Data Interoperability Act (DIA)

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ABSTRACT

This article advocates to step up harmonization efforts for data interoperability. Those efforts should be industry led. The results of these efforts should lead to standards recognized by European (EU) legislation.

Based on them, a third pillar, the **Data Interoperability Act (DIA)** complementing the **Digital Markets Act** (**DMA**)[1] and the **Digital Services Act (DSA)[2]** providing a general legal framework for data interoperability should be drawn up.

INTRODUCTION

Data are the key asset for the digitalization of industries, administrations and many other players.

Big data, data mining, artificial intelligence (A.I.), internet of data, industrial internet (Industry 4.0), G5-technology are just some of the key developments which come to mind.

A vast majority of data is unstructured. Unstructured data hinder the analysis of data. Data pools are often small and not inter-connected.

It is beyond discussion that data-interoperability would help to improve significantly the exploitation of available data sets.

Considerable efforts towards data interoperability have been undertaken already:

Ø Use of defined data description standards like XML or JSON;

Ø Data models, ontologies, taxonomies; the work of Schema.Org[3] (RDFa, microdata and JSON-LD)

Ø Meta-data registries[4];

Ø Open Data[5] and Linked Open Data (LOD)[6];

Ø ISA and ISA2 [7]

Ø Federation of networks.

Standardization efforts need to be intensified. However, technical work for the specification of interoperability standards is not sufficient.

The possibility of scaling up is of essence in the data market. Fragmentation of markets prevents any significant scaling up.

The present paper proposes complementary steps without which Europe cannot become a lead player in the data market.

DEFINITION

There are a number of definition for the term "interoperability";

a common denominator would read:

· **Interoperability is** the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively, and consistently, and to use the information that has been exchanged ;

· Interoperability requires two parts: syntactic and semantic.

o syntactic interoperability requires a common structure so that data can be exchanged and interpreted between information technology systems systems, *while*

o semantic interoperability requires a common language so that the meaning of data is transferred along with the data itself.

· Interoperability concerns:

o Systems & solutions;

o Hardware & Software

o Data & Schemas

· Semantic interoperability : gives meaning of data expressed through semantic metadata

Europe should invest massively invest in data interoperability efforts

The General Data Protection Regulation (GDPR) is an impressive example of Europe setting a standard. A standard which is legally binding in the European Union, albeit often disputed, but has gained interest of other jurisdictions (e.g. in California) as an alternative to less stringent rules in force elsewhere.

For the objectives put forward in the present paper GAIA-X[8] is even more pertinent.

There are three reasons for that:

· *It is the expression of* a supra-national strategy;

· It is a European project strongly supported by industry and science;

· It aims at a developing a 'federated, open data infrastructure based on European values'.

Europe should become the pace maker for industry-led harmonization efforts for linked open data and data-interoperability. Standards for data interoperability will have to assure end-to-end compliance across connected networks.

And Europe should take it one step further: the results of data interoperability harmonization should be turned into standards recognized by European legislation.

EMBEDDING DATA INTEROPERABILITY STANDARDS INTO THE UNION'S LEGAL FRAMEWORK

It is longstanding practice in EU legislation that binding legal instruments (e.g. Regulations, Directives) refer to harmonized standards. Those standards, often based

on international standards, are drawn up and turned into European standards (*EN: Norme européenne, European Standards, Europäische Norm*) by the following three recognized standardization bodies:

· CEN[9] ;

· CENELEC[10] and

· ETSI[11] .

The legal framework

This section provides an overview of the role of harmonized standards in the context of EU law.

DECISION No 768/2008/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC[12]

Article 1 General principles

1. Products placed on the Community market shall comply with all applicable legislation.

REGULATION (EU) No 1025/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 October 2012 on European standardisation[13], amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council provide for the basis of what is called "The New approach".

Considerata 5:

European standards play a very important role within the internal market, for instance through the use of harmonized standards in the presumption of conformity of products to be made available on the market with the essential requirements relating to those products laid down in the relevant Union harmonization legislation. Those requirements should be precisely defined in order to avoid misinterpretation by.

As seen above, harmonized standards specify essential requirements imposed by EU law. ***The conformity with such harmonized standards is a prerequisite for the lawful placing on the market in the European Union***.

Conflicting national standards or legislation has to be withdrawn by the Member State concerned.

If a product is put on the market of one Member State in conformity with legislation and harmonized standards in place, following the principle of ***mutual recognition***, the same product may be placed on the markets of all other Member States. This was and continues to be the fundamental principle for the ***Single Market[14]***.

The *Single Market* opens up economies of scale. Moreover, from a macro-economic point of view, harmonized standards play a major role for innovation and the competitiveness of industries.

However, a reality-check provides evidence that data markets in Europe are fragmented by national specificities.

A general introduction to the New Approach is provided in a guidance document[15].

THE INDUSTRIAL POLICY PERSPECTIVE

The stated main objective of this paper is data-interoperability standards driven by Europeans.

Next to stepping up harmonization efforts for data-interoperability and turning resulting specifications into technical standards recognized by EU law, a third aspect needs to be added to the equation: an industrial policy dimension.

Why an industrial policy perspective?

Interoperability is important for the development of mass markets and their inter-connection. Mobile telephone is a good example. Without common standards for mobile telephony (GSM) one terminal could not interoperate with others; the ideal situation being of course an “any-to-any” communication.

Also for mobile telephony, at the outset this was not a given. And the GSM standards are of European origin.

Propriety standards lock *out* the competition and lock *in* the customer. So there is a clear economic case to have common (harmonized) standards.

What is then the industrial dimension to it?

Let us look to what has happened in the solar panels manufacturing industry.

In the years before 2000, French and German companies where amongst the world leaders with regards to technology and production volume.

Now, Chinese companies have taken the market. How did this happen?

Once the technology for photovoltaic cells had come out of the initial production cycles, Chinese companies started mass productions on a scale much larger than the French or German market could yield. Governed by strict and long term industrial policies, economies of scale came to play for Chinese manufacturers which led to prices with which the French or German producers could not compete.

N.B. Technology for photovoltaic cells is still evolving.

So, there is a question of economy of scale, with a large advantage for China with the bigger market and a strict adherence to set industrial policies.

In addition, with a large market, synergies of scope (*in deutsch: Verbundvorteile; en français: économie de gamme*) can be generated.

Turning back to the example of A.I., where the size of the data pool available for analysis is of essence, a large interoperable data pool presents a huge advantage.

Europe shows a fragmented and scattered landscape when it comes to data pools. This should be improved and ultimately overcome through harmonized standards for data interoperability used in the European market.

Improvement efforts should focus on new markets. Important examples are Industry 4.0, electrical cars, autonomous driving, logistics and 5G-markets.

Why is a long term strategy so important?

Let's have a look at another market. Currently, manufacturers are experiencing a shortage of micro-chips. The automotive sector has suffered from this. Europe’s position in the semi-conductor market is mediocre.

At the same time, China imports for 350 Bn. U.S. dollars micro-chips per annum. Now, the new U.S. administration has banned China from the access to certain segments of the micro-chip market. What is the Chinese answer? Chip autonomy! The new 5 year plan targets at a growth of 10% of the Chinese chip industry. With regards to technology, today Chinese manufacturers are able to produce 14 Nm chips. Apple

uses at current 5 Nm chips. But according to the plan China will catch up. Their plan oversees a time span of 20 years.

Europe needs a long term - industrial – strategy. Without, Europe will become increasingly irrelevant.

WHAT EUROPE NEEDS TO DO

Three things:

1. Define a long term strategy;

2. Work together on European standards for data interoperability;

3. Develop European legislation for data driven products with interoperability as essential requirement.

Today we can note a multitude of projects (e.g. HORIZON 2020) and initiatives in Europe (and elsewhere) fostering data interoperability.

But what is missing is the big bracket which ties it all together.

Data interoperability should become a top level policy priority.

A strategy should define a common denominator for all those projects and initiatives. **Projects must be followed up**. The results must be taken up and analysed whether they merit further investment.

The European Commission should provide mandates requesting the European Standardization Organisations to produce interoperability standards. Furthermore, the European Commission should draw up legislative proposals for data driven products and services with interoperability as essential requirement.

All this is aiming at the creation of a *Single Market* for data products and services which will allow European industry to benefit from the size of the *Single Market*.

A third pillar, the **Data Interoperability Act (DIA)** should complement the **Digital Markets Act** (**DMA**) and the **Digital Services Act (DSA).**

CONCLUSION

This is about 'Sovereignty'; about 'Digital Sovereignty' in a 'Connected European Digital Data Market'.

In other words, this is about an independent self-determination for the conditions enacted for the placing of data driven products and services on the *Single Market* of the European Union.

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[1] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020PC0842&from=en

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020PC0825&from=en

[3] https://schema.org/

[4] c/o: ISO/IEC 11179-7:2019

[5] https://en.wikipedia.org/wiki/Open_data

[6] https://de.wikipedia.org/wiki/Linked_Open_Data

[7] https://ec.europa.eu/isa2/home_ena

[8] https://www.data-infrastructure.eu/GAIAX/Navigation/EN/Home/home.html

[9] https://www.cen.eu/Pages/default.aspx

[10] https://www.cenelec.eu/

[11] https://www.etsi.org/

[12] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008D0768&from=EN

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R1025&from=EN

[14] https://ec.europa.eu/growth/single-market_en

[15] https://boss.cen.eu/reference-material/guidancedoc/pages/newapproach