

# **Towards a European Software Strategy**

## **Views of Industry**



## **Executive Summary**

At around €85 billion, the European software market is about one third of the global market. Yet despite much strength in software development, especially in vertical application sectors, Europe is a net importer of software, with a significant trade imbalance.

At this time, in a field which continues to evolve very rapidly, there are very significant market developments just around the corner. Only a year or two ago, we were talking of Service-Oriented Architectures and Software As A Service. Tomorrow we can expect the Internet of Services, the Internet of Things, and, putting these together, the Future Internet.

Recently, Commissioner Reding raised the need to develop a European Software Strategy, and appealed to industry for input. This paper provides an overview of the issues raised by industry, highlighting areas of agreement and areas of disagreement among the respondents.

It is no surprise that everyone agrees on the need to continue to develop eSkills in Europe. Everyone agrees that measures should be taken to reduce market fragmentation and that public procurement should be used to accelerate innovation.

There is also general agreement on the need for interoperability of software-based systems and on the need for effective protection of intellectual property. But there is considerable disagreement on how these should be achieved.

Importantly, many of the issues raised cannot - or should not - be addressed in isolation. Not only are the topics themselves intertwined: they would require action, or at least co-operation, by agencies other than DG Information Society & Media, and some would require engagement with national agencies in the Member States.

# Table of Contents

## EXECUTIVE SUMMARY

1.	INTRODUCTION .....	4
1.1.	Context .....	4
1.2.	Purpose .....	4
2.	THE EUROPEAN SOFTWARE & SERVICES INDUSTRY STATUS .....	5
3.	A SOFTWARE STRATEGY FOR EUROPE: THE ISSUES .....	6
3.1.	Skills and Lifelong Learning .....	6
3.2.	Standards .....	7
3.3.	Open Source Software .....	8
3.4.	Interoperability .....	9
3.5.	Intellectual Property Protection .....	9
3.6.	The Software Market .....	10
3.7.	Small and Medium-sized Enterprises .....	11
3.8.	Reduction of fragmentation .....	12
3.9.	Public procurement .....	13
3.10.	Financing software innovation .....	13
3.11.	The Future Internet .....	14
4.	ANNEXES: SUMMARY OF CONTRIBUTIONS .....	16

## **1. INTRODUCTION**

### **1.1. Context**

The need to develop a European Software Strategy was raised by Commissioner Reding in her speech "Towards a European Software Strategy" at the Truffle 100 event (19 November 2007), and reiterated at the Microsoft Innovation Day (4 December 2007). The Commissioner appealed directly to industry on this matter. Subsequently, a number of key organisations in the software sector have sent to Commissioner Reding their views on the issues that should influence such a strategy, and have suggested elements that might form part of a strategy.

### **1.2. Purpose**

This present document provides an overview of the issues raised by industry, in the responses to Commissioner Reding.

The paper:

- sets out the main issues raised by respondents and the suggestions of industry to tackle those concerns;
- indicates points of agreement;
- highlights differing views as points for consideration;
- identifies topics that could be pertinent to a strategy but that have not been addressed by respondents, or not as fully as they might have been.

The annexes précis the specific recommendations of each respondent.

## **2. THE EUROPEAN SOFTWARE & SERVICES INDUSTRY STATUS**

The importance of software goes far beyond what can be measured through its market size - which is already estimated to be more than €85Bn in Europe, representing over one third of the global market<sup>1</sup>.

Software innovation is systemically linked to innovation in other sectors. The use of software in these other sectors is key to their competitiveness and a major enabler of the post-industrial society and economy. On the other hand, innovators in software technologies are mainly driven by opportunities or needs in application domains. Innovation and application are thus two interdependent components in a system, which depend and feed on each other. Conventional models of innovation seen as a one-way flow of R&D results towards new products, processes and services are no longer effective.

This systemic aspect has to be kept in mind when devising and implementing a software strategy, as it implies that a simple view of innovation in terms of cause and effect is hard, if not impossible, to maintain. Interactions between different factors mean that a software strategy will consist of different measures for priming and improving virtuous cycles between innovation in software and innovation in other sectors.

Indeed, the European Software and Services industry has a strong presence in ‘embedded software’ in industrial systems - in the automotive and aerospace sectors, for instance - and in business systems for enterprises.

However, despite Europe’s strength in vertical markets, despite world-wide recognition of Europe’s intellectual contribution to the subject, as evidenced by its academic teaching, research performance, and technological innovation, and despite the 70% of open source software producers that live in Europe, Europe is a net importer of software. Four of the biggest five suppliers of software in the European market are US-based companies.

---

<sup>1</sup> Estimate for 2008 by the European Information Technology Observatory, 2007

### **3. A SOFTWARE STRATEGY FOR EUROPE: THE ISSUES**

Unsurprisingly, the various contributions sent to Commissioner Reding overlapped considerably in scope, but given the specific interests of the organisations they did not have a common focus and the views that they represented were sometimes in conflict.

In this section, the major themes identified by the respondents are set out. Points of agreement and disagreement among the respondents are highlighted, along with some issues that have not, so far, been addressed. Where there are differences, they may be better appreciated by references to the annexes.

Note that the subject of research was barely raised by respondents, apart from the European Software Association. This is not an indication that they think it not necessary: it is implicit in all the responses that national and European-level research and technology development programmes are fundamental to innovation.

Also note that some issues were raised by only one or two respondents and were not addressed at all by others. As far as possible, potential opposition to the views that were expressed have been anticipated, but some of these issues might yet prove to be more contentious than they seem here.

Many of the issues raised would, if they are to be pursued, require action, or at least co-operation, by agencies other than DG Information Society & Media. Also, given the principle of subsidiarity, a number of them would require engagement with national agencies in the Member States.

#### **3.1. Skills and Lifelong Learning**

There is common agreement that there is a need to maintain and develop the European skill-base in software and its applications. The need is not just for IT specialists, but for software engineers skilled in applying software and services technology in all other application domains and industrial sectors. Moreover, a general public that is comfortable with IT, enthusiastic about using it at work and at home, and excited about its future prospects will offer an environment in which the youth will be drawn to it as a profession and so supply the future scientists and engineers.

The various respondents focus on different parts of this spectrum of skills, and suggest different mechanisms to support the maintenance and development of skills. However, all the suggestions are compatible and complementary. They include:

- raising the profile of software and IT so that the public, and especially the young, will be excited about the subject and attracted to it as a profession. (This might be considered one aspect of a more general aim to raise the profile of science and technology disciplines;
- encouraging and enabling European citizens to participate in full-time education anywhere in Europe;

- encouraging and enabling European citizens to participate in through-life education, anywhere in Europe;
- continuing to support student and academic researcher mobility within (and beyond) Europe;
- encouraging and facilitating global collaboration with academic institutions outside Europe.

Despite the variety of mechanisms suggested, respondents did not raise any specific concerns about the structure of the educational system. While some (e.g. SAP and NESSI) wish that the work-force be better educated in the techniques of the Future Internet, and that *‘an ICT education oriented towards the Internet, distributed computing and the needs of tomorrow’* be encouraged, it is not clear whether this should be considered an application of existing underlying principles of computer science and software engineering, or whether the emergence of Software-As-Service, Service Oriented Architectures, the Internet of Services, and the Internet of Things, suggests a fundamental overhaul of ‘the basics’.

Moreover, given the likelihood of yet more rapid changes in future, the question arises as to how to continually renew and revise educational content. One basis for the establishment of the European Technology Platforms and the Joint Technology Initiatives is that these would be ways for industry to work with the educational establishment to achieve more dynamic, responsive education and training. Respondents have not indicated whether they consider that these initiatives are working in this way, or whether they could be improved.

There is also a proposal that the European Institute of Innovation and Technology establish a Knowledge & Innovation Centre in ICT to establish, among other aims, a better rapport between academe and industry in both research and education, and to drive academic excellence in software education. While this would appear to support the wishes of respondents, it is not clear that this will be sufficient and how ‘gearing’ might be achieved with industrial and national educational activities.

### **3.2. Standards**

There is common agreement that standards are good for interoperability, and there is implicit agreement that interoperability is the main value of standards. Even when the focus of a standard might be on functionality of a product, the value of the standard typically lies in the interchangeability of products that satisfy the same function - which is one of our forms of interoperability.

There is also agreement that the traditional ‘formal’ standardisation processes of the official national and international standardisation bodies have been too slow for the rapidly changing world of ICT. This is evident in the emergence of ‘informal’ standardisation bodies outside the official standardisation system, such as W3C - the World Wide Web Consortium. (The European Commission was a founding member.) Whether a single organisation or a closed group can establish a proprietary ‘standard’ is a matter of semantic debate, but as far as the user is

concerned, a dominant proprietary platform can be a *de facto* standard - indeed, *'the standard'*.

The slowness of the formal standardisation process has been recognised for some time, but even recently a study commissioned by DG-Enterprise reported that *"the present approach to standardisation is still ill-suited to the needs of ICT with its fast changing landscape"*<sup>2</sup>. The European standardisation body, CEN, has responded to these concerns by introducing a range of quicker, easier processes by which interested parties can introduce their ideas for standardisation into the 'official' process, with a view to early adoption and later formalisation, even from standardisation proposals arising from projects within RTD programmes. Nevertheless, industry appears to continue to be more interested in the informal process than the formal process.

Despite this apparent agreement, there is some tension in the views of industry, with some organisations more or less content with the status quo and even critical of a perceived emphasis in Europe on formal standardisation and attempts to bring *de facto* standardisation into a formal framework. Others feel that Europe is not sufficiently represented on informal standards bodies and that the Commission could usefully stimulate the establishment of alliances and communities to develop and maintain standards while European industry could play a greater part in existing bodies that set or influence standards.

A further significant difference between industrial organisations lies in the importance that they believe should or should not be attached to *open* (but not necessarily formal) standards. (*See below concerning the software market.*)

### 3.3. Open Source Software

Although many individual European experts and communities are prominent and highly regarded in the worldwide Open Source community, the commercial exploitation of open source software, whether or not some of that software might be free as well as open source, has generally accrued to organisations outside Europe (such as 'Red Hat Linux', even though Linux was to a great extent a European development).

Even the respondents that promote OSS recognise that its take up, by the private sector as well as public, is inhibited by what OFE and OBOOE call a lack of 'market confidence' arising from concerns such as availability of support, skill levels, and understanding of license terms. Although not explicitly identified by respondents, other concerns might include continuity of supply, maintenance, and even liability. OFE and OBOOE also make a case that the application of RAND<sup>3</sup> terms for IPR, *"particularly when applied to Software Interoperability Standards"*, discriminates against OSS.

---

<sup>2</sup> *"The specific policy needs for ICT standardisation"* (ENTR/05/59)

<sup>3</sup> RAND: 'Reasonable And Non-Discriminatory'



Some respondents suggest measures to facilitate OSS exploitation including measures to address the inhibitions to adoption of OSS and giving preference to OSS licensing of IST R&D. Others, especially CompTIA, argue that *any* measures that favour OSS (or any business model at all) would distort the market. (It is implicit that this would be detrimental.)

### 3.4. Interoperability

Respondents generally recognise the importance and desirability of interoperability, including:

- interoperability among the software-based systems within an organisation, such as management information systems and manufacturing control systems;
- interoperability between the systems of different organisations, such as between a manufacturer and a supplier, between different public administrations, and even between the citizen and their ‘suppliers’ - whether commercial or public organisations;
- interoperability of future systems with existing systems, including replacement of existing systems (‘future proofing’).

However, there is not a common view on the best way to achieve interoperability. This issue is inter-related with that of Intellectual Property, and the differences of view are addressed below in the context of ‘*The Software Market*’.

### 3.5. Intellectual Property Protection

Respondents agree on the importance of Intellectual Property Protection, for SMEs as much as for large companies, in that it:

- encourages investment, offering the potential for a return on that investment;
- enables trading in innovations, so that innovations can be composed and can evolve to create further innovations.

And as CompTIA observes, even the Open Source model depends on Intellectual Property protection for its success:

*“Open-source software companies ... rely on copyright to ensure that their innovations are freely distributed and not expropriated and made subject to more restrictive terms by their competitors.”*

Existing and proposed measures to tackle counterfeiting and piracy<sup>4</sup> are therefore welcomed. Suggestions for additional measures to help with the protection of Intellectual Property include:

- simplification of the legal environment;

---

<sup>4</sup> For example, the draft Communication on an Industrial Property Rights Strategy for Europe: [http://ec.europa.eu/internal\\_market/indprop/docs/rights/communication\\_en.pdf](http://ec.europa.eu/internal_market/indprop/docs/rights/communication_en.pdf)

- education at an early age in the principles of Intellectual Property - perhaps explaining why software piracy is wrong, perhaps as part of education in entrepreneurialism<sup>5</sup>;
- research into and development of ‘protection platforms’ for licensed software;
- simplification and harmonization of the European patent system, easing of access, and common litigation arrangements. In short, a single patent system.

There are also significant differences of opinion about whether the present patenting system in Europe should be changed. These issues are inter-related with those concerning interoperability, and they are addressed under the topic of the Software Market, below.

### 3.6. The Software Market

Although expressed in different ways, often indirectly through attitudes to interoperability and intellectual property, and to the use of Open Source Software and the use of standards, there is one fundamental schism in the community. The issue is whether the market should be left to operate under more or less the existing rules (albeit with perhaps more rigorous policing of the Intellectual Property system) or whether additional measures that would affect the operation of the market should be taken to avoid ‘lock-in’ of users to particular suppliers, and to make the market more open than it is at present.

The argument for a ‘free market’ is too simplistic: the creation of Intellectual Property protection arrangements was an intervention in a formerly more free market. Anti-cartel and anti-trust mechanisms are more recent measures designed to ensure a more competitive market than might naturally arise.

The question now is whether in the interests of both interoperability for software users, and a more open market for software suppliers, additional measures might be taken. Suggestions include:

- continued enforcement of competition law, particularly action against abuses of dominant market positions;
- in public procurement, encouraging and possibly mandating either open standards or royalty free IPR (associated with interfaces, for example) so as to facilitate interoperability. Note that any of these options would be very contentious.

There are also suggestions for direct alterations to the protection of rights in software and computer-implemented inventions so as to avoid Intellectual Property rights being used as a barrier to interoperation, and therefore a barrier to investment in interoperable software. In particular, the use of ‘hidden patent thickets’ by major companies is of great concern to those who might find themselves blocked from the market, or worse, after considerable investment in

---

<sup>5</sup> An exemplar could be the Spanish initiative “Educar para Crear” (“Education for Creation”): [www.educarparacrear.org](http://www.educarparacrear.org)

interoperable products. This is of concern to SMEs, unable to fight litigation on equal terms. It is also of concern to the Open Source movement.

‘Patent thickets’ or ‘patent fences’ are common in, for instance, the pharmaceutical sector, and they are becoming more common in chip design in the computing sector. In each of these sectors it is generally assumed that the companies involved are competing on an equal footing and are equally able to protect their own IP, to investigate the existing IPR of others, and to fight any legal battles. Respondents who suggest changes to resist such developments in the software market do not indicate why this sector is or should be special.

Respondents did not overtly consider the option of facilitating more transparency of patent protection, so that there are ‘no surprises’ for investors (cf. the fundamental tenet of efficient markets that there should be an effective flow of information).

While there has been discussion within the software community about the possibility of mandating Open Source in public procurement of software, none of the respondents in the present exercise propose such a measure. Some respondents have considered the possibility, but they consider it should be a matter of choice (e.g. ESA) or a matter for the market (e.g. CompTIA).

### **3.7. Small and Medium-sized Enterprises**

Strictly, this is a topic that should be considered as a ‘Software Market’ issue, since if action is to be taken to help European SMEs, then such action could be considered to be an intervention in the market. However, throughout the world efforts are made to encourage the start-up, growth and full engagement of (high-tech) SMEs in the economic eco-system.

Suggestions for measures to achieve this within a European software strategy include:

- an often repeated call for special provisions for SMEs within research and technology development programmes<sup>6</sup>;
- harmonisation and co-ordination of policies of both the public sector and major industrial organisations so as to facilitate SME partnerships with larger players;
- simplification and harmonization of such matters as tendering procedures and financial regulations that at present inhibit tendering by SMEs, and especially cross-border tendering;
- establishment of a European equivalent of the US ‘Small Business Act’ that provides not only government sponsored advice for SMEs but also facilitates their participation in public sector markets;

---

<sup>6</sup> This topic was the subject of specific ‘topical seminar’ run by the Cistrana ERA-Net in January, 2008: “*How to increase SME involvement in R&D calls*”: [www.cistrana.org](http://www.cistrana.org)

- special financial encouragement for innovative software SMEs, such as tax breaks for investment in equipment or people.

There appears to be general agreement on most of these measures - larger companies generally recognise the value that they gain from the presence of SMEs in the gene pool of the economy. However, it is likely that an exception is the idea that there should be special RTD *programmes* for SMEs that would ring fence resources and make them unavailable to others - creating a so-called SME-ghetto. This is likely to be contentious.

### **3.8. Reduction of fragmentation**

In a number of different ways, and in different contexts, industry agrees that measures should be taken to integrate European efforts more effectively.

The initiative to establish a European Research Area continues to enhance the integration, begun in the Framework Programmes, of formerly national R&D communities into a European R&D community. However, many SMEs and individual practitioners outside the research community are more nationally-oriented. Even their trade associations are nationally-oriented (witness the nine organisations that collaborated on one of the responses to Commissioner Reding). One suggestion (from the NTAs) is therefore to:

- establish a European network for practitioners to create a more efficient market in expertise and a higher profile for European software suppliers.

Such a network might facilitate cross-border recruitment, co-operation, trading, and sharing of experience<sup>7</sup>.

Note that one objection to such a network is likely to be that it would be better for Europeans to participate in international networks, rather than create a ‘European ghetto’.

The European Technology Platforms and Joint Technology Initiatives are well-regarded as mechanisms that help industry, academe and the public sector to come together in a coherent way to integrate research with product development and application, and European-level efforts with national efforts. Suggestions to build on these successes include:

- encourage ETPs and JTIs to work with regional centres and networks of competence, to link them, to achieve synergy between them, and to foster wider pan-European and global recognition of regional centres of excellence;
- establish a specific JTI on the topic of the Future Internet.

While we talk of the software market in Europe, the public sector - a major ‘buyer’ of software in the internal European market - is generally a collection of national customers, often with little communication even within Member States.

---

<sup>7</sup> For example, experience in “*how to access local distribution partners in a given country*”.

The ICT Policy Support Programme within the Competitiveness and Innovation Programme supports and accelerates the **Open Method of Co-ordination** between Member States to create a genuinely *European* market - although only embryonic at this time. Respondents did not make specific suggestions in this line, but they did express a wish to develop the internal market, and to make more effective use of public procurement, suggesting that ‘facilitated OMC’ might be a route to explore to reduce fragmentation at least in public segments of the market. Indeed, in different ways, through references to benchmarking and sharing of best practice, several respondents alluded to the potential for the OMC to contribute to formation of a real single market. But that might not arise naturally: it would probably require stimulation and facilitation by either the Commission or some grouping in the community.

### 3.9. Public procurement

The prospects of public procurement being used to create ‘lead markets’, in which public agencies become early adopters of new technology, has been discussed for some years. In 2006, a Working Group of the National IST Research Directors Forum drafted procedures that would comply with state aid rules of the World Trade Organisation.

All industrial parties are enthusiastic about the idea. One suggestion is that the CIP could be adapted to incorporate such a ‘lead’ role to achieve pan-European evaluation of new technologies, and accelerate the innovation process even further.

### 3.10. Financing software innovation

The financing of European software innovation, and particularly the taking of ideas generated in research from the lab through start-up company to the global market has been a subject of some concern for almost twenty years. Comparisons have frequently been made with the dynamic investment environment of the United States. Various attempts have been made to couple ideas to the market better, ranging from requiring research projects to submit a business plan along with their proposal, through encouraging investment forums in Europe (even establishing a European Investment Forum) to the JTIs of today with their industry ‘pull’.

Respondents to Commissioner Reding now make two specific suggestions:

- the creation of a specific European Software Investment Fund, drawing on EC, Member State, and private sector investment resources, *within* the recently established ‘High Growth and Innovative SMEs Facility’ of the Competitiveness and Innovation Programme, targeting specifically the strategically important software sector;
- using the Open Method of Co-ordination, bring together national initiatives for public-private funding in order to establish and promote best practice, and to

have available greater leverage overall. (*This is also in line with the earlier topic of reducing fragmentation in Europe.*)

### 3.11. The Future Internet

‘Software as a service’ is emerging as a new paradigm for software provision, with the potential for more flexible, evolvable, services. In principle, it offers great potential for users to be able to build and evolve their systems more flexibly and for new suppliers to readily join a pool of service suppliers and compete on an equal footing with installed suppliers. The concept is now evolving into ‘**The Internet of Services**’.

In parallel, ‘things’ are becoming ‘smart things’. These are not just products on supermarket shelves with RFID tags: they are the components of the aeroplanes that we fly in, the smart surface of the roads that we drive on, the clothes that we wear, the equipment that we operate, the pills that we take, even our own ‘wet components’. They will communicate with each other and many of them will be the trillions of sensors and actuators with which the Internet of Services will interact with the real world. This will be the ‘**Internet of Things**’. Together, the Internet of Services and the Internet of Things will be our **Future Internet**.

With the exception of SAP, most of the respondents do not make specific reference to the emergence of the Future Internet, and do not make any strategic recommendations regarding its development and exploitation. Nor do they propose measures intended to affect its social and economic impact. However, SAP makes strong recommendations that would put the Future Internet at the centre of policy-making and strategic thinking in Europe. In particular, it is recommended that a Joint Technology Initiative be established for the Future Internet (*see also ‘Reduction of Fragmentation’ above*).

Despite the positive benefits offered by the Future Internet, there is a cloud on the horizon. A recent phenomenon is the emergence of proprietary ‘service infrastructures’ in which a ‘stack’ of infrastructural services, running on a computing ‘cloud’, is made available to the user as a basis on which to build their higher level services. The advantage to the user is that the component services are guaranteed to interoperate, and that they have been validated through field testing by many other users, so issues such as trust and availability can be assumed to be managed well, especially when the suppliers have high quality brand names like Google, eBay and iTunes. However, these are all US-based companies that are setting the pace and the standards. Their rapid development alone represents a barrier for European companies trying to enter the market unless a ‘level playing field’ for service development, deployment and access is achieved - as the ISTAG advocates in its recent report on the “Web-based Service Industry”.

The industrial respondents to Commissioner Reding did not highlight this concern, perhaps because it is such a recent phenomenon. But such service infrastructures are set to play a major role in the Future Internet and it is a topic that should at least be considered in any European Software Strategy.



#### **4. ANNEXES: SUMMARY OF CONTRIBUTIONS**

This paper has drawn on contributions sent to Commissioner Reding by:

- The European Software Association (ESA);
- The European Committee for Interoperable Systems (ECIS);
- SAP;
- The NESSI European Technology Platform;
- Nine national IT associations of Belgium, Finland, France, Germany, Hungary, Italy, Netherlands, Spain, and the UK, led by Syntec-Informatique of France;
- Open Forum Europe (OFE) and Open Source Business Organisation of Europe (OBOOE) - a joint response focussing on the role of open source software and open standards;
- The Computing Technology Industry Association (CompTIA).

The recommendations of each of these contributions is summarised in the following annexes.



## Annex 1 Contribution of The European Software Association

Available at:

<http://www.europeansoftware.org/documents/softwarestrategywhitepaperFINAL.pdf>

The ESA makes recommendations in three areas:

- to enhance eSkills in all parts of society - for both private citizens and ICT professionals;
- enhance the regulatory framework;
- sponsor research and development in certain specific topics.

### A Knowledge Economy

ESA makes a number of recommendations aimed to raise the eSkill level of all sectors of European society, and to address the shortage of skilled professionals:

- develop skills through lifelong learning initiatives as a result of joint industry, civil society and government action;
- continue initiatives such as the E-skills Industry Leadership Board;
- make Europe more attractive for third country highly skilled immigrants via the EU Blue Card Proposals.

### Regulatory Framework

The ESA recommendations in this area are designed primarily (though not entirely) to establish a 'level playing field' for Independent Software Vendors and particularly SMEs:

- continue Commission efforts to **develop entrepreneurial skills** in Europe;
- **facilitate SME participation in public procurement** by:
  - stressing the importance of SME access to public procurement while upholding the principles of technology neutrality;
  - Member States reviewing their processes to make public procurement more accessible to SMEs, including:
    - speeding up decision-making and payment processes in public institutions (not just in Member States);
    - substantially increasing investment in e-Government;
    - encouraging a debate at European level to examine the benefits of an act promoting the use of smaller subcontractors and SMEs in work on government contracts.
- increase the effectiveness of **standardisation** through:
  - the Commission consulting upfront prior to issuing a mandate on standardisation;

- considering the possibility for informal standards to be directly referenced in EU policies;
- continue the dialogue between standards bodies, governments, and industry, including achievement of a better understanding of the definition of an open standard;
- evaluate IPR policies currently used in the standardization process;
- encourage further participation of SMEs and their industry associations in the standardization processes.
- enhance the **Intellectual Property system** by:
  - allowing Independent Software Vendors to choose the IPR protection systems most appropriate to their business model;
  - continuing to limit patentability to technical solutions and extend it to include business methods;
  - reducing further the costs of patenting, in particular the translations costs;
  - incentivising SMEs to apply for European patents.
  - encouraging adoption of a Community Patent granted by one central authority and subject to the same rules throughout the EC (so long as the costs are affordable);
  - establish a specialized European Court system for patent validity and patent infringement cases to replace diverging national case laws with a uniform interpretation of patent issues.
- enhance the Single Market by:
  - educating SMEs on the rules of each Member State they operate in, and in the long term harmonizing the rules;
  - providing information to businesses on the different employment laws in EU countries;
  - creating a standard European format for the exchange of electronic business documents, particularly to support electronic invoicing.

## **Research & Development**

ESA highlights as R&D topics:

- content and service interoperability;
- the Internet of Things;
- the “connecting” Internet (in essence, interoperability of the service infrastructure);
- effective ICT (especially novel user interfaces and dependability);
- security;
- support for compliance analysis and verification;
- information management and analytics;
- software engineering.

**Annex 2**  
**Contribution of The European Committee for Interoperable Systems**

– Not public available

## **Annex 3**

### **Contribution of SAP**

Available at:

[http://www.europeansoftware.org/documents/SAP\\_WP\\_FutureInternet.pdf](http://www.europeansoftware.org/documents/SAP_WP_FutureInternet.pdf)

SAP calls upon:

- European industry and policy makers to collaborate and develop a European strategy for the Future Internet;
- the European Commission to establish a policy framework for a harmonized internal market of the Future Internet;
- EU Member States to:
  - encourage public administrations to become early adopters of the new technologies;
  - open up existing ICT infrastructures such as electronic toll systems for the provision of new Web-based services;
  - facilitate access to public data banks for the creation of new applications in the Internet of Services;
  - reinforce education and training programs to improve e-skills.

Specifically, SAP recommends:

- creation of large-scale European Research and Innovation Clusters addressing issues such as security, the infrastructure layer, and vertical components in the most important application areas (e-energy, retail, manufacturing, logistics, financial services, and public sector);
- promotion and deployment of the Future Internet, particularly addressing concerns about trust and security;
- agreement on standards to ensure interoperability and economies of scale in the Future Internet;
- establishment of a truly internal market for the Future Internet;
- a fast-track process for the formal recognition of industry-led standards;
- a balanced, effective EU-wide European IPR framework for the Future Internet;
- link European policy on the Future Internet to the European Competitiveness Strategy, including for example:
  - launching a socioeconomic study to inform European policy on the Future Internet and based on the results organizing high-level seminars on the impact on specific industries such as retail, logistics services, financial services, manufacturing, energy, and the public sector;

- encouraging the Competitiveness Council to organize an informal meeting on the Future Internet with involvement of CEOs from European ICT companies and industries that will be highly affected.

Finally, SAP recommends that European R & D Instruments be aligned toward the Future Internet, including:

- launching a feasibility study on a European research and innovation cluster for the Internet of Things and Services;
- emphasising the Future Internet in FP7;
- establishing a Future Internet Joint Technology Initiative;
- creating an IT knowledge and innovation centre (KIC) under the European Institute for Innovation and Technology;
- promoting the use of the Competitiveness and Innovation Program for projects related to the Internet of Things and Services;
- including the Internet of Things and Services in the lead market Initiative;
- focusing public venture capital on companies that develop technologies for the Future Internet.

## **Annex 4**

### **Contribution of The NESSI European Technology Platform**

Available at:

<http://www.nessi-europe.com/Nessi/Portals/0/Nessi-Repository/News/Documents/European%20SW%20Strategy%20NESSI%20Position%20Paper.pdf>

Increase the efficiency of the European Community's Research & Development by:

- endorsing competition between projects throughout the innovation process;
- including requirements from public procurement in publicly funded research projects;
- taking advantage of existing eco-systems and structures (Technology clusters, Open Source community, European Technology Platforms and other similar means).

Support SME growth by:

- leveraging potential contributions of large industrial players to their eco-systems;
- supporting collaborative R&D projects dedicated only to SMEs;
- favouring SME solutions in specific government markets.

Strengthen the exploitation of Open Source Software within Europe.

Reinforce the role of European industry in standardization for software.

Establish regional European excellence in the software industry by:

- joining the forces of European Technology Platforms, their stakeholders, industry, European Commission and Member States;
- linking regional competences across countries in Euro-Regions;
- linking European and regional technology roadmaps, development plans and pilots.

Strengthen education and academic excellence related to the development and engineering of software, services and applications.

**Annex 5**  
**Contribution of National Trade Associations**

– Not public available

## **Annex 6**

### **Contribution of Open Forum Europe and The Open Source Business Organisations of Europe**

Available at:

<http://www.openforumeurope.org/press-room/press-releases/ofe-obooee-press-release-final.pdf/view>

OFE and OBOOE make recommendations in five areas:

#### **Support to the Market via Public Sector Procurement of Open Standards**

- mandate the use of Open Standards in order to ensure interoperability<sup>8</sup>;
- work with DG MARKT to issue additional guidance on Directive 2004/18/EC (the Public Sector Procurement Directive);
- start a 5-year migration path of DG INFSO software to open standards for all internal systems;
- task the i2010 Advisory Group to come up with an ambitious post-i2010 Open Standards strategy;
- execute studies to establish an appropriate legal basis for mandating Open Standards in public procurement in the EC and Member States.

#### **Policy Strategies that Implicitly or Explicitly Favour Proprietary Software**

- mandate royalty free IPR for software interoperability.

#### **Collaboration and Integration Models within R&D**

The actions suggested to achieve better focus on OSS in R&D include:

- development of a long-term OSS research programme within FP7 and FP8;
- changing the IPR clauses in FP7 and FP8 IST programmes (and work to change the IPR clauses for all Commission funded R&D) to allow for multiple business models to co-exist;
- preferring the use of open source licenses for IST R&D purposes.

#### **Market Initiatives that clarify Free/Open Source Adoption**

---

<sup>8</sup> As Commissioner Kroes said in her speech of 10 June 2008: “For all future IT developments and procurement procedures, the Commission shall promote the use of products that support open, well-documented standards. Interoperability is a critical issue for the Commission, and usage of well-established open standards is a key factor to achieve and endorse it.”



The actions suggested to achieve better market adoption of Free/Open Source include:

Develop a funding stream for market based initiatives and best practice schemes

- formation of a high level expert group on Free/Open Source to make recommendations to the EU;
- annual benchmarking of progress on Free/Open Source adoption across the EU.

### **Market Initiatives that discourage Proprietary Lock-In**

One action suggested to discourage proprietary lock-in is to:

- conduct a market trial of the Certified Open programme within the i2010/ post-i2010 framework.

## **Annex 7**

### **Contribution of The Computing Technology Industry Association**

Available at:

<http://www.comptia.org/issues/europe.aspx>

CompTIA makes recommendations in five areas:

- e-Skills;
- Technical Capacity;
- Innovative Capacity;
- Standards and Interoperability;
- Intellectual Property Protection.

#### **Public Policy Recommendations to Promote e-Skills:**

- implement numerous European Commission and industry recommendations in the e-Skills area;
- ensure access to critical infrastructure to begin fostering lifelong learning;
- tax breaks for companies that invest in education for their employees;
- ensure ‘access to access’ throughout the entire ‘Training-Employment Value Chain’.

#### **Public Policy Recommendations to Promote Technical Capacity:**

- rethink approaches to education, emphasising creativity rather than rote learning;
- emphasise basics in education;
- EU-funded scholarships for underprivileged individuals to supplement basic educational learning in key ICT areas;
- EU-funded university-level scholarships for engineering students;
- foster lifelong learning;
- foster multi-stakeholder partnerships;
- ease access to Europe’s market for highly skilled engineering talent;
- provide incentives for companies that conduct training, R&D and other software.

#### **Public Policy Recommendations to Promote Innovative Capacity:**

- enhance the innovative capacity of Europe by supporting technology neutrality in ‘lead market’ initiatives and public procurement for government software infrastructures;
- maintain a careful balance driven by multi-stakeholder partnerships (industry, governments and third parties) alongside public support for industry-based e-skills standards and certification.

**Public Policy Recommendations for Standards and Interoperability:**

- maintain Europe’s voluntary, market-driven approach to the development, acceptance and use of standards;
- recognise that international as well as European standards can serve European software industry interests;
- avoid ‘dogmatic’ focus on standards. Recognise the importance of formal standards, other industry specifications and initiatives, and non-standardised technologies in promoting interoperability;
- encourage the ‘world-wide best practice to support multiple standards simultaneously’, and anticipate the reality of continuous technology evolution;
- avoid redefining ‘open standards’;
- avoid procurement mandates for detailed implementations of standards, or preferences for particular software business models (open source, commercial or services);
- encourage intellectual property creators to join standards efforts and permit them to secure fair, reasonable and non-discriminatory royalties and terms for the use of their technology investments that are contributed to a standard.

**Public Policy Recommendations for Intellectual Property Protection:**

- maintain Europe’s robust copyright, patent, trade secret and other IP protection relevant to software;
- encourage IP owners to protect or to share their IP in various ways that enable them to build viable businesses and meet customer needs;
- make access and use of the European patent system more affordable and more efficient, particularly for SMEs;
- work to improve the efficiency and effectiveness of IP enforcement.