



Collaborating on interoperability to achieve a Digital Single Market

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OUTLINE

- 1. Digital Single Market**
- 2. Interoperability in the Digital Agenda for Europe and the Data Value Chain strategy**
- 3. Semantic interoperability**
- 4. Conclusion**

"DSM" in the EU policy context



- **A strategy for smart, sustainable and inclusive growth**
- A vision to achieve **high levels of employment, a low carbon economy, productivity and social cohesion**, to be implemented through concrete actions at EU and national levels.

- One of the seven flagship initiatives of Europe 2020, set out to **define the key enabling role that the use of ICTs will have to play if Europe wants to succeed in its ambitions for 2020.**
- **The overall aim [...] is to deliver sustainable economic and social benefits from a digital single market [...]**

- **Action 3: Open up public data resources for re-use**

"The Commission is invited to **make rapid progress in key areas of the digital economy to ensure the creation of the Digital Single Market by 2015, including [...] the availability of public sector Information.**"

Conclusions of the European Council (4 February 2011)



Conclusions of the European Council of 24/25 October 2013 in relation to Big Data

- *Enhancing the potential of 'Big Data' and "data-driven innovation"*
- *Technologies building on 'Big Data' are "important enablers for **productivity and better services**"*
- *Need to complete the **Digital Single Market** by 2015*
- ***Improve public services** through e-government, e-procurement, e-health and e-invoicing services*
- *Importance of an integrated approach to R&I& market deployment through **better coordination of grants, venture capital and pre-commercial procurement***

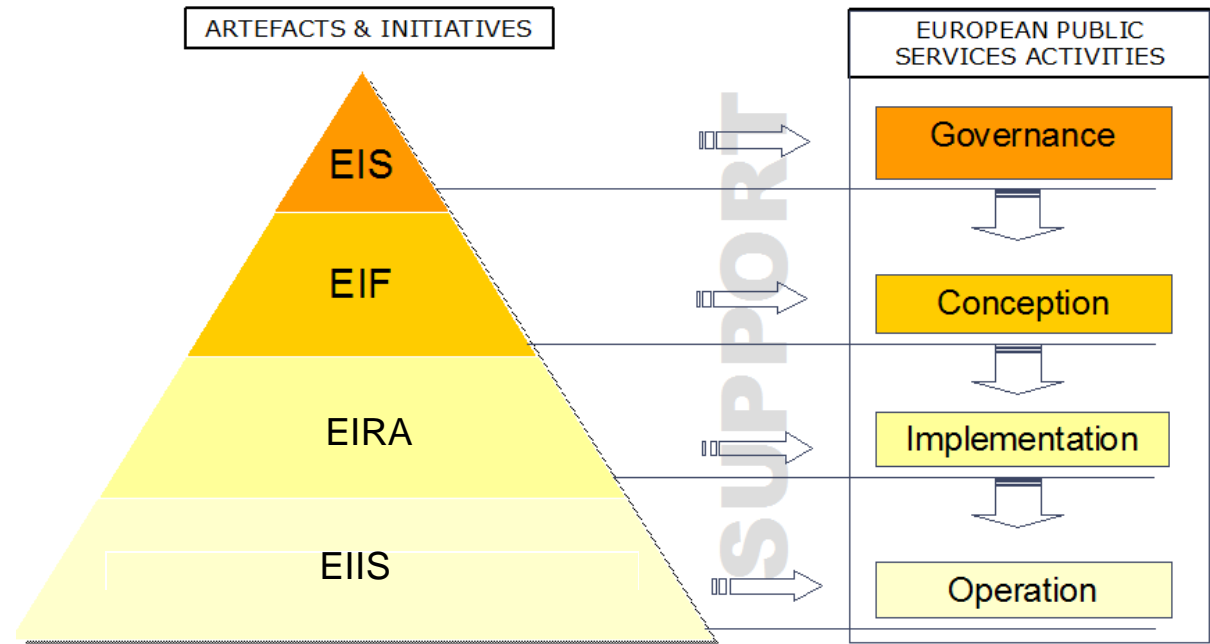
Interoperability



the ability of
disparate organisations,
to interact towards agreed goals,
by sharing information
through their business processes,
by means of exchanging data
between their IT systems

DAE Pillar II – Interoperability and Standards:

EC adoption of the Communication “Towards interoperability for European public services” in December 2010, that included the:



- European Interoperability Strategy (EIS)
- European Interoperability Framework (EIF)

Interoperability levels

Cooperating partners with compatible visions, aligned priorities, and focused objectives

Political Context

Aligned legislation so that exchanged data is accorded proper legal weight

Legal Interoperability

Legislative Alignment

Coordinated processes in which different organisations achieve a previously agreed and mutually beneficial goal

Organisational Interoperability

Organisation and Process Alignment

Precise meaning of exchanged information which is preserved and understood by all parties

Semantic Interoperability

Semantic Alignment

Planning of technical issues involved in linking computer systems and services

Technical Interoperability

Interaction & Transport



Interoperability in the Data Value Chain

- The **Data Value Chain approach** takes into account all the 4 layers of interoperability (legal, organisational, semantic, technical).
- The viability of a common "**data ecosystem**" depends to a great extent on how the interoperability issue is solved.
- Interoperability is an **important framework condition** of data driven innovation

Interoperability layers:

➤ ***Legal interoperability:***

commonly accepted and adopted legal framework
*forms the basis of building a functioning data
economy, based on **effective exchange and re-use
of data.***

*For example, the **PSI directive** guarantees that
public data assets are accessible to those who want to
build value on them.*

Organisational interoperability

- Data exchanges in value chains are only possible if organisations are able to pass data to and from each other.

The CEF programme sets up fundamental processes and systems for such interoperability (e.g. document exchange, eSignature & eID, the Open Dispute Resolution system (ODR) that allows unhappy consumers across Europe to communicate with merchants and consumer law enforcement in view of solving their problems).

Semantic interoperability

- *It is important to make sure that we **all agree and understand the meaning of concepts** that we use.*
- *The **variety of different languages** in EU adds a specific challenge to this layer of interoperability.*
- *We have **different names for concepts** in the different EU countries, but we also have **different concepts** that do not always match.*
- *Promoting the use of **agreed core vocabularies** (as those available in JoinUp),*
- *The **mapping of concepts** at the Member State level.*

Technical and syntactic interoperability

- Promote **standard data formats and exchange protocols**, especially in systems that are meant to work across national boundaries and across industry sectors (e.g. the pan-European digital services of CEF).
- Majority of data is **unstructured** (e.g. pictures, videos, tweets or blog posts on current events). We also have to be able to **process, analyse and visualise** this "wild" data, as it often contains the most valuable and timely information (R+I in H2020)

Conclusions

- Growing data economy offers fantastic **opportunities** for new business
- **Interoperability is still a barrier to develop cross-border services**
- **Multilingualism in Europe** increases the complexity of semantic interoperability
- The **EC is committed to support** to improve European data driven competitiveness



DIGITAL AGENDA FOR EUROPE

A Europe 2020 Initiative

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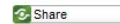
Data

- About
- Data value chain
- Open Data

Content & Media

- Cultural Heritage
- Media Policies
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Data



Data is everywhere and has an impact on almost every part of human life. Whatever we do today, chances are high that we need to use data - regardless of whether we know about it or not. [\(more about data\)](#)



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Press Releases

- Factsheet: What is big data? (07/11/2013)
- Consultation on best ways to open up more public data (30/08/2013)

Speeches

- Big data for Europe (Neelie Kroes, Vice-President of the European Commission responsible for the Digital Agenda, 07/11/2013)

More info and updates:

<https://ec.europa.eu/digital-agenda/en/content-and-media/data>



Thank you!