

# PUBLIC MULTILINGUAL KNOWLEDGE MANAGEMENT INFRASTRUCTURE FOR THE DIGITAL SINGLE MARKET (2016.16)

## IDENTIFICATION OF THE ACTION

Type of Activity	Common services, common frameworks
Service in charge	Publications Office of the European Union OP.A2
Associated Services	CNECT.G3 DIGIT.D2 DGT.R3 European Parliament, DG TRAD, Terminology Coordination unit

## EXECUTIVE SUMMARY

In its open letter to the European Commission the European Language (Technology) Community claims: Europe's Digital Single Market must be multilingual!<sup>1</sup> EU cross-border online services represent only 4% of the global Digital Market and only 7% of small and medium sized enterprises (SMEs) in the EU are actually selling cross-border.<sup>2</sup> Providing support for the EU economy and in particular to SMEs to overcome the language barriers will help to unlock the e-Commerce potential within the EU.

The objective of this action is to support enterprises and in particular the language technology industry with the implementation of the necessary multilingual tools and features in order to improve cross-border accessibility of e-Commerce solutions. It will also be an input to the Connecting Europe Facility Automated Translation (CEF.AT) Platform, a common building block implemented through the CEF programme to be used by European cross-border online public services.

The Public Multilingual Knowledge Infrastructure (PMKI) will be governed by a representative subgroup of stakeholders of the final system.

In this context multilingual tools and features refer to capabilities such as machine translation, localisation and multilingual search. The Public Multilingual Knowledge Infrastructure should reduce the investments of enterprises for the creation of their individual knowledge management systems by providing an agreed, open, reliable and persistent public core knowledge management system. This would also create space for innovation instead of wasting resources for redundant activities.

Public administrations and public entities within the EU will largely benefit from this initiative, in particular regarding the internationalisation of their e-Services. They will be able to share and to

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<sup>1</sup> See <https://ec.europa.eu/futurium/en/content/european-language-and-language-technology-community-europes-digital-single-market-must-be>

<sup>2</sup> See [http://europa.eu/rapid/attachment/IP-15-4653/en/Digital\\_Single\\_Market\\_Factsheet\\_20150325.pdf](http://europa.eu/rapid/attachment/IP-15-4653/en/Digital_Single_Market_Factsheet_20150325.pdf)

valorise existing taxonomies/terminologies and to extend their multilingual capabilities. This will also help to increase the interoperability between public administrations within EU in general.

To realise the Public Multilingual Knowledge Infrastructure the following aspects need to be addressed:

- Implementation of a technical infrastructure to expose existing multilingual taxonomies/terminologies in a standardised way based on semantic technology and Semantic Web standards;
- Implementation of existing alignments between terminologies and creation of further alignments and relations in order to enable interoperability;
- Creation and maintenance of meaningful supplements, i.e. of terms and relations that complete the coverage of the multilingual knowledge infrastructure and facilitate interoperability;
- Set-up of a community and a governance structure to extend systematically the coverage of the core infrastructure by the integration of supplementary public multilingual taxonomies/terminologies.

The cornerstone of the Public Multilingual Knowledge Infrastructure will be EuroVoc, the multilingual, multidisciplinary thesaurus covering the activities of the EU, which is managed by the Publications Office. The project will also benefit from already existing alignments of EuroVoc with other thesauri (Agrovoc, Eclas, Gemet, Anubis and Inspire<sup>3</sup>).

In addition, it should be investigated how the publication of the information as Linked Open Data (LOD) could be enhanced by introducing lexical semantic links between semantically equivalent and similar entities in an automatized way.

## OBJECTIVES

The objectives of the proposed activity are:

- To provide an agreed, reliable, persistent and extensible public multilingual knowledge platform for multiple purposes and for multiple stakeholders composed of open public multilingual resources.
- To increase the interoperability of existing multilingual terminologies, in particular by aligning and linking them with other existing terminologies. Linking will enable at the same time specialisation (for example by linking a concept of a more general taxonomy/terminology with the corresponding concept of a domain specific taxonomy/terminology) and broadening (for example by linking similar concepts at the same level of granularity).
- To establish the initial governance structure to support and to supervise the execution of the project as well as the implementation, the management and the evolution of the final system.
- To contribute to the further standardisation of data models for thesauri and lexical knowledge database representations using latest semantic technologies.
- To support the contributing institutions with the transformation of their resources into adopted semantic format of the platform.
- To further develop the LOD capabilities of the system, in particular by enhancing the creation of semantic links between similar and related concepts.

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<sup>3</sup> See <https://open-data.europa.eu/en/data/dataset/eurovoc>

## SCOPE

The objective of the proposed activity in the scope of the ISA<sup>2</sup> programme is to verify the feasibility of the approach and to prepare the technical and the organisational aspects for the definitive and permanent implementation of an open Public Multilingual Knowledge Infrastructure managed by the EU Institutions.

Nevertheless, it will deliver already results, which could be used and applied by public administrations and bodies of Member States and EU Institutions independent from the Public Multilingual Knowledge Infrastructure project itself.

In scope:

1. Adoption of a standard representation for multilingual terminologies (candidates include SKOS<sup>4</sup>, Lemon<sup>5</sup>...).
2. Definition of a core data model based on the standard representation in order to facilitate the interoperability between different terminologies, i.e. through a shared set of metadata, and to harmonise the representation of the data, which will be made available through the platform.
3. Specification of the technical architecture of the Public Multilingual Knowledge Infrastructure and the necessary services to access and to manage the system.
4. Proof of concept – implementation of a first operational release of the system to demonstrate the core services of the system.
5. Set-up/adoption of an adequate initial governance structure.
6. Definition of an iterative implementation strategy, i.e. the specifications and the roadmap for the extension of the initial release of the system into a public service, which will be managed, further developed and maintained by the EU Institutions and governed by all contributors, i.e. in particular public entities within in EU. The result of the proof of concept should be reused for the implementation of the final system.
7. Feasibility study in order to analyse and to test the creation of lexical semantic links between semantically equivalent and similar entities in an automatized way.
8. Feasibility study for the use case of multilingual semantic indexing. PMKI's multilingual knowledge base with its alignments between taxonomies/terminologies should improve the quality of indexation and, in consequence, help to improve document search and retrieval services, including content disambiguation, geolocalisation, cross-collection and multilingual indexing.

Out of scope:

1. Implementation of the definitive, permanent platform, made available as a public service and free of charge.
2. Management, further development and maintenance of the definitive system.

## ACTION PRIORITY

The creation of a Public Multilingual Knowledge Infrastructure contributes to the overcoming of language barriers, in particular in the context of the implementation of a Digital Single Market. It should

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<sup>4</sup> See <http://www.w3.org/2004/02/skos/>

<sup>5</sup> See <http://lemon-model.net/index.php>

also help to reduce the investments of the different stakeholders in cross-border e-commerce solutions and multilingual eGovernment solutions and to enhance the linguistic quality of the solutions.

### Contribution to the interoperability landscape

*The contribution of the action to the interoperability landscape, measured by the importance and necessity of the action to complete the interoperability landscape across the Union*

Question	Answer
<p><i>How does the proposal contribute to improving interoperability among public administrations and with their citizens and businesses across borders or policy sectors in Europe?</i></p> <p><i>In particular, how does it contribute to the implementation of:</i></p> <ul style="list-style-type: none"> <li>• <i>the new European Interoperability Framework (EIF),</i></li> <li>• <i>the Interoperability Action Plan and/or</i></li> <li>• <i>the Connecting European Facility (CEF) Telecom guidelines</i></li> <li>• <i>any other EU policy/initiative having interoperability requirements?</i></li> </ul>	<p>The proposal meets the recommendations included in the EIS. In particular the adherence to specific standards for describing language resources and the creation of an interoperability platform to manage them comply with the main approaches and “clusters” of the EIS (reusability of the solutions, interoperability service architecture in the EU multilingual context, implication of ICT on new EU legislation, as well as promotion of the awareness on the maturity level and of the shareability of the public administration services). Similarly, the proposal meets the recommendations and principles of the European Interoperability Framework (EIF)<sup>6</sup>, in particular as regards multilingualism, accessibility, administrative simplification, transparency, reusability of the solutions. The creation of a Public Multilingual Knowledge Infrastructure will support EU public administrations to create services that can be accessible and shareable independently from the language actually used, as well as the SMEs to sell goods and service cross-border in a digital single market.</p> <p>Moreover this action meets the Strategic Agenda 18-month Programme of the Council (1st July 2017 – 31 December 2018) as far as the focus on growth and competitiveness strategic objectives is concerned. According to such programme</p>

<sup>6</sup> COM(2010) 744 final Annex 2, [http://ec.europa.eu/isa/documents/isa\\_annex\\_ii\\_eif\\_en.pdf](http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf)

	<p>to achieve such strategic objectives one of the priorities is actually the effective development of the European Single Market representing one of the most significant sources of economic growth. In particular the creation of a Digital Single Market (DSM) is one of the main driver for creating employment and foster competitiveness. The PMKI action is aiming to contribute to it by facilitating connectivity and advancing the development of a competitive and fair DSM by encouraging cross-border e-commerce, and overcoming language barriers. The DSM has to be multilingual. The project contribution to the development of cross-border digital public services is also aligned with the EU e-Government Action Plan 2016-2020.</p>
<p><i>Does the proposal fulfil an interoperability need for which no other alternative action/solution is available?</i></p>	<p>This action represents a tremendous opportunity to harmonize the different language resources managed by EU institutions (for example EuroVoc, IATE, glossaries searchable on GlossaryLinks of the DG TRAD, etc.), as well as the national resources managed by Member States, and, first of all, to make them interoperable.</p>

### Cross-sector

*The scope of the action, measured by its horizontal impact, once completed, across the policy sectors concerned.*

Question	Answer
<p><i>Will the proposal, <b>once completed</b> 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.</i></p>	<p>This action aims at establishing multilingual interoperability of language resources; therefore it will support the creation and the improvement of multilingual interoperability services, as cross-collection and cross-language information retrieval, as well as automated</p>

	<p>translation services.</p> <p>It will contribute therefore to overcome the language barriers that are one of the obstacles for the further development of Digital Single Market in the EU, which represents one of the main priorities of the European Commission. In particular it addresses all the three policy areas of such priority:</p> <ul style="list-style-type: none"> <li>- Better online access to digital goods and services;</li> <li>- An environment where digital networks and services can prosper;</li> <li>- Digital as a driver for growth.</li> </ul>
<p><i>For proposals completely or largely <b>already in operational phase</b>, indicate whether and how they have been utilised in two (2) or more EU policy sectors.</i></p>	<p>This proposal is not in operational phase yet.</p>

### Cross-border

*The geographical reach of the action, measured by the number of Member States and of European public administrations involved.*

Question	Answer
<p><i>Will the proposal, <b>once completed</b>, 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.</i></p>	<p>By guaranteeing interoperability of language resources in all the 24 official languages of the EU, this proposal has the potential of improving the service interoperability of public administrations of all EU Member States, candidate countries or EFTA States.</p>
<p><i>For proposals completely or largely <b>already in operational phase</b>, indicate whether and how they have been utilised by public administrations of three (3) or more EU Members States.</i></p>	<p>This proposal is not in operational phase yet.</p>

## Urgency

*The urgency of the action, measured by its potential impact, taking into account the lack of other funding sources*

Question	Answer
<i>Is your action urgent? Is its implementation foreseen in an EU policy as priority, or in EU legislation?</i>	<p>The outcomes of this action can greatly improve the accessibility of EU and Member States' legislation and related information systems by promoting the interoperability of the language resources used for automatic translation, as well as multilingual classification and indexing. Moreover, it will promote e-commerce solutions and related services which will rely on an agreed, authentic and persistent set of multilingual interoperable terminologies. This action is in particular foreseen in the framework of the creation of a European Digital Single Market, which is one of the priorities of the European Commission, aimed at supporting the EU economy (in particular the SMEs) to overcome the language barriers in order to unlock the e-Commerce potential within the EU.</p> <p>A prompt implementation of such proposal will have direct beneficial impacts on the addressed fields.</p>
<i>How does the ISA<sup>2</sup> scope and financial capacity better fit for the implementation of the proposal as opposed to other identified and currently available sources?</i>	<p>The proposal is specifically addressed to improve the interoperability of language resources and the services for public administration, SMEs and citizens. These are specific objectives of the ISA<sup>2</sup> which therefore fits to it better than other actions. In fact rather than other framework programmes, like for example Horizon 2020 mainly devoted to research and innovation or CEF mainly devoted to the implementation of the digital networks and infrastructures for the interoperability of digital services, ISA<sup>2</sup> represents the suitable programme for leveraging research results and implementing state-</p>

	of-the-art semantic technologies for creating interoperability solutions to overcome language barriers in the EU digital market of goods and services.
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## Reusability of action's outputs

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	Core data model for multilingual taxonomies/terminologies
Description	<p>Formal definition of the core data model for multilingual taxonomies/terminologies and its necessary extensions that will be implemented by the Public Multilingual Knowledge Infrastructure.</p> <p>The approach should be flexible in the way that data providers would be able to define private extensions, which would allow the upload of supplementary data that is available on their side and that could be useful for re-users.</p> <p>The aspects "provenance" and "license" have also to be taken into account.</p>
Reference	PUB_MUL_TERM_FORMAT
Target release date / Status	Q4/2017
Critical part of target user base	n/a
For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	Not in operational phase

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	Semantic links
Description	<p>A core dataset with additional semantic links between different language resources (in particular having EuroVoc as pivot) will be available.</p> <p>This includes the development of a mapping approach based on language-independent algorithms respectively the combination of algorithms for semi-automatic mapping between multilingual language resources.</p> <p>The purpose is to demonstrate the potential of semantic technology in order to improve the semantic connectivity among multilingual knowledge resources (thesauri, vocabularies, classification schemes, etc.).</p>
Reference	PUB_MUL_TERM_SEMANTIC
Target release date / Status	Q4/2018
Critical part of target user base	n/a

For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	Not in operational phase
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Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	PMKI platform (operational prototype)
Description	An operational prototype of the PMKI platform (repository and core services) will be available. It will be meant to demonstrate the potential of the interoperability approach in the field of multilingual language resources and can be reused for the eventual implementation of a real production system.
Reference	PUB_MUL_TERM_POC
Target release date / Status	Q1/2019
Critical part of target user base	n/a
For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	Not in operational phase

Name of reusable solution to be produced (for new proposals) or produced (for existing actions)	Multilingual semantic indexing
Description	Feasibility study on documents multilingual semantic indexing. Using PMKI results on multilingual alignment between taxonomies/terminologies, the aim is to test semantic indexing facilities for improving document search and retrieval services.
Reference	PUB_MUL_TERM_INDEXING
Target release date / Status	Q2/2019
Critical part of target user base	n/a
For solutions already in operational phase - actual reuse level (as compared to the defined critical part)	Not in operational phase

## Level of reuse of existing solutions

The re-use by the action (following this proposal) of existing common frameworks and interoperability solutions.

Question	Answer
<i>Does the proposal intend to make use of any ISA<sup>2</sup>, ISA or other relevant interoperability solution(s)? Which ones?</i>	The proposal will make use of VocBench 3.x for the management of the language resources that will be exposed on the operational prototype of the PMKI platform. VocBench 3.x is developed in the context of the ISA <sup>2</sup> programme.
<i>For proposals completely or largely <b>already in operational phase</b>: has the action reused existing interoperability solutions? If yes, which ones and how?</i>	N/A

## Interlinked

Question	Answer
<i>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?</i>	<p>This action contributes in particular to the Digital Single Market (DSM) priority of the European Commission (see chapter 1.1.5.2).</p> <p>In fact, by providing interlinked multilingual semantic web oriented datasets, this action aims to provide support to SMEs, in particular the language technology industry, as well as public administrations, for developing multilingual digital services able to overcome language barriers for digital services and help to unlock the e-Commerce and public e-services potential within the EU.</p> <p>The project will also provide the necessary set of tools (algorithms for semantic mapping and dataset dissemination web platform), able to set the foundations to guarantee maintenance and long-term sustainability of the service.</p> <p>Moreover, this action can contribute to the</p>

	<p>Connecting Europe Facility (CEF) programme, in particular to the Automated Translation (CEF.AT) service. It can be used for better leveraging data to support customisation and adaptation in CEF.AT. PMKI will be a source of parallel data to build/reinforce machine translation systems, in particular specific domain systems adapted to specific terminology and text types customised for the usage context (tender terminology, medical terminology, etc.).</p> <p>In general, the availability of such interoperable multilingual documents represents effective new parallel data that can contribute to improve and/or to develop machine translation systems with gradable machine translation quality for such specific domains.</p> <p>PMKI can offer also a good support to human translators providing resources such as dictionaries, thesauri, etc. These resources can be accessible from CAT "Computer Aided Translation" tools. For instance at the European Union institutions (Commission, Parliament, etc.), translators are using a customised version of SDL Trados Studio, or other CAT tools developed locally such as CAT4TRAD used at the European Parliament which these PMKI languages resources can be connected to and be accessible to the translators in order to help them in their daily translation work (for instance to find the target version of certain terms, or to disambiguate certain translations). Also, it can offer the possibility to browse available semantic networks (e.g., EuroVoc, etc.)</p> <p>Finally, the availability of interoperable multilingual documents will be a good source of data production not only for Machine Translation but for all Natural Language Processing applications mainly for under-resource languages, thanks to the cross-lingual and cross-collection</p>
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	concepts of documents.
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**PROBLEM STATEMENT**

The problem of	language barriers due to the 24 official EU languages
affects	the European Digital Single market causing its fragmentation and falling short of its economic potential
the impact of which is	that almost half of European citizens never shop online in languages other than their native tongue. Moreover the access to public e-services is usually restricted to national languages and the richness of EU educational and cultural content is confined within linguistic communities. European SME's are at particular disadvantage, because the cost of providing services in multiple languages is prohibitive and has a negative impact on their competitiveness.
a successful solution would be	<p>a Public Multilingual Knowledge Infrastructure which will contribute to reduce and to secure the investments of the different stakeholders in cross-border e-commerce solutions and related services because part of their implementation could rely on an agreed, authentic and persistent set of multilingual terminology.</p> <p>Because the contributions for the Public Multilingual Knowledge Infrastructure will come from different stakeholders (essentially public administrations and bodies of EU Member States, EU Institutions and international organizations) the challenge is to build a system, which empowers the stakeholders to manage the development and evolution of their taxonomies/terminologies on an individual base, but at the same time enables interoperability through alignment and linking.</p> <p>The only constraint should be that stakeholders have either to adopt the core data model proposed by the Public Multilingual Knowledge Infrastructure or, at least, have to be able to perform the necessary transformations to provide new releases in compliance with the core data</p>

	model. Ideally, new releases have to be provided in a way that they can be integrated largely automatically.
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The problem of	searching heterogeneous legal data sources in a scenario where information is spread in a distributed and multilingual environment
affects	the cross-border expansion of enterprises business. The knowledge of business regulations of a target country, in relation to domestic and European law, as well as the certainty of rights are, in fact, pre-conditions for any enterprise international business expansion
the impact of which is	that enterprises international marketing and growth strategies can be hampered
a successful solution would be	having multilingual language resources endowed with reliable mutual links so that effective multilingual indexing, search and retrieval services can be implemented. This will increase interoperability among legal information systems, as well as provide users with a seamless navigation experience. The PMKI solution will be able to support law accessibility services in different languages and legal systems, thus promoting the knowledge and the uniform application of the law.

The problem of	translation in specialized domains
affects	the accessibility of digital cross-border services
the impact of which is	a barrier hampering the exploitation of digital services in the European Single Market as one of the main contributions for offering new opportunities to citizens and businesses unlocking innovation and potential growth, in particular as far as the small, medium-sized enterprises and start-ups is concerned
a successful solution would be	to utilize the PMKI datasets to localize digital services in different languages (for example the product taxonomies of the e-commerce solution of a SME).

## IMPACT OF THE ACTION

### Main impact list

Impact	Why will this impact occur?	By when?	Beneficiaries
(+) Savings in money	PMKI will contribute to the maintenance and extension of multilingual language resources as well as their interoperability. The result will be a public service which prevents the language industry and public administrations to invest money on similar but proprietary solutions for implementing multilingual digital services. This will allow stakeholders to save money in favour to other investments, as well as to profit of the PMKI interoperability solutions.	After the service will enter in an operational phase	EU Institutions Member States EU language technology industry Terminology community
(+) Savings in time	Similar arguments as the above hold about the possibility to save time for PMKI stakeholders while profiting of the PMKI interoperability solutions for managing multilingual language resources	After the service will enter in an operational phase	EU Institutions Member States EU language technology industry Terminology community
(+) Better interoperability and quality of digital public service	The availability of semantic links between concepts from different multilingual language resources, described by proper semantic web standards, paves the way to the development of interoperable and high quality digital services	After the service will enter in an operational phase	EU Institutions Member States EU language technology industry Terminology community
(+) Integration	The PMKI service facilitates the integration of PMKI	After the service will enter in an	EU Institutions Member States

	stakeholders (mainly SMEs and public administrations) in the European Digital Single Market of goods and services, by overcoming language barriers and unlocking the e-Commerce potential within the EU	operational phase	EU language technology industry Terminology community
(+) Costs reduction for stakeholders	Stakeholders will greatly benefit from the PMKI services in terms of investments for maintaining and updating their multilingual digital services. Moreover, the use of semantic web technologies will contribute to costs reduction as for software development and long-term sustainability of the digital services.	After the service will enter in an operational phase	EU Institutions Member States EU language technology industry Terminology community

## User-centricity

PMKI services are addressed to different kind of users, which can be mainly distinguished into data contributors and data consumers.

Data contributors are basically public administrations managing specific vocabularies or taxonomies around which their web services are organized and classified.

The globalization of the operational scenarios causes a natural demand of cross-border extension of such services in terms of multilingualism and interoperability.

PMKI will be able to support the implementation of such services, allowing data contributors to upload and share language resources, harmonize their technical formats, localize them in different languages, as well as linking them with other resources in order to establish interoperability between digital services.

Another typology of users is represented by data consumers, having the possibility to access the PMKI data in order to build or expand digital services, so to be accessible and interoperable cross-borders. Such users can benefit from PMKI because it allows to improve or to obtain language resources around which developing multi-lingual, interoperable, open standard-based digital services. For them the project aims to play the role of a “market place” of controlled vocabularies, with language localization and aligning facilities. In this respect PMKI can represent the foundation for providing services for different groups of stakeholders, in particular for public administrations, industries and, as a consequence for the citizens exploiting such services.

## EXPECTED MAJOR OUTPUTS

Output name	Governance structure
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Description	Proposal for an adequate governance structure for the supervision of the Public Multilingual Knowledge Infrastructure.
Reference	PUB_MUL_TERM_GOVERNANCE
Target release date / Status	Q3/2017

Output name	Implementation strategy
Description	Proposal of an iterative implementation strategy in order to prepare the political decision about whether the EU institutions will support the implementation of the Public Multilingual Knowledge Infrastructure and, if yes, how the system should be managed and financed.
Reference	PUB_MUL_TERM_STRATEGY
Target release date / Status	Q2/2019

Output name	Community building
Description	Proposal for implementation and organisation of a community (contributors, users...) to drive the further evolution of the system and of the language resources.
Reference	PUB_MUL_TERM_COMMUNITY
Target release date / Status	Q2/2019

## ORGANISATIONAL APPROACH

### Expected stakeholders and their representatives

Stakeholders	Representatives	Involvement in the action
EU Institutions	European Parliament DG TRAD, Terminology Coordination Commission DIGIT DG DGT DG CONNECT Publications Office of the EU	Execution and governance. Collection of requirements and data.
International organisations	FAO	Collection of requirements and data.
Member States	Public administrations	Collection of

		requirements and data
Language technology industry	For example the companies represented by the LT innovate Association	Collection of requirements
Research community	Universities and research institutions that are active in this area	Collection of requirements and data

## Identified user groups

- Member States (public administrations involved in "internationalisation" and "eGovernment" initiatives)
- Implementers of eGovernment solutions
- European Institutions and bodies
- Language Technology Industry and their customers
- Citizens
- Candidate countries, EFTA and other countries (public administrations involved in "internationalisation" and "eGovernment" initiatives)

## Communication and dissemination plan

The following table presents a first rough idea of a communication plan based of the different beneficiaries/interest groups, which have been identified in a first phase.

The existing platforms of the ISA<sup>2</sup> programme in the domain of language technology will be taken into account for the set-up of an adequate communication platform.

Beneficiaries	Communication channel	Frequency
EU economy	Web (information about the activity on Joinup, publicity on the Publications Office and other EU Institutions websites)	Regular updates during the lifetime of the project.
EU language technology industry	Web (information about the activity on the ISA <sup>2</sup> website, publicity on the Publications Office and other EU Institutions websites)  Conferences (delivery of presentations)	Regular updates during the lifetime of the project.  1 to 2 conferences per year
Member States	Web (information about the activity on the ISA <sup>2</sup> website, publicity on the Publications Office and other EU Institutions websites)  Workshops (organisation of dedicated workshops with	Regular updates during the lifetime of the project.  1 to 2 workshops per year

	interested Member States)	
EU Institutions	Meetings  Workshop (organisation of dedicated workshops with interested services)	Regular meetings of the EU institutional stakeholders  1 to 2 workshops per year
Terminology community	Conferences (delivery of presentations)	1 to 2 conferences per year
Semantic Web community	Conferences (delivery of presentations: SEMIC, dedicated conferences...)	1 to 2 conferences per year

## Key Performance indicators

For 2018, the following key performance indicators are targeted:

Description of the KPI	Target to achieve in 2018	Expected time for target
Meetings held with stakeholders (institutions, research community, language technology industry)	12	Q4/2018
Participation in external events (conferences, workshops)	8	Q4/2018
Steering Committee meetings	2	Q4/2018
Final of deliverables	1	Q4/2018
Deliverables with a progress of more than 50%	2	Q4/2018

## Governance approach

The governance of the execution of the ISA<sup>2</sup> action itself is ensured by a Steering Committee composed of the associated EU Institutions and services.

The proposal of a governance approach for the management of the PMKI platform in a real production context will be one of the deliverables of the ISA<sup>2</sup> action.

It will involve project stakeholders to supervise PMKI management and assessing its results, as well as to drive the further evolution and of the system, thus guaranteeing maintenance and long-term sustainability of the service.

Basically the PMKI governance structure will be targeted to negotiating and deciding amongst different stakeholders' value interests. Consequently, it should implement the most suitable delegations chain and decision-making structure that considers all stakeholders when making benefit, risk and resource assessment decisions in the project. Taking into account the usefulness of PMKI services for EU

institutions, public administrations and language technology industry, all those beneficiaries will be represented in the PMKI governance structure.

This proposal will be discussed with a representative subset of potential of the final system stakeholders.

## COSTS AND MILESTONES

### Breakdown of anticipated costs and related milestones

Phase: Initiation Planning Execution Closing/Fin al 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 organisation has been set-up	60		Q3/2016	Q4/2016
Execution	Standard representation has been adopted	50		Q4/2016	Q1/2017
Execution	Core data model and a first set of extensions have been defined (including documentation)	150		Q4/2016	Q4/2017
Execution	Technical architecture has been defined	50		Q2/2017	Q1/2018
Execution	Proposal for an adequate governance structure has been defined	50		Q1/2017	Q3/2017
Execution	First release of the system (operational proof of concept)	300		Q3/2018	Q1/2019
Execution	Proposal for the implementation strategy	60		Q1/2019	Q2/2019
Execution	Creation of the community	60		Q4/2018	Q2/2019
Execution	Feasibility study for the enhancement of the semantic	70		Q3/2017	Q4/2018

	capabilities of the platform				
Execution	Feasibility study on multilingual semantic indexing	50		Q2/2018	Q2/2019
Execution	Project management support	90		Q1/2018	Q2/2019
	<b>Total</b>	990			

### Breakdown of ISA<sup>2</sup> funding per budget year

Budget Year	Phase	Anticipated allocations (in KEUR)	Executed budget (in KEUR)
2016	Inception/execution	160	
2017	Execution	344	
2018	Execution	320	
2019	Execution	166	

### 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)
300	2	Q3/2018