

Round Table Report

# ICT standards for the Digital Single Market

*30 June 2015, Brussels*

**Openforum** Academy



## Report

# ROUND TABLE: ICT standards for the Digital Single Market

Brussels, 30 June 2015

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## **Speakers**

**Dr. Jochen Friedrich** - *Technical Relations Executive for IBM Europe*

**Luis Romero** - *Director General of the European Telecommunications Standards Institute (ETSI)*

**Daniel Dardailler** - *Director of International Relations at the World Wide Web Consortium (W3C)*

**Peter Strickx** - *Independent consultant and former CTO of Fedict*

**Moderator:** Graham Taylor, CEO of OpenForum Europe.

**Rapporteur:** Dr. Efthymios Altsitsiadis, Research Expert KU Leuven, Fellow of the OpenForum Academy.

**Assistant Editor:** Ioannis Kostopoulos, White Research.

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### ***Foreword***

The [Digital Single Market \(DSM\) Strategy](#) clearly outlines the importance of standardisation for achieving the objectives of an agile future digital economy for promoting growth and innovation for Europe: “Standardisation has an essential role to play in increasing interoperability of new technologies within the Digital Single Market. It can help steer the development of new technologies”. Possibly controversially, the DSM Communication suggests that “currently industry stakeholders decide 'bottom up' in which areas to develop standards and this is increasingly taking place outside of Europe, undermining our long-term competitiveness”. Is this the right approach?

### ***Executive Summary***

Open Standards are technical specifications that are defined and maintained by an open community in which everyone can participate. They are accessible, accepted by the market and are implementable by everyone, without restrictions. Standardization is a voluntary cooperation for the development of these technical specifications based on consensus among stakeholders. Such standards can be developed in every field, ICT included. As recognized by EU legislation, many open ICT standards in the world are created by industry fora and consortia (Article 13 of Regulation (EU) No 1025/2012 of 25 October 2012).

The Digital Single Market (DSM) Strategy outlines the importance of standardization for achieving the objectives of an agile future digital economy, for promoting growth and for fostering innovation in Europe. Moreover, standardization is also vital for the interoperability and development of new technologies.

The recently published Digital Single Market Communication suggests that stakeholders follow a bottom-up approach when deciding the areas in which standards will be developed. Moreover, it claims that this is increasingly taking place outside Europe, undermining its long-term competitiveness.

Within this context, the set of distinguished speakers share their insights through political, regulatory and commercial perspectives, in the current status of standardization and the use of ICT standards in support of the DSM strategy.

## **Introduction**

**Mr. Graham Taylor** opened the round table by introducing the mission of the Openforum Europe, a Brussels-based, non-profit organization with the mission to firmly support open standards and openness in the whole ICT market. He continued by introducing the Openforum Academy, a global think tank comprised of expert fellows, who aim to contribute innovative thinking around openness in the IT market. Mr. Taylor referred to the concept of round table concept, as a very good way of facilitating this debate.

The purpose of the round table is the discussion around the DSM Communication announcements. The DSM Communication receives criticism, mainly because it is not ambitious enough. The DSM strategy must recognize that Europe isn't a distinct area, but part of the global market. Europe has to maximize the opportunity for innovation and not take any further protection. Additionally, it has to establish a common framework, look forward, take best practices and develop a new digital thinking. "Clearly, open standards is the root of all these and that's the reason that today we want to try to draw that connection and draw different people's thinking on open standards in the DSM and its role in supporting innovation", said Mr. Taylor.

**Dr. Jochen Friedrich**, stressed the importance of standardization in the DSM strategy, by addressing four key areas (i) ICT standardization and policy objectives, (ii) Standardization processes including standardization and innovation aspects, (iii) Trends and challenges in standardization, European standardization and European policy objectives and (iv) Collaboration for supporting the DSM.

Standardization in the context of regulation and policy making, has five levels. These levels are the following:

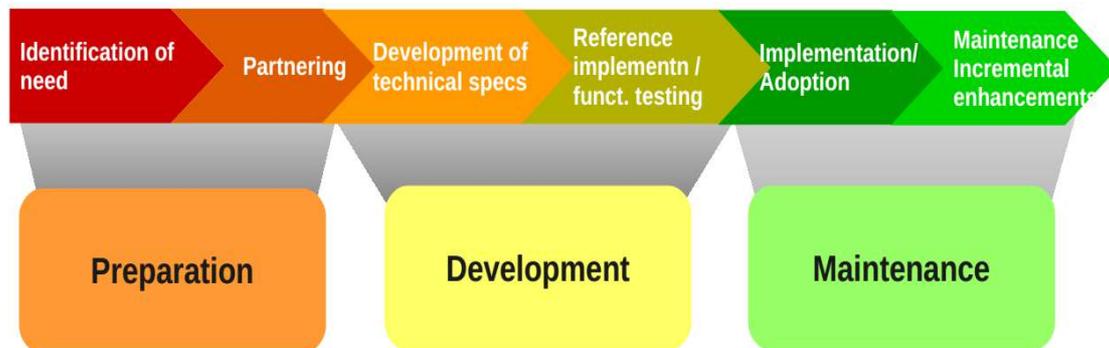
- Legal Framework. The rules under which everything in standardization is governed
- Regulation
- Industrial / Innovation Policy. It is at the core of DSM. This is policy for areas where Europe wants to push the adoption of new technologies.
- Public Procurement. It involves aspects like procurement directives, ICT procurement guidelines, European Interoperability Framework and National Interoperability Frameworks
- Research. International, European and national R&D programs that lead to the next generation technologies.

All these different levels come into perspective when we talk about things like regulation, policy making, standardization, voluntary standardization, the presumption of conformity base on European standard, support of global competitiveness, the uptake of new technologies, promotion of

interoperability, referencing of standards in public tenders, implementation of standards based solutions and fostering innovation, knowledge and technology transfer.

The global ICT standardization ecosystem consists of three blocks of standards organizations. IEC, ISO, ITU function at an international level, CENELEC, CEN and ETSI are European standards organizations and, finally, there are also the national committees, bodies and organizations. The industry driven standards bodies, are also of extreme importance for ICT standardization and deliver a large amount of very relevant and successful ICT standards (W3E, OASIS, IETF, Ecma, etc.). For this level of standardization only well established organizations with open processes and open membership are taken into consideration and not small and private consortia.

Concerning the typical lifecycle of successful standardization, this consists of three phases. The first one is Preparation (Identification of the need, Partnering). Then it is the Development phase (the actual development of the technical specs, the reference implementation and functional testing, until the final approve of the specification). Finally, there is the Maintenance phase with the implementation/adoption of standards and the maintenance incremental enhancements. This lifecycle of standardization is also presented in the figure that follows.



What is very important in the process of standardization, is the market need and the stakeholder's support. Usually the most successful type of standardization and the best guarantee for a global market uptake, is the bottom-up standardization, provided that the stakeholders agree on the market need and on the way that they will collaborate in order to develop the standards. In addition to market need, high quality is vital for the successful standardization as well. High quality can be achieved by involving key global experts in the process. Companies compete in a global economy and technical experts may not always be available locally. However, there must be ways to enable key experts to contribute, regardless of where the standards are being developed. For the European standards to have high quality, the best experts from the industry must participate. Finally, another important element in the process of standardization, which has been discussed a lot in the context of the

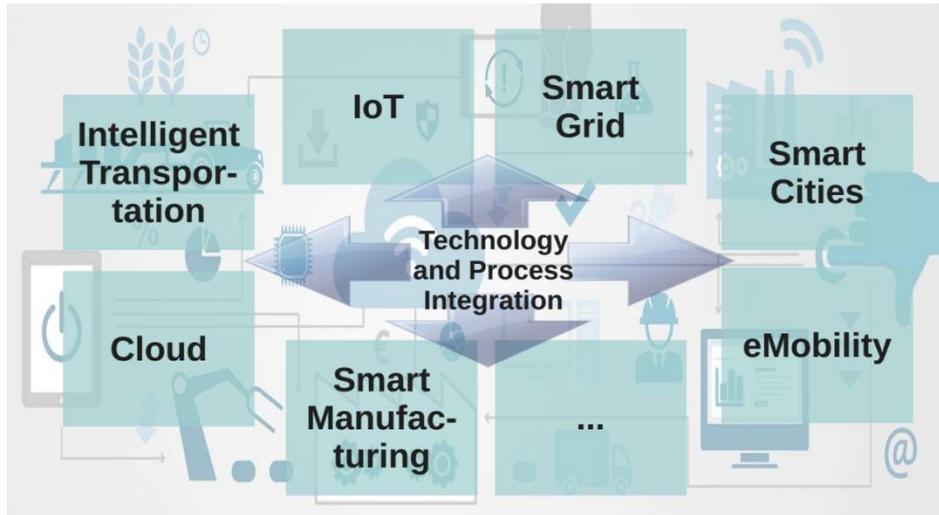
independent review of the European standardization system, is the concept of timeliness. A shift has been made from the term speed to the term timeliness, which includes the aspects of required quality, consensus that is necessary and speed.

It is generally admitted that standardization can foster innovation. The innovative act is identified in two levels. The first level is during the go-to market phase, when some basic results, coming from basic research and technology, are included into a standard, as the best state of the art technology. This is the classical transfer of the R&D results in the standardization. The innovative act is the invention and the development of new basic technologies and what is key here is to incentivize the contribution of this level of technology into a standard. For the innovator, going to market and allowing his technology to be exploited, is his key motivation. The second level is during the exploitation of standards. In complex projects, there is integration and combination of technologies that require standards for interoperability, on top of which innovation takes place. Therefore, the standards on this level are a prerequisite for innovation.

Standards, even if they are innovative standards, are not at the core of innovation. The innovative act lies in the implementation, use and combination of standards. Of course, the availability of the standards and their market uptake is critical. “When we talk about standardization and innovation, we should keep these two aspects in mind, because they may have very different impacts on policy making, on standards and on promoting innovation by standardization”, said Dr. Friedrich.

Innovation and standardization, include different aspects like Go-to market/market access (e.g. meeting regulatory requirements), Interoperability (e.g. promoting fair competition, preventing vendor lock-in), Technology integration (e.g. systemic approaches), Access to coded information (e.g. machine readable formats, M2M data processing) and the Dissemination of technologies (e.g. transfer of research results into standards).

A major trend that dates back up to a decade, is the transition from products to systems. As depicted in the figure that follows, nowadays, standards are not only used on products, but also in entire systems.



This is an important trend, to which standardization has responded, and which is also at the core of the DSM strategy for policy making. These are policy relevant areas, where Europe, the Commission and policy makers, want to promote the uptake and the adoption of new technologies and new systems.

Dr. Friedrich then provided a differentiated view of the standardization process within complex and innovative domains. According to this view, at the very bottom of the process there are many ICT technology standards. They are the basic building blocks for ICT systems and the basic technology for enabling innovation on top of the integration and implementation of standards. These standards are mainly horizontal basic technologies that make IT and ICT work and are not necessarily specific to any of the areas presented in the figure above. On the next level there are use cases, architecture models, reference architecture and process standards. These are important for process transformation, market development and for promoting the uptake of new technologies. They provide the guidelines and the reference architectures for achieving the desired systems. The top level includes standards landscaping and roadmaps. This level is important for strategy, coordination and high-level overview. What is essential at this level is the collaboration and interaction between different organizations. Although the first level of standardization is mainly horizontal, the next two levels are vertical and application specific. This differentiated view can assist in better understanding how standardization can support the DSM.

*“If we take this differentiated view about the deliverables that we see and are currently being developed from standardization, it may help our perspective of how standardization can support the DSM”*

Coordination and collaboration is vital for the standardization process and for the standards bodies as well. Dr. Friedrich stated that there are many standards that need to be combined in some way for specific solutions within systems like IoT, Smart Cities, Cloud, etc. Basic technology standards for such systems are mostly available already and they are provided by different European and global standards bodies (including fora and consortia), enabling innovations on the systems level. A big challenge that standards bodies are facing are the duplicating efforts. Landscaping, roadmaps, reference architectures are developed in multiple organizations and almost every standards body develops its reference architecture for systems. Even though this can be helpful sometimes, if it is done in a large scale, it can result in fragmentation and in not involving the proper experts in the standardization process. Duplication of efforts can be reduced by enhancing the coordination and collaboration between these standards bodies.

Structures for coordination in response to European policy needs, should be inclusive. Some examples of the features that these structures must include are listed below:

- Consider all available global standards, as it doesn't make sense if one organization tries to develop reference architecture, just by listing their standards
- Allow all relevant organizations and stakeholders to contribute on even ground
- Allow global key experts to contribute

From the policy perspective, the most important thing is the promotion of

*“There is no such thing as THE IoT standards or THE Smart Cities standards (...). There are many standards that need to be combined in some way for specific solutions within such a system”*

interoperability and the uptake of standards. There is an increasing activity regarding the selection of standards. On the policy level there are roadmaps, mappings or catalogues for areas of importance (e.g. Cloud, Internet of Things, Big Data, etc.). By promoting interoperability and the uptake of standards,

reference lists are created (e.g. used in public procurement). The major challenge is to reach the proper balance between promoting interoperability and soft regulation by governments setting standards via lists they commission and by narrowing down the possibilities and options for innovation. Even though promoting interoperability is essential, if it goes too far, by narrowing or by selecting too much or by not allowing parallel paths to the government objective, it may lead to soft regulation in non-regulated domains. This is one of the challenges in moving ahead and supporting the DSM standards.

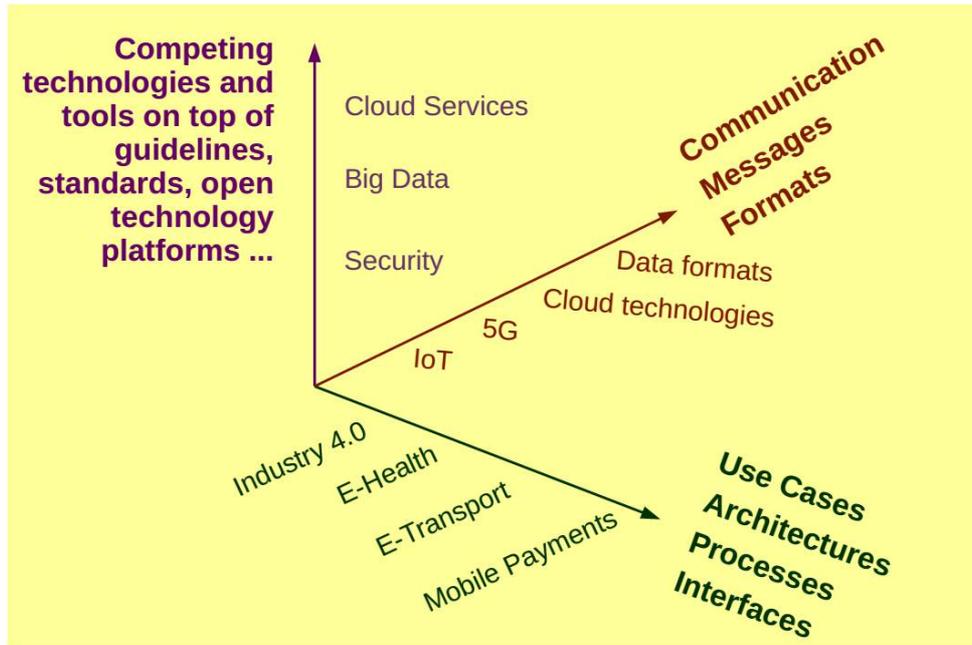
The ecosystem of standardization involves several different members. This ecosystem, which constantly broadens, consists of:

- Standardization and all the relevant work (Use Cases, Roadmaps / Landscaping, Architecture Models/ Frameworks, Reference Architectures, Technology Standards),
- Open Source contributing with Open development platforms, Reference implementations and Promulgation of technologies
- Governments (Setting rules / Regulatory requirements, Industrial/ Innovation policy, Promoting technology adoption)
- Research (Development of future technology and use cases)
- Industry associations and consortia that want to push the uptake of technology as well (they also create use cases, do market development and create awareness)

The dividing lines in this ecosystem sometimes get blurred. Open source contributes to standardization by open development platforms whereas use cases are being developed by several parts within the ecosystem. It is of great importance that the proper balance and clarity between roles and responsibilities in the ecosystem, is achieved.

According to the DSM Communication, standardization has an essential role to play in increasing interoperability of new technologies within the DSM. Regarding the DSM priorities, standardization can steer the development of new technologies such as 5G wireless communications, digitization of manufacturing (Industry 4.0), construction processes, data driven services, cloud services, cybersecurity, e-health, e-transport and mobile payments. It can also support services and sectors like IoT, security, big data and cloud services.

Concerning the strategy for action in the DSM areas of priority, three directions are identified. The first direction includes systems like IoT, 5G, cloud technologies and data formats. From the standardization's perspective, strategy actions in these areas involve communication protocols, messages and formats. The second direction includes Industry 4.0, e-health, e-transport, mobile payments. For this direction strategy actions mainly involve use cases, reference architectures, processes and interfaces. Finally, the third direction involves security, big data and cloud services. This area is where competing technologies are placed. Vivid competition and tools on top of guidelines, standards and open technology platforms are essential. The items that are listed in this direction are competing offers such as security technology based on guidelines and big data technologies that can work on Industry 4.0, on e-health, on e-transport using these communication messages, etc.



Dr. Friedrich then presented the ICT Multi-Stakeholder Platform, from which valuable insights can be gained in how standardization can support the DSM strategy. The European Commission has established a unique in the world platform for government stakeholder collaboration. It is a platform that enables fast and direct advice on standards policy issues. It also includes the EU rolling plan for ICT standardization, which already lists four priority areas that are mentioned in the DSM Communication (Policy Priorities and Strategy, Legislation in place, Ongoing and available work, Concrete proposed actions). Currently in progress, triggered by the DSM strategy and complementary to this rolling plan, is a priority plan, which aims to identify complementary key priority areas.

Dr. Friedrich, concluded his presentation by stressing the following six important issues:

- Global standards, developed in global industry-driven standards bodies, are most critical for the success of ICT technologies.
- ICT standards are at the heart of the evolvement of innovative systems. This includes different aspects regarding the relation between standardisation and innovation.
- There are different aspects and layers regarding standardisation in support of policy objectives.
- The broadening of the standards ecosystem requires a common understanding and practice of roles and responsibilities to avoid unnecessary duplication of efforts

- Structures and processes might be modernised for being well suited to facilitate coordinated standardisation work in support of policy objectives
- Government – stakeholder cooperation has established as extremely fruitful and successful in Europe and is well positioned to form the core of a successful implementation of the standards related issues outlined in the DSM.

**Mr. Luis Romero**, focused on the DSM and its development, highlighting the importance of DSM for ETSI. After many years that standards have been seen as a boring thing, people are starting to realize that standards are not just about technology. On the contrary, DSM involves many aspects about business, policy making, innovations and future development. Moreover, it is great that one of the important documents that have come out this year, concerning Europe's future, is pointing at standards as an important element. Many different parties are expected to have an important role in standards existence and development.

DSM Communication refers to digital as the technologies that people are used to working with. Many of those technologies can be developed by ETSI or under its partners' umbrella. Lots of the things that ETSI is going to do in the future, will have to be done in partnerships. Partnership is essential when trying to build something which is single and can unite people, like the DSM.

Although ETSI is a non-profit association, its members are market players. Therefore, ETSI has to help them develop their businesses and to make sure that their businesses are protected. The way in which standards are going from one place to the other, the speed and timeliness in which standards are developed and brought to the marketplace is what ETSI's members want to have. The numerous members of ETSI that are trying to develop their standards, will have to decide if they are going to do it individually, something that will probably result in faster product development, or if they are going to develop standards in collaboration with others, something that will require more effort and time. However, eventually, the latter will help them progress much more.

*"The members of ETSI that are trying to develop their standards, will have to consider that if standards are to be developed individually, this will be done really fast, whereas, if they have to agree and battle and have consensus with other people, it is going to take time and, probably, it's not going to be easy. However, at the end of the day, it will pay off"*

ETSI is not bridging any law or any major regulation, but, instead, it is just trying to

help its members to get in the right discussion concerning standards, with the right protocols, the right messages and the right rules. This is a process that helps people to transform their technologies into standards and get them in the marketplace. This is what ETSI's members are looking for and they have started to realize that whatever is introduced by ETSI is going to help the market, it is going to produce something that is globally applicable and will help industries develop. Furthermore, these standards will stimulate innovation, because on top of them there will be many innovations from the industries.

The ICT sector is starting to get inside every single sector and a major challenge is to find the right way that this is going to be done. There are different perspectives on how the ICT world will be integrated in other systems and very often companies from other sectors demand that things are done their way, instead of following an ICT method. The DSM is pointing at this problem, suggesting that there is a need to start working on a cross-sector level. This is something in which ETSI is putting a lot of efforts, either directly or through its existing partnerships, as this is a challenge that the ICT sector must face collaboratively.

There are many ways of developing standards and different levels of standardization. Success can be reached through very well-known and proven processes. There are already existing means and ways that ETSI is eager and very open to go through. However, ETSI is also very open to introduce new ways and means and very open to go through new visions, methods and ways of addressing topics.

Mr. Romero concluded his speech by referring to open source and ETSI's policy regarding open source. ETSI has already started working and cooperating with open source initiatives. Furthermore, it is open to work on finding the ways to debate and collaborate with open source organizations and in open source manners. He then invited the OpenForum Academy members in a debate that will be held around open source and standards. These two communities have both understood that it is important to learn and get the best from each other. At the end of the day, it is not the communities or ETSI that is going to benefit from anything, but the people that comprise them. If the open standards community wants to help these people boost their competitiveness and grow their businesses, it has to make all its resources available to them, it has to be very open minded and very inclusive of everything. ETSI will help in this direction by being open, ready to listen and ready to move on with this very challenging, but very interesting at the same time, future.

**Mr. Daniel Dardailier**, started by introducing W3C to the OpenForum Academy. W3C business relates only with web technologies. It is a rather small and very distributed organization. However, W3C has an open membership and, therefore, manages thousands of engineers. What is special about W3C, is that it has worked hard making sure that people

giving technology to W3C do not to try to get money out of that technology. Each party brings its expertise and perspective and the outcome is royalty free standards for all. W3C has create a pool of patents that it doesn't own and whose owners will not try to financially benefit from them. The organization is funded by its members and by public R&D grants (EC, DARPA, MITI). W3C does not get standardization money as it is not an official standards organization. However, it liaises with several standards bodies (e.g. ISO, IETF, IEEE, OASIS, etc.). The organization is actually led by a process document which is followed by everyone and is managed like a standard.

W3C delivers around ten standards every year. All these standards are created in a platform form, developed by patented technologies. If the owner of a patent wants to benefit financially from the exploitation of the respective standard, he will not be able to access other technologies for free. However, Mr. Dardailler stated that according to a very generic principle, created in collaboration with IETF, standards don't always have to be wildly free and technologies must be offered with reasonable IPR. Standardization has to be characterized from consensus, transparency, balance and openness. The development of standards can lead to global interoperability, scalability, stability and resilience of technologies and it can also stimulate competition and innovation. Even though, internet deserves the onset of principles, the adoption of standards is voluntary.

Mr. Dardailler gave an explanation of the open web platform's function, stating that this is better understood by the ability users have to access their devices, cameras, everything they have on their phones or computers from the web, thus, transforming web platforms to open systems.

As mentioned before W3C is a very distributed organization with hosts in various regions of the world and W3C Europe is one of them. Europe accounts for a great proportion of the control and staffing of W3C, with 12 regional offices based there and dozens of meetings being organized every year. Something that everyone has to keep in mind is that Internet was invented in Europe.

In terms of policy, when W3C started in 1995, internet was still at a very early stage of adoption. As its use grew, the need for a system that informs people about the content on the web was created (PICS, 1995 - Harmful Content). Later, W3C started working on web accessibility and regular device independence (WAI, 1997). At the early stages of internet, the challenge was the lack of standards, which resulted in the fragmentation of technology. Countries would take W3C's guidelines and select which parts they would adopt, based on what they thought was better for their region. This practice imposed real problems, as it did not promote progress in the field. However, now there is an explosion of

policies as internet is progressing everywhere (e.g. ICANN, Internet Governance, IGF, Open Standards, Fragmentation).

Europe's focus is on several policy issues. These include evolutions that will, at some point, come to Europe (high level internet governance issues, ICANN, surveillance, cryptographic, etc.) but also issues resulting from European discussion (e.g. approach of standardization process). Another policy issue that concerns Europe is whether standardization approach should be bottom-up or top-down. There are things that are naturally recognized as bottom-up and other things that need a top-down approach. Sometimes there is a clear direction in the approach that should be used. When W3C case worked on web accessibility, there was a clear top-down direction.

Mr. Dardailler concluded his presentation by stating that despite the success of web, there is a risk coming from competition (native mobile OS, different evolution of desktops, proprietary IoT APIs, social walled gardens). Moreover, according to Mr. Dardailler, the EC support is vital, but going through R&D calls is not fair for a major SDO.

**Mr. Peter Strickx**, started his presentation by stating what has been done within the Belgian government in respect to standards. In 2004 Belgium started mandating on the standards, after the approval of the parliament and the council of ministers. That was a relatively easy process because everybody agreed on the need for open standards. The need for open standards was defined having two major objectives. The first objective was interoperability and the second was multi-stakeholder engagement. Many companies that dominated the networking world ('80s and '90s) like IBM (SNA) and Digital (DECnet) had defined their own networking protocol. All those companies had their proprietary standards, but still managed to achieve interoperability. However, interoperability alone is not enough for a standard, as there must be multiple other companies that are able to run the standard. Otherwise there is the risk that a market will be dominated by a single company.

In 2006, the Belgian government mandated the use of ODF 2006. This was something difficult to achieve, as at that time ODF was not officially recognized as an ISO standard. A discussion then started about what is an open standard and what is an officially recognized standards body. Finally, ODF was used to exchange documents between government agencies. The use of ODF was facilitated by Microsoft's decision, at that time, to incorporate ODF in their Office program (Office dominated the government agencies). By now, several governments in Europe have mandated ODF as well and the reason is that they want to have multiple companies and multiple products implementing the documents.

Finally, Mr. Strickx, stressed the great importance of standards and open standards. A simple example that makes the importance of open standards clear is that by open standards, documents produced by a

specific type of product are readable from another type of product. Mr. Strickx concluded by saying that it is difficult to mandate a standard and its implementation, as if people are not convinced they will stick to their old ways.

## Discussion

Two areas of interest were highlighted for the discussion:

- What is standardization doing to help with the objectives of DSM?
- What is different today from 12 months ago and what has actually changed now?

**Question:** *Is everything that was described (ICT open standards, etc.) applied mostly in the ICT world or do you think that their use could be general?*

The open standards that were discussed are IT specific and are different from standards of other sectors that have evolved quite differently. We should not try to impose the IT system on other sectors. However, the adoption of ICT standards from other systems is possible. If the goal is to achieve the best quality by integrating ICT standards into another system (e.g. smart manufacturing, smart grid), the two different communities will have to interact. It is important to acknowledge that these key ICT standards origin from the ICT world but at the same time make sure that the two systems cooperate without imposing one to the other.

There has been difference of opinions in collaborations between different systems, but the results can be great. ETSI has been working together with the open source world and there is an understanding of the mutual benefits on both sides. Actually, the first major step in applying ICT standards in other sectors is the understanding that there are benefits for both sides.

In the past it was easier for two different systems to collaborate, as things and roles were more discrete, something that now has changed. Working with each other is not about imposing ICT means and methods, but it is about working in cooperation in order to find the right way by which ICT standards can be applied in a different field. The lack of mutual understanding can lead to duplication of efforts, as sectors will rebuild or remake standards that already exist but are not implemented because they belong to a different sector. It could even be said that standards cannot be smoothed out to telecommunication, or IT or electrical, because these systems are going to come together at some point.

The principle of open standards is applied to any technology and not just IT. Openness is very important because at its core is the idea of having a few hundred people working for billions. ICT standards can be translated in non-IT sectors as well. However, the ICT sector is not trying to impose ICT standards to other sectors.

**Question:** *The DSM is an ambitious program and EC wants to achieve a number of objectives in several areas (e.g. IoT, 5G, cloud, etc.). Can the standardization system provide standards with the speed the politicians or the markets want?*

Standards will be produced at the pace the market wants, because the one who produces the standards is the market itself. Companies are an important part of the market. Within a market, there are users, users groups and companies that have to serve these users. When it comes to requirements and use cases, companies look at the users and when they produce, they they want to see every term of these use cases and requirements on the product. For them it is about getting too late or too early in the market place. Therefore, it's them who are trying to feed the market with standards.

Politicians, are not the ones who should define the pace of standards' production. The marketplace defines the pace by asking for the standards it needs. The politicians' responsibility is to enable new technologies that industries and marketplaces are willing to have, to be developed faster. Each one in the ecosystem has a specific role and responsibilities. The industry produces the standards needed to boost the market and politicians are able to participate in defining the requirements for these standards. Therefore, governments should not try to develop new standards, but instead they should start using them and help standards organizations create them. For the development of these standards, the top-down approach may be better, as nothing has worked only bottom-up.

**In response:** An example was provided to demonstrate that sometimes it is better to use a top-down approach directly, but when you want to include the audience, a more bottom-up approach should be selected.

**In response:** An example was provided to support the opinion that if standards have to be delivered according to a timetable, then the top-down development model of requirements and use cases should not be used. If too many people are involved, it will take too long to define the standard's requirements. A rather small number of people have to be selected and participate in the standardization process.

The standardization process requires certain time to take place. However, public authorities and the EC can intervene in order to accelerate the process at some level, by making clear requirements or by making sure that there is a market for the standard. This is legitimate and natural, maybe not in domains which are more into the commercial side, but in

domains related to the society. The example of web accessibility and its top down approach is indicative of the basic idea behind the prioritization policy of the DSM.

**In response:** Standardization is being done basically within the priority plan in the DSM, where certain sets of technologies (e.g. IoT, cloud technologies), are put forward. What has to be done is to establish a good ecosystem for these new technologies. However, the role of public authorities does not include the acceleration of the standardization process. Public authorities' responsibility is to ensure that the ecosystem of standardization functions properly, that an international cooperation is established and that the right technologies to develop the standards are available.

**Question:** *When you talked about voluntary standardization, did you have in mind the production of standards/participation in the process of making them, the adoption of the standards, or both? A relevant example is the web accessibility directive from the EC in 2012, regarding the use of standards in websites.*

Participation in the process, creating and identifying the need, is voluntary. However, even if standardization is not in this voluntary way, it can be still be successful. In Europe, the adoption of standards is the main area of importance. Compliance can be demonstrated by the implementation of standards listed in the official Journal of the EU, which is a faster and easier choice, or even in some other way if a more innovative method is available. Voluntarism refers to both cases. Concerning web accessibility, everybody supports the EC directive. However, if requirements could be met and standardization could be demonstrated in some other way, it would not be a problem.

**Question:** *Everyone recognizes that we are living in a globalized marketplace. Is the DSM going to make any difference to that? How does Europe actually compete in the global market? How are open standards going to support Europe in the global market? How is ETSI going to be supportive of Europe?*

In ETSI's mind and in our member's mind, our organizations are global. If Europe wanted something to be developed in specific areas, it would be easily exported in the rest of the world. This is because ETSI's members are global and whatever they do they do it in a global manner, thus, gaining very easy access to the global market. Another way by which access in the global markets can be achieved, is by establishing and exploiting relationships with similar organizations in the rest of the world. By having this direct relationship, means, processes and rules are transferred easily. This results to an easier access to other markets because specifications and standards are very similar. If this is done from the European perspective it would be better and that is what ETSI is trying to do.

**In response:** Some technologies and standards cannot always be transferred to other regions as there are cultural differences. An example was provided to demonstrate that at some level technology cannot be universal and must integrate local criteria in order to adapt to different regions.

**Question:** *What do you think Europe should be doing regarding standardization and what are the benefits for the DSM?*

The benefit is that we focus on certain areas that are considered of high importance, where policy makers believe they can do something to support the DSM and the uptake of standardization. The challenge is to integrate this into the global market and to establish partnerships. International success requires the right partnerships to be made, something that is quite challenging. So far, the DSM strategy is very focused on Europe. The next step must include the identification of priority areas in the context of global dynamics that include competition and partnering.

**Question:** *User needs and user-centricity were mentioned several times. Do you think that the European standardization system functions within this context? What are the missing gaps?*

An example was offered to demonstrate that standards are not always driven by the user community, because very often the user community is not fully aware of its needs. Instead, it is very important that Europe understands the needs of its businesses (e.g. e-invoicing). Moreover, Europe should identify where its strengths lie and not be afraid to develop its own standards. If it has a very good product and protocol, it is very likely that it will be accepted in other regions, as well. If this product or protocol is developed under an international standards body, there is a great possibility that this process of making standards by consensus will take too long and even lead to the development of non-optimized solutions. Therefore, the focus has to be on where the interests of the DSM lie, not only from the user side but also from the business side.

The example of ODF proves that users decide whether or not any specification will become a standard. For instance, there is an identified need for innovation and standards in the text area, and this goes hand in hand with the DSM. The best way to address this need is to design specific use cases so that the standards community can make sure that their standards fit these use cases.

**Question:** *How is the DSM changing things for standardization?*

It is an opportunity for standards bodies to have an official input about technologies that policy makers require. It is very good to have some priorities and to identify the technologies that we must put effort in.

What makes the difference in the DSM is that it is raising awareness for the importance of standards. This is a relief for all the people that are ready to put effort in the standardization.

DSM puts standards at the focus of technology systems and innovations. This is probably not changing standardization, but it strengthens its role in the context of technology progress and innovation. The DSM shows that there is a growing understanding, that in the future different technologies will need to work together and standards are the core element to enable this.

### ***Conclusions***

Standardization and ICT standards are of great importance for the implementation of the Digital Single Market strategy but also for promoting growth and innovation in Europe. ICT standards will play a vital role in increasing interoperability of new technologies within the DSM. Moreover, ICT standards can steer the development of new technologies in the priority areas that are defined by the DSM Communication. They are at the heart of the evolution of innovative systems like Smart Cities, e-Health, E-Mobility, etc. By developing standards, industries will have the opportunity to develop innovation on top them.

In order for the standardization to effectively facilitate the DSM strategy and assist in achieving DSM objectives, there must be balance and clarity of roles and responsibilities in the ecosystem of standardization. The role of the industry is to define the market need and produce the appropriate standards, whereas, the role of the governments is to provide clear requirements, ensure the balance in the ecosystem and maybe accelerate at some level the development of standards. The promotion of interoperability through the integration of the ICT standards in other systems, requires the collaboration and the mutual understanding between the different communities. ICT standards should not be imposed to other systems. Nevertheless, since different systems will inevitably come together at some point, it has to be understood that the use of ICT standards will result in benefits for both sides. The different systems have to demonstrate openness in how they function and approach standardization.

Some controversy regarding the right approach for standardization remains. It is an issue that concerns European policy makers, as the DSM Communication suggests that the trending practice of bottom-up approach undermines Europe's long-term competitiveness. The proper approach is not something absolute as there are cases that are naturally recognized as bottom-up and others that need a top-down approach. There are several

contradicting opinions on this matter as some experts claim that the top-down approach is better when dealing with social needs. Another opinion in support of the top-down approach is that the users' community is not always completely aware of its needs. However, the top-down approach is usually time-consuming, something that raises questions on its ability to develop standards with the desired speed. On the other hand, bottom-up approach is considered a better fit for standards that are placed more into the commercial side and when the market need is properly identified and the stakeholders support is assured.

Standards can support Europe and raise its competitiveness in the global market. However, Europe has to be recognized as part of the global market and not as a distinct area. By being open and by adopting a global mentality, it can maximize its opportunity for innovation and competitiveness. Europe's success lies in building strong relationships and establishing the right partnerships. Until now, the DSM strategy has been Europe-focused. The next step for Europe should include a strategy built in the context of global dynamics that include competition and partnering.

*Short Speaker Bios*



**Luis Romero** is a senior expert with deep understanding of standards activity and the Telecommunication sector. He has an Executive Business and Management degree from the IE Business School in Madrid as well as an MSc degree in Telecoms Engineering. Currently he is working at ETSI as Director General, leading the organisation in charge of the production of globally applicable standards for Information & Communications Technologies including fixed, mobile, radio, broadcast, internet, aeronautical and other areas. Mr. Romero has more than 20 years of experience working in the Telecommunications sector and more than 11 years working in various places in Director positions in both domestic and international environments.



**Daniel Dardailier** is an expert in Open Standard, Open Source and Computer Science. He has worked for 30 years in areas such as advanced technical environments in computer, network and information system R&D. He has participated in the design of some important standards of today's modern computing and networking technologies: XML, HTML, CSS, X Window, Widgets, WAI. Currently he is working as Director of International Relations at the World Wide Web Consortium (W3C).



**Jochen Friedrich** leads IBM's Technical Relations - Europe team which is part of the corporate IBM standards and open source strategy organisation. He is responsible for coordinating IBM's standardisation activities in Europe as well as for standardization policy, technical regulation and compliance engineering. Jochen Friedrich started his career in IBM at the Scientific Centre Heidelberg in 1998. Since then he has held several lead positions in Research and Development. In addition to his IBM responsibilities, Jochen is a member of the ETSI Board, the Coordination Committee of Ecma International, he is a member of the DIN presidential committee FOCUS.ICT and of the DIN/DKE steering committee for Industry 4.0. Jochen represents OpenForum Europe in the EU Commission's advisory group "ICT Multi-Stakeholder Platform".



**Peter Strickx** holds an MSc in Computer Science (Artificial Intelligence) from the Vrije Universiteit Brussel (VUB), where he graduated in 1987. In 91 Peter participated in starting Sun Microsystems Belgium. During his 10.5 years at Sun Microsystems Belgium he held various management positions in Sales & Marketing as well as in more technical areas such as sales support. From 2001 Peter Strickx was Chief Technology Officer at Fedict, the Belgian Federal Government's eGov/ICT Service. He was the technical lead in projects such as FedMAN, Universal Messaging Engine (UME) and the Federal Authentication Service and co-authored papers on open standards and the use of ODF. Peter is now an independent consultant having recently retired from FEDICT.