequate data protection.

The actions will benefit a wide range of stakeholders including end-users of statistics, policy analysts, citizen data scientist and NSI's statisticians and are aligned with the priorities of the eGovernment Action Plan by improving the conditions for accessing public sector data and services and facilitating their re-use by third parties not only confined to official statistical data but enhancing broader data use benefitting citizen.

3.6.4 SCOPE

The project will set up a statistical metadata platform based on semantic technologies and expose on there the existing ESS statistical metadata assets. It includes the identification of the relevant semantic technology standards and models and will build on the well-established Statistical Data Metadata Exchange (SDMX) standards. It will develop or reuse services for metadata management and metadata discovery and will put in place an appropriate governance. The project will also set up data analytics services and infrastructure that will use the existing metadata assets to support and streamline discovery and integration of open (and possibly confidential) data. As data access and data protection will be challenged by the newly offered capabilities, the project will also cover the data security aspects. The project is in synergy with the existing linked open data initiatives by contributing to the open data discovery by setting standard for and exposing statistical metadata assets. However, the project does not aim to expose new datasets as open data.

3.6.5 ACTION PRIORITY

3.6.5.1 Contribution to the interoperability landscape

3.6.5.2 Question	3.6.5.3 Answer
How does the proposal contribute to improving interoperability among public administrations and with their citizens and businesses across borders or policy sectors in Europe? *In particular, how does it contribute to the*	The project will create and make available reference semantic resources to access and analyse official statistics. It will improve interoperability among public administrations that produce and exchange statistics (NSIs and beyond). .

implementation of: • *the new European Interoperability Framework (EIF),* • *the Interoperability Action Plan and/or* • *the Connecting European Facility (CEF) Telecom guidelines* • *any other EU policy/initiative having interoperability requirements?*	It contributes to boosting the use of open data and reinforcing open data initiatives at EC level. At ESS level, it contributes to the realisation of the ESS Vision 2020 objectives by supporting the Digital Communication project (DIGICOM) improving statistical information delivery by means of enhancing digital communication At EU level, it contributes to the implementation of the EC Communication on Data, Information and Knowledge Management in the European Commission[71], in particular focusing on maximising the use of data for policy-making (Data4Policy)

3.6.5.4 Cross-sector

Question	Answer
*Will the proposal, **once completed** be useful, from the interoperability point of view and utilised in two (2) or more EU policy sectors? Detail your answer for each of the concerned sectors.*	The realisation of all Commission political priorities relies heavily on the quality and accessibility of the European statistics. The demand for information from various policy domains has evolved following the significant societal and economic changed. More and timely data and on the fly analysis based on different sources and across domains and borders are necessary for the EC and Public Administrations to achieve their overall policy objectives. This work will also contribute to the realisation of Data4Policy objectives in which ESTAT, CONNECT, JRC, DIGIT, OP and EPSC are collaborating
*For proposals completely or largely **already in operational phase,** indicate whether and how they have been utilised in two (2) or more EU policy sectors.*	N.A.

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[71] https://myintracomm.ec.europa.eu/sg/info-management/Documents/communication_en.pdf

3.6.5.5 Cross-border

Question	Answer
*Will the proposal, **once completed,** be useful from the interoperability point of view and used by public administrations of three (3) or more EU Members States? Detail your answer for each of the concerned Member State.*	Yes, National Statistical Institutes (NSIs) from FR, IE, IT, NL are leveraging semantic web technologies to improve accessibility to the statistical products and to manage their increasingly large and diverse data assets. Eurostat in cooperation with these NSIs is currently realising proof of concepts in the domain. This proposal aims to develop standards, infrastructure and solutions that will certainly be (re)used by the forerunning NSIs in the first instance but most probably all the ESS and the surrounding statistical data ecosystem in the longer term.
*For proposals completely or largely **already in operational phase**, indicate whether and how they have been utilised by public administrations of three (3) or more EU Members States.*	N.A.

3.6.5.6 Urgency

Question	Answer
Is your action urgent? Is its implementation foreseen in an EU policy as priority, or in EU legislation?	On one side, "Data, Information and Knowledge Management" in the EC has received much attention in the last year and is calling for quick improvement in the years to come. In this context, this proposal will contribute to strengthen the EC open data initiatives by enhancing discoverability to open EU statistics. On the other side, many national statistical institutes and external data brokers are engaging in web technology to manage data and outputs and there is a risk of seeing similar but competing standard emerging in the statistical community. Joint developments and publication of standard reference semantic assets will avoid duplication of work and ensure better interoperability.
How does the ISA[2] scope and financial capacity better fit for the implementation of the proposal as opposed to other identified and currently available sources?	ISA2 financial capacity will allow to speed up building the capabilities and to keep the pace of evolving technology and emerging needs.

3.6.5.7 Reusability of action's outputs

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	**Common ontology for official statistics**
Description	Common ontology for statistics will provide a reference conceptualization of official statistics establishing links between standard concepts, definitions and datasets. It aims at fostering semantic interoperability and comparability of statistics produced by public statistical agencies and public administrations in general. Common ontology enables to bridge data and concepts across statistical domains and across organisations. It will support statistical organisations to manage increasingly large amount of data assets and end-users discovering the large amount of open data. The ontology should not only cover the statistical products but also the production of these statistics. It can capitalise on the rich set of concepts, nomenclature and reference models already existing for official statistics. I will complement and boost the benefit of specifications like StatDCAT-AP.
Reference	This will be based on establish statistical standard (e.g.: GSIM, GSBPM, the SDMX standard information model) and on established standard ontologies and specification (e.g. (Stat)DCAT-AP, SKOS/XKOS, Data Cube Vocabulary and PROV).
Target release date / Status	December 2019
Critical part of target user base	32 National Statistical Institutes and other national authorities engaged in the production of EU statistics Public Administrations producing statistics EC DG's involved in open data initiatives Major commercial and non-commercial data brokers
For solutions already in operational phase - actual reuse level	N.A.

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	**Data analytics platform for user of EU statistics**
Description	Provide a platform accessible to policy analysts to analyse EU statistics in combination with other sources (including big data) The workbench builds on the ontology allowing cross-domain and possibly cross-database search. It provides a set of data analytics services that can be combined and reproduced.
Reference	N.A.
Target release date / Status	December 2020 (beta release)
Critical part of target user base	32 National Statistical Institutes and other national authorities engaged in the production of EU statistics EC DG's (policy analyst)

	End users (in particular data scientist) of statistics
For solutions already in operational phase - actual reuse level (	N.A.

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	**Common ESS statistical metadata platform**
Description	A shared platform available for publishers and users to expose ESS metadata assets to be used as a reference by ESS partners and external data brokers. It would include for instance reference statistical classifications and statistical concepts and definitions and actionable representations of GSBPM and GSIM The shared platform should also allow for experimenting new data access and data sharing use cases benefiting from ESS metadata. In particular, it should provide sustainable hosting of the relevant metadata involved in the LOD pilots realised by the ESSNET ON LINKED OPEN STATISTICS (2017- 2019) The infrastructure will preferably be hosted on EC platform and based on existing and open source solutions fostering replication in MS. It provides basic utility service for metadata management: bridging with existing data resources, upload and visualisation of metadata …
Reference	ESSnet on Linked Open Statistics Existing EC platform and commercial/open source semantic technology products
Target release date / Status	December 2018
Critical part of target user base	32 National Statistical Institutes and other national authorities engaged in the production of EU statistics Other Public Administration producing statistics Major commercial and non-commercial data brokers
For solutions already in operational phase - actual reuse level	N.A.

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	**Services for statistical metadata management and discovery**
Description	It will include 1) Services for mapping data and concepts (ontology): It will in particular extend the SDMX-RI utility services for data mapping and develop new services to map new data sources (IoT, administrative and transactional data ..) 2) Advanced data and metadata search/discovery services : it will provide enhance functionalities for the

	ESS Metadata Handler (ESS MH), it will in particular provide a new integrated user interface to established reference metadata like the reference statistical classifications (RAMON) and concepts and definitions (CODED)
Reference	SDMX-RI – ESS Metadata Handler – RAMON and CODED reference metadata
Target release date / Status	December 2020
Critical part of target user base	32 National Statistical Institutes and other national authorities engaged in the production of EU statistics End users (in particular data scientist) of statistics
For solutions already in operational phase - actual reuse level	N.A.

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	**Advanced ontology based interface to query EU statistics and other related sources**
Description	Provide an intuitive (ontology based) interface to query EU and related statistics and possibly confidential data sets (remote execution).
Reference	N.A.
Target release date / Status	December 2020
Critical part of target user base	32 National Statistical Institutes and other national authorities engaged in the production of EU statistics EC DG's (policy analyst) End users (in particular data scientist) of statistics
For solutions already in operational phase - actual reuse level	N.A.

3.6.5.8 Level of reuse of existing solutions

Question	Answer
Does the proposal intend to make use of any ISA[2], ISA or other relevant interoperability solution(s)? Which ones?	**Joinup** The reusable semantic assets delivered by the project will be made available to anyone by means of Joinup, **EIRA** - European Interoperability Reference Architecture EIRA will be used to document the solutions for data analytic and semantic metadata services .

	DCAT Application Profile for data portals in Europe in particular StatDCAT-AP The statistical ontology will seek full compatibility with StatDCAT-AP specification **EIC** - European Interoperability Cartography This tool will be use to look for existing building blocks and to inventorise new solutions Further synergies with existing **ISA2 projects** will be developed in particular "*Development of an open data service, support and training package in the area of linked open data, data visualisation and persistent identification*" and "*Big Data for Public Administration*"
Has the action reused existing interoperability solutions?	N.A.

3.6.5.9 Interlinked

Question	Answer
Does the proposal directly contribute to at least one of the Union's high political priorities such as the DSM? If yes, which ones? What is the level of contribution?	The proposal contributes to the priorities of the eGovernment Action Plan by improving the conditions for accessing public sector data and services and facilitating their re-use by third parties not only confined to official statistical data but enhancing broader data use benefitting citizen. The proposal contributes also to the Commission corporate strategy on maximising the use of data for policy-making (Data4Policy[72]) coordinating the efforts of ESTAT, CONNECT, JRC, DIGIT, OP and EPSC in the domain of data analytics. By providing enhanced data discovery, integration and analytics capabilities to EU and related statistics, the proposal will facilitate policy making and evaluation.

3.6.6 PROBLEM STATEMENT

Firstly, Web technologies have created new opportunities and expectations with respect to metadata and data discovery and analysis. In order to retain its position as a leading provider of statistical information in this rapidly evolving context, these agencies must upgrade their data integration capabilities and follow a more proactive approach in meeting the data needs of their key users. These technologies are not yet fully exploited by government statistical agencies.

Secondly, for a long time, statistical organisations in the ESS and beyond have been collaborating to harmonise concepts and definitions used in statistical production with a view to improving coherence

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[72] See COMMUNICATION TO THE COMMISSION
 On Data, Information and Knowledge Management at the European Commission 18.10;2016

and comparability of statistics produced for the EU. Standards and infrastructure for the exchange of statistical of data and metadata across the ESS have been developed and are operational. Despite the important metadata assets available their full potential to improve accessibility and boosting data analytics capabilities is not yet exploited.

The problem of	Still not satisfactory discoverability of open statistical data produced by government statistical agencies and capabilities for combining them with other sources
affects	End users and re-users of EU statistics
the impact of which is	Lowering value creation based on the existing data and difficulty to leverage new data sources ("big data")
a successful solution would be	Provide and expose the rich set of metadata available in the ESS as linked data to serve as reference for public administrations and external data brokers producing statistics

The problem of	Policy analysts that have assemble and analyse the statistical data to monitor and evaluate public policies requires technical skills to access official statistics and to combine them with other sources
affects	the depth and the timeliness of policy recommendations
the impact of which is	a risk to look for alternative data services and data brokers despite the inherent issues
a successful solution would be	Provide an intuitive and integrated data analytics workbench and services to combine and analyse seamlessly a broad variety of data sources and leveraging the wealth of official statistics produced in the ESS

The problem of	Increasing numbers of data sources coming from survey, public administrations and external sources generated by the digital world are still organised in silos making difficult to realise data integration
affects	NSIs statisticians that have to produce robust and high quality statistics combining these different sources
the impact of which is	difficulty for the industrialisation of the production of new statistics based on new information sources
a successful solution would be	To provide them with a rich metadata ecosystem and services that fosters the use of the various information sources available and provide capabilities to set up complex workflows combining different sources while ensuring traceability and reproducibility

3.6.7 IMPACT OF THE ACTION

3.6.7.1 Main impact list

Impact	Why will this impact occur?	By when?	Beneficiaries
(+) Savings in money	Avoid duplication of tasks in developing national centric ontologies for statistics	2019	NSIs and related public administration
(+) Savings in money	Economies of scale sharing a metadata platform in the ESS and reusing data/metadata platform building blocks and services	2019	NSIs and related public administration
(+) Savings in time	Straightforward and flexible access to ESS statistical data and resources	2020	External users and policy makers
(+) Savings in time	Speeding up uplifting of data architecture in MSs through reuse of semantic standards and building blocks	2019	NSIs
(+) Better interoperability and quality of digital public service	Reference ontology for statistics and related utility services to map data to reference concepts will boost cross domain and cross organisations data exchange and queries	2020	Public administration collecting and consuming data
(-) Integration or usage cost	Easier access and integration of official statistics data into analysis	2020	External data brokers and private companies

3.6.7.2 User-centricity

End user focus in the proposal is ensured by the close coupling of this initiative with the ESS Vision 2020 DIGICOM project that engaged proactively in a regular dialogue with end-users to understand deeper their needs. For instance, the LOD pilots to be carried out by a consortium of NSIs (ESSnet) funded by the DIGICOM project will right from the beginning engage with potential users to drive the benefits of LOD approaches for statistical dissemination.

NSIs which will be the main beneficiaries of reusable components will be associated to the project from the onset through the collaboration mechanisms put in place in the ESS (ESSnets projects, ESS Vision Implementation Network, ESS Enterprise Architecture Board).

EC policy DGs will be a central focus when developing the data analytic capabilities and will be actively involved during the collection of requirements. For this purpose, the project will benefit from the coordination mechanisms already in place at EC level for the implementation of the Data4policy strategy

3.6.8 EXPECTED MAJOR OUTPUTS

Output name	Enhanced governance for ESS statistical metadata

Description	The current metadata governance will be upgraded to integrate new functions like URI management, versioning, more decentralised management, coordination with other standards (SDMX, DDI, INSPIRE, W3C, LOD – standard vocabulary – DCAT, upper level ontologies …) Guidelines and policy for using and publishing on the shared platform will be provided.
Reference	
Target release date / Status	December 2019

Output name	Data protection and security
Description	Guidance and support for the handling and protection of confidential data (in the context of data analytics and remote execution) in line with ESS IT Security framework
Reference	ESS IT security framework
Target release date / Status	December 2018 and then continuous

3.6.9 ORGANISATIONAL APPROACH

3.6.9.1 Expected stakeholders and their representatives

Stakeholders	Representatives	Involvement in the action
ESTAT	Unit B1 – B2 (LISO) – B3 – B5	Co-project managers and solution providers
SEMIC community	StatDCAT-AP Working Group	Coordination and synergies
EC DGS (DG CONNET, JRC, DIGIT, PO)	EC DGs involved in EU open data policy and Data4policy	Coordination , feedback, reuse and integration with existing solutions
ESS NSI's	DIGICOM WP3 steering group and ESSnet Linked Open Data members	Expertise, consolidation of requirements
UNECE	Official statistics community involved in Modernisation of official statistics	Feedback, awareness, synergies

3.6.9.2 Identified user groups

Solution name	End users
Common ontology for official statistics	Data architects in 32 ESS NSIs (and potentially more, considering the role of the ESS in the global statistics environment) and in EU public administrations External data brokers (reusing EU statistics and producing statistics) (Citizen) Data Scientists

Common ESS statistical metadata platform	32 ESS NSIs and other (international) statistical organisations
Services for statistical metadata management and discovery	Users of EU statistics in general 32 ESS NSIs, EU public admistrations and other (international) statistical organisations Any organisation dealing with data production
Enhanced governance for ESS statistical metadata	32 ESS NSIs and other international statistical organisations
Advanced ontology based interface to query EU statistics and other related sources	Users of EU statistics in general 32 ESS NSIs, EU public administrations and other (international) statistical organisations External data brokers (reusing EU statistics and producing statistics)

3.6.9.3 Communication and dissemination plan

The proposal contributing both to the ESS Vision 2020 implementation project on Digital Communication and to the Commission initiative on Data4polycy it will benefit from well-established communication channels respectively, inside the ESS community, and, inside the EC Data information & knowledge management community

The main stakeholders and tentative related communication channels are:

European Commission	MyIntraComm Data4policy internal communication (share points) Ad hoc seminar and workshops in the framework of data4policy initiative Leaflets
Eurostat staff	Eurostat-Cybernews Eurostat-Infos Lunchtime presentations Ad hoc seminar and workshops
NSI staff	European Statistical Training Program (Linked Open Data course) Quartely newsletter on Vision implementation Videos and webinars on the Vision implementation
NSI management	Regular presentation of project advances (Vision Implementation Group) ESS Website Circabc and CROS Portal Leaflets
General Public	Eurostat website (ESS vision dedicated section) Joinup
Official statistics Community	Conferences, Workshops at UN(ECE) level Leaflets

3.6.9.4 Key Performance indicators[73]

Description of the KPI	Target to achieve	Expected time for target
Number of semantic assets	50% of ESS metadata assets are	By 2010

[73] KPI will be refined in the initaition phase of the project

(URIs) published on the ESS common metadata platform	published as LOD resources	
Number of members of the Join up community	At least 30 member increase per year	Till 2022
Number of NSIs and other public administrations reusing metadata management and query services	5 32+	By 2020 By 2025
Number of policy DG using data analytic workbench and service	8 All relevant DG's	By 2020 By 2025
Number of statistical domains providing advanced data analytics service to DG through the ISA2 solution	10	By 2020

3.6.9.5 Governance approach

Project owner: E. Baldacci, Director - Methodology; corporate statistical and IT services (ESTAT.B), chair of the Project Management Board (PMB).

The **PMB** will include the 4 Eurostat units (B1, B2, B3, B5) involved in the project, internal Eurostat stakeholders (e.g. geospatial unit, dissemination unit) and key EC stakeholders (OP , DIGIT …)

The project will report/link to different governance/advisory body

In Eurostat
- Eurostat IT Advisory Committee
- Eurostat Director's Meeting

In the ESS
- The ESS Task Force on Digital Communication;
- The ESS Working Group on standards and IT;
- The ESS Expert Group on IT security
- ESS IT Director's Group (ITDG);

At EC level,
- IT Governance: the IT Board for IT development
- ISA2 Governance bodies (through monitoring & evaluation reports, reporting about sub-delegated credits usage)
- The Data4 policy steering/sherpa group and thereby to the EC Data, Information and Knowledge management stakeholders

3.6.10 TECHNICAL APPROACH AND CURRENT STATUS

The project will align with the Reference Data Architecture for Official Statistics that is being developed at UNECE level. It leans on standard reference architecture for LOD focusing on the metadata component (see below). Architecture design for data analytics workbench will aligned with EIRA recommendation and models.
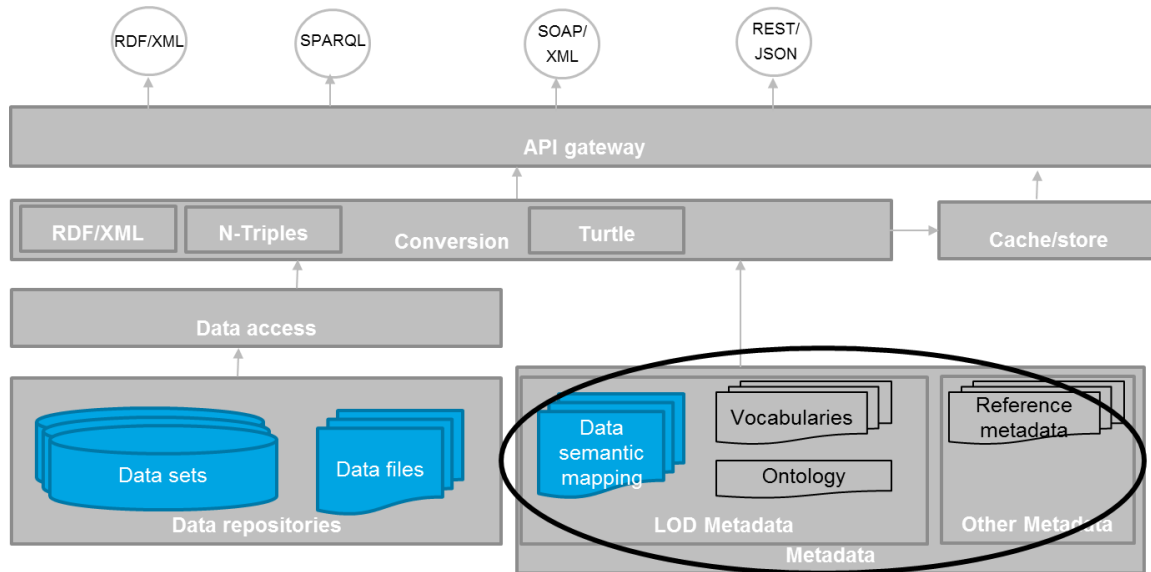
Task 1: Develop reference ontologies for statistics

Activities: Stocktaking of existing LOD initiatives and resources (EC, ESS, WW), analysis and review of ESS metadata assets, identification, development and testing of relevant standard models, collection of requirements, ESS governance for the new artefacts and standards, hands-on and guidelines.

Deliverables: Documentation of ESS metadata assets including theirs structure and characteristics, user requirements for the target data model, implementation of actual data models and resources, linkage possibilities between ESS metadata assets and data assets and other Linked Open Data/Metadata sources; Guidelines and hands on; Governance document.

Current status: Not started

Task 2: Build a shared platform and services for ESS metadata

Activities: Definition of use case, collection of requirements, architecture design, review of existing infrastructure building blocks (EC, ESS), solution design, acquisition/resue of technology/products, service and UI development/tailoring, configuration and deployment, testing and training

Deliverables:
- Solution architecture for the shared platform
- Integrated solution for the ESS metadata platform and service
- Where relevant : open source code for services
- Guidelines for usage, training and on site coaching

Current status: Not started

Task 3: Expose and provide access to ESS metadata

Activities: Conversion of existing metadata assets into the target model/format, quality and consistency checks, mapping with data resources and URIs

Deliverables:
- Key metadata assets exposed as RDF
- Catalogue of metadata, user documentation, hands-on

Current status: Not started

Task 4: Build a metadata driven data analytics workbench

Activities: Definition and piloting of use cases, collection of data analytics requirement for policy DG's, architecture design, review of existing infrastructure building blocks and solutions (EC, ESS) and market (open source) solutions, solution design, acquisition of technology/products, service and UI development/tailoring, configuration and deployment, testing and training

Deliverables:
- Solution architecture for the data analytics workbench platform and technical documentation
- Integrated platform for data analytics services

- Where relevant : open source code for services (e.g. cross organisation queries)
- User guidelines and hands-on, training and on site coaching

Current status: Not started

Task 5: Develop guidance and support for the security and management of confidential data in the context of data analytics

Activities: Define data classification scheme and the related risks. Analyse and develop guidance for required protection. Amend the ESS IT security framework to cover data analytic uses cases. Support to implementation including incident management

Deliverables:
- Risk analysis on data analytics services based on public and confidential datasets
- Updated ESS IT security framework and IT security policies
- Architecture patterns for "secured" data access and analytics

Current status: Not started

3.6.11 COSTS AND MILESTONES

3.6.11.1 Breakdown of anticipated costs and related milestones

Phase: Initiation Planning Execution Closing/Final evaluation	Description of milestones reached or to be reached	Anticipated Allocations (KEUR)	Budget line ISA/ others (specify)	Start date (QX/YYYY)	End date (QX/YYYY)
Inception	Project plan	0	ESTAT	Q4/2017	Q1/2018
Inception	Requirement and design for a shared metadata platform	100	ESTAT (ESSnet)	Q1/2018	Q2/2018
Execution	Reference ontology for statistics and metadadata asset release	600	ISA2	Q2/2018	Q4/2020
Execution	Shared ESS metadata platform with basic services	600	ESTAT 200 ISA2 400	Q3/2018	Q4/2019
Inception and Execution	Advanced metadata management and querying services for ESS	800	ISA2	Q1/2019	Q4/2020
Inception	Requirement and design for a data analytic platform and service	200	ESTAT	Q3/2018	Q4/2018
Execution	Data analytic platform and service	1200	ISA2	Q1/2019	Q4/2020
Execution	Security guidance, architecture	400	ISA2	Q3/2018	Q4/2019
	Total	3900	ISA2 3400 ESTAT 500		

3.6.11.2 Breakdown of ISA[2] funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2018	Execution	1000	
2019	Inception	300	
2019	Execution	1500	
2020	Execution	600	

3.6.12 Planning for the tendering procedures to be launched for the action

Call for tenders foreseen Global amount in KEUR	Call for Tenders Duration in years	Indicative planning of publication (QX/YYYY)
Call for tender: reference ontology for statistics (400k)	1,5 years	Q2 2018
Call for tender : security analysis, guideline and services (400k)	1 years	Q2 2018
Call for tender and/or specific contracts: advanced service for medata query and management (1200k)	2 years	Q2 2019

3.6.13 ANNEX AND REFERENCES

Description	Reference link	Attached document
ESS Vision 2020	http://ec.europa.eu/eurostat/web/ess/about-us/ess-vision-2020	-
Digital Communication DIGICOM) project factsheet and business case	http://ec.europa.eu/eurostat/documents/7330775/7339647/DIGICOM+fact-sheet+04032016/5b61143f-ca4d-4983-9436-fa8b72956800 http://ec.europa.eu/eurostat/documents/7330775/7339647/DIGICOM+Business+Case+1.0/8a2f1b42-4101-4208-9c49-1d1819604047	
Call for proposal ESSnet Linked Open Data		Annex I - Technical specifications.docx
ESS key metadata assets	http://ec.europa.eu/eurostat/data/metadata	
SDMX Standard	https://sdmx.org/	

SDMX Reference Infrastructure (SDMX-RI)	https://webgate.ec.europa.eu/fpfis/mwikis/sdmx/index.php/SDMX_Reference_Infrastructure_SDMX-RI	
Reference Data Architecture for Official Statistics	https://statswiki.unece.org/display/DA/Data+Architecture+Home	