

# Technical University of Berlin, Chair of Innovation Economics response to the UK Open Standards consultation

## Personal Details:

**Name:** Tim Pohlmann, Knut Blind, Mirko Boehm, Mike Weber

**Organisation:** Technische Universität Berlin, Chair of Innovation Economics, Müller-Breslau-Straße 15, D-10623 Berlin, Germany

**Email Address:** tim.pohlmann@tu-berlin.de, knut.blind@tu-berlin.de, mirko.boehm@campus.tu-berlin.de, mike.weber@fokus.fraunhofer.de

**Phone:** +49 (0) 30 314-76670 // +49 (0) 30 314 76638

## Chapter 1: Proposed open standards specification policy

### 1) How does this definition of open standard compare to your view of what makes a standard 'open'?

In our view the definition of open standards should build upon the positions adopted by the EU.<sup>1</sup> The EU defined policies to promote interoperability of services, particularly in the e-government arena. The goal of standardization should thus be the promotion of interoperability, enabling IT systems to connect to each other and to exchange data. It is further recognized that the economic value of standards increase with criteria that define the standardization process as transparent, open to all stakeholders, neutral in the decision making process as well as imposing minimum requirements for the treatment of intellectual property rights. In consensus with the EU we especially highlight the following characteristics referring to open standards:

---

<sup>1</sup> European Interoperability Framework: [http://ec.europa.eu/isa/documents/isa\\_annex\\_ii\\_eif\\_en.pdf](http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf)

- Both, the development as well as the decision making-process of specifications and standards should be open to the contribution of any interested stakeholder. This should also include a public review.
- There should be no barriers of participation.
- Development processes must be open and easy enough for anyone to take part.
- Specifications should be easily available for all interested stakeholders to be read, studied and used.
- Intellectual property that is essential to specifications is licensed under FRAND terms or on a royalty free basis and in a way that allows implementation in both; proprietary and open source software.

While there seems to be a consensus on the definition of standards, the definition of open standards is far from conclusive. The term “open” leads to potential ambiguous interpretation. Therefore we suggest to not conflating Open Source and Open Standards. Standard Setting is in many terms not to be compared to processes in Open Source Communities. Such interpretation would be misleading and not solving the objective definition of Open Standards.

From the current UK definition: *"are published, thoroughly documented and publicly available at zero or low cost;"* as well as: *" owners of patents essential to implementation have agreed to license these on a royalty free and non-discriminatory basis for implementing the standard and using or interfacing with other implementations which have adopted that same standard. Alternatively, patents may be covered by a non-discriminatory promise of non-assertion."* we derived the following considerations:

As to our understanding and the referenced definitions of the EU and the UN, we believe that a reasonable license of FRAND terms would be an adequate instrument to limit royalty payments when essential IPRs are involved. However, keeping in mind that for some technologies royalty free licenses might be favorable, the UK's definitions seem to be more restrictive with other licensing mechanisms. We believe that, depending on the technology and market constellations, licensing essential IPRs at a reasonable cost does not inhibit the acceleration of standards. Successful examples where IPR and standards have been working together since several years, are coding standards such as (MPEG1-4 also known as the mp3 standard, the DVD standard or BluRay) or telecommunication standards such as (WiFi (IEEE 802.11), GSM, UMTS or LTE). It has to be considered that patents do not always limit the access to technologies but could also increase incentives to promote specifications or

standards. Mandatory licensing agreements using FRAND terms allow such acceleration of technology. During the last decades both; telecommunication standards as well as coding standards, have proven to also increase investments in standards of IPR owning firms, e.g. by founding accompanying informal standards consortia that support and promote the standardized technology.<sup>2</sup>

## **2) What will the Government be inhibited from doing if this definition of open standards is adopted for software interoperability, data and document formats across central government?**

We believe that the government will have fewer inhibitions when changing to the use of open standards. Transparency and cost efficiency are important aspects of the daily operation of the government. Open standards are essential for achieving these aims.

From the current UK definition: *"owners of patents essential to implementation have agreed to license these on a royalty free and non-discriminatory basis for implementing the standard and using or interfacing with other implementations which have adopted that same standard."*

First of all, the patents that are licensed in this way should be licensed to everybody. Royalties should be as low as possible to promote access and allow a wide adoption without any lock-in effects. However, the government should be aware that excluding standards that are not licensed at zero or low costs might also exclude the technologically best standard solution. Furthermore the “low” again is an ambiguous word that has to be considered differently among different technologies. Costs might not only be due to royalties of essential IPR but also to implementation costs or related services. Standard selection on a cost basis should thus always go beyond royalty payments in order to not inhibit technologically and cost effective superior solutions.

---

<sup>2</sup> Cargill, C., Weiss, M. (1992) "Consortia in the Standards Development Process", Journal of the American Society for Information Science, Volume 43 Issue 8, 559 – 565; Leiponen A. E. (2008) "Competing Through Cooperation: The Organization of Standard Setting in Wireless Telecommunications", Management Science Vol. 54, No. 11, November 2008, pp. 1904--1919.; Baron, J., Ménière Y., Pohlmann, T. (2012) "Open innovation into standards and the role of consortia", Proceedings of the ICTNET 4th workshop – ICT, R&D, Intangibles and ICT Diffusion, London 2012. OECD ICT NET conference; Delcamp, H., Leiponen, A. (2012) "Innovating standards through informal consortia: the case of wireless telecommunications", NBER Working Paper.

**3) For businesses attempting to break into the government IT market, would this policy make things easier or more difficult – does it help to level the playing field?**

Open standards are important to make systems communicate on a commonly agreed language. Standards thus foster interoperability and generate a platform that allows a level playing field for all market participants. Especially for entrepreneurs and small-medium sized companies a standardized technology platform will abolish market entry barriers and reduce the risk for new investments.

**4) How would mandating open standards for use in government IT for software interoperability, data and document formats affect your organisation?**

The Chair of Innovation Economics at Technical University of Berlin is not participating in IT markets (or any markets that would depend on standards). The mandate will not affect our organization. However, our goal is to consult organizations and governments to better understand the effects of open standards in consideration of economic benefits supporting growth, innovation and a level playing field.

**5) What effect would this policy have on improving value for money in the provision of government services?**

An open standards policy will increase competition among alternative software solutions, and in some cases might even change the focus of competition itself. The government should thus try to find an appropriate level of keeping a stable technology basis as well as advancing to the next standard generation. Information and Communication Technology (ICT) standards face a permanent tension between keeping up with technological progress and providing a stable basis for investment building upon the standard. Standard makers confronted with technological change can often choose between replacing old by new standards and upgrading existing standards. From an economic perspective, we thus derive the following considerations:

Adopters of a new technology require that the technology will be kept in place for a sufficient time to justify the costs of adoption. These adoption costs are sunk, and some users will not take the risk of adopting a new technology when there is uncertainty about future

technological progress. However, if a substantial number of users switch to the new technology, users of the old technology are stranded and suffer from loss of network effects.<sup>3</sup> It is therefore crucial for the government to guarantee technological stability over some time. Too frequent innovations in the network are socially detrimental. Nevertheless, network technologies also exhibit a tendency to lock-in situations and excessive inertia. Once markets widely adopt a technology; switching costs and the risks of lock-in increase.<sup>4</sup> This lock-in can be the result of the installed base of the whole technology, but also of specific network ties resulting from the adoption rate of specific components. New technologies may thus be introduced at a too low frequency, and the users and implementers of the technology incur the opportunity cost of not using the best technology available.

Lock-in of installed technologies does however not necessarily prohibit technological progress. An installed technology is usually subject to continuous incremental progress along a technological trajectory. These trajectories are defined by the technological paradigms of the underlying technological basis.<sup>5</sup> In contrast with these continuous technological changes along a given trajectory, a discontinuous technological change is the shifting to a superior trajectory.

We suggest considering that the optimal rate of standard update or renewal depends on several economic effects that are at place. These effects need to be reviewed and estimated and might reveal different benefits (value for money) for different stakeholders.

## **6) Would this policy support innovation, competition and choice in delivery of government services?**

Open standards are often crucial to ensure interoperability and thus unlock innovation. However, standard constructive technology is always dependent on the innovative level of the underlying standard. Especially in ICT markets where specifications and standards embody highly technological components, the rate of standard replacement and upgrade is crucial to foster innovation building upon the standardized platform.

---

<sup>3</sup> Farrell, J., Saloner, G. (1985): Standardization, Compatibility and Innovation, *RAND Journal of Economics*, 16(1), pp. 70-83.

<sup>4</sup> Arthur, W.B. (1989): Competing Technologies, Increasing Returns, and Lock-In by Historical Events, *Economic Journal* 99, 116-131.

<sup>5</sup> Dosi, G. (1982): Technological paradigms and technological trajectories: A suggested interpretation of the determinants and directions of technical change, *Research Policy*, Volume 11-3, 147–162.

While standard bodies coordinate on adoption decisions, both advances in the technological frontier resulting in opportunities for new standard generations and the development of improvements and implementations of existing standards are subject to independent investment decisions. Coordinated adoption decisions may be insufficient to prevent excessive inertia or excessive momentum, if there is no coordination on the complementary investment. Investment in R&D for new standards or applications of existing standards is subject to competition, complex strategic alliances and potential coordination failures.<sup>6</sup>

If IPR is involved the incentives of firms to invest in R&D and to develop applications are shaped by the extent to which technology holders can use IPR to appropriate important parts of the value generated by the standard. Essential IPRs may play an important role in standardization, as they provide incentives for firms to develop technologies for standards and to contribute to the effort of standardization. Standardization entails a costly private investment into a public good. Due to this externality, standard makers underinvest in developing and improving standards. The prospect to include their proprietary technology into technological standards is an important incentive for firms to increase their investment in standardization.

IPR holders also have a stronger private interest to invest in improvements of existing standards if they can recoup the costs through licensing fees. Standards are a good illustration that Intellectual Property Rights are important for innovation not only as a reward for successful innovators, but also to ensure incentives in continuous investment in improving the protected technology.<sup>7</sup>

In our current research we thus conducted empirical analysis on R&D incentives connected to essential IPR. Our findings are able to further provide evidence to the discussion on effects of essential patents on standard dynamics:

*Studying the case of formal Standard Development Organizations (SDO), we investigated how the trade-off of standard replacement and standard upgrade is affected by the existence of patents on standard components. Using a database of over 3,500 different ICT standards, the study finds that essential patents reduce the likelihood of standard replacement, but increase the rate at which standards are upgraded. The results indicate that the increase in the*

---

<sup>6</sup> Baron, J., Ménière Y., Pohlmann, T. (2012) "Open innovation into standards and the role of consortia", Proceedings of the ICTNET 4th workshop – ICT, R&D, Intangibles and ICT Diffusion, London 2012. OECD ICT NET conference.

<sup>7</sup> Kindleberger, C. P. (1983): Standards as public, collective, and private goods, *Kyklos* Vol. 36, pp. 377-397; Kitch, E. (1977), The Nature and Function of the Patent System, *Journal of Law and Economics*, 20(2), pp. 265-290 .

*number of upgrades reflects an increase of firms' investment in improving existing standards. More frequent upgrades can partly explain the effect of patents on the rate of replacement. Nevertheless, the study also provides empirical evidence that essential patents induce a slowdown in standard replacement which is independent from the effect of standard upgrades. This effect could be the result of frictions and vested interests among standard setting firms.*<sup>8</sup>

### **7) In what way do software copyright licenses and standards patent licenses interact to support or prevent interoperability?**

Referring to the EU Study on the Interplay between Standards and Intellectual Property Rights (IPRs), commissioned by the DG Enterprise and Industry in 2011, licensing makes a difference for the support or prevention of interoperability.

In the study companies were asked to assess possible effects of essential IPRs on the implementation of standards. A general opinion seems to be that under royalty free conditions the impacts of essential IPRs are valued to be neutral or slightly positive. In comparison under FRAND conditions companies not owning essential IPRs perceive problems regarding negotiating licensing fees and royalty aggregation. The ability to stay competitive in the market as well as entering new markets is also estimated to be more difficult, when IPRs are included in standards. In general, companies active in the hardware<sup>9</sup> sector owning essential IPRs perceive no difference between FRAND and RF, whereas in the software<sup>10</sup> sector the RF regime is perceived as much more favorable also by the companies owning essential IPRs.<sup>11</sup>

As to findings of the study the UK Government should continue to promote voluntary, market-led standardization, whereas IPR policies should be set by the SSOs themselves. Competition policy guidelines should provide safe harbors for SSOs' IPR policies, while

---

<sup>8</sup> Baron, J.; Blind, K.; Pohlmann, T. (2012): Essential Patents and Standard Dynamics. Proceedings of the INTERTIC Conference on innovation and competition, Venice, 2011.

<sup>9</sup> The differentiation between hardware and software was done on the basis of a market share analysis. This differentiation only considered main SIC (Standard Industrial Classification) as to the categorization of the Thomson One Banker database.

<sup>10</sup> See footnote 9.

<sup>11</sup> Blind, K.; Bekkers, R.; Dietrich, Y.; Iversen, E.; Müller, B.; Pohlmann, T.; Verweijen, J. (2011): EU Study on the Interplay between Standards and Intellectual Property Rights (IPR), commissioned by the DG Enterprise and Industry. URL: [http://ec.europa.eu/enterprise/policies/european-standards/files/standards\\_policy/ipr-workshop/ipr\\_study\\_final\\_report\\_en.pdf](http://ec.europa.eu/enterprise/policies/european-standards/files/standards_policy/ipr-workshop/ipr_study_final_report_en.pdf)

supporting flexible and different approaches and business models – provided these do not result in anti-competitive behavior.

The UK government should encourage SSOs in their efforts to further consider:

- clear and binding IPR policies including irrevocable and worldwide licensing commitments;
- legal certainty in case of the transfer of essential patents to third parties;
- reasonable incentives for good faith IPR inquiries and disclosure;
- transparent, complete and accessible IPR databases;
- cooperation with patent offices on identifying prior art.

Some of the potential negative impacts of patents in standards may be mitigated if information on the royalty fee that licensors will charge and / or other licensing terms are known prior to including certain pieces of technology in a standard. This is what ex ante licensing policies aim at. The potential benefits of such practices have caught the attention of policy makers. In its recent White Paper on ICT, the European Commission suggests that SSOs should “consider a declaration of the most restrictive licensing terms, possibly including the (maximum) royalty rates before adoption of a standard as a potential route to providing more predictability and transparency”.<sup>12</sup>

In recent years, the VITA Standards Organization adopted a compulsory ex-ante policy, whereas the IEEE introduced a voluntary ex-ante licensing policy (in addition to the existing RAND policy). At ETSI, ex-ante licensing declarations are allowed; such statements are collected by the ETSI secretariat and made public on the ETSI website. However, in both IEEE and ETSI, this option does not seem to be very popular; for the latter organisation, not a single declaration was to be found on the website so far. As such, there is little practical experience with how ex ante licensing works out in practice.<sup>13</sup>

However, a recent study by the NIST (National Institute of Standards and Technology) on VITA’s and IEEE’s ex ante licensing schemes, has revealed no measurable negative effects on the number of standards started or adopted when standard bodies follow ex ante policies.

---

<sup>12</sup> European Commission (2009) White Paper Modernising ICT Standardisation in the EU – the Way forward, Brussels, 3.7. 2009.COM(2009) 324 final.

<sup>13</sup> Blind, K.; Bekkers, R.; Dietrich, Y.; Iversen, E.; Müller, B.; Pohlmann, T.; Verweijen, J. (2011): EU Study on the Interplay between Standards and Intellectual Property Rights (IPR), commissioned by the DG Enterprise and Industry. URL: [http://ec.europa.eu/enterprise/policies/european-standards/files/standards\\_policy/ipr-workshop/ipr\\_study\\_final\\_report\\_en.pdf](http://ec.europa.eu/enterprise/policies/european-standards/files/standards_policy/ipr-workshop/ipr_study_final_report_en.pdf)

Furthermore the report could not find any influence of quality or delaying standardization processes when firms disclose their patents and licensing schemes ex ante.<sup>14</sup>

The IT standards consortia VITA is a good example on how to shape an IPR policy to make participating companies state ex ante, on how their FRAND licensing commitment would look like. In contrast technological development of e.g. the GSM standard might not work that way. In telecommunication industries ex ante declarations and licensing terms seem to be more difficult to apply since technology develops over a long lasting time interval. It therefore seems to be a question of industry and technology, since in some sectors it is just not possible to calculate future success of standards or value of essential IPR. It is further difficult to estimate how many patents will be essential for a standard ex-ante. To assure that cumulative royalties should not exceed a certain percentage of the product's costs, ex-ante licensing might also have a negative effect on consumers.

We thus only suggest ex ante policies to be implemented to standardized technologies that fulfill appropriate criteria and where market constellation would not create a buyer cartels behavior. In these cases ex-ante licensing might further ensure transparency and reduce risks for implementing firms.

### **8) How could adopting (Fair) Reasonable and Non Discriminatory ((F)RAND) standards deliver a level playing field for open source and proprietary software solution providers?**

In our view authorities should agree that patent owners should be free to choose their business models due to their exclusive licensing rights. But the question remains if standards might be adopted when companies demand royalty fees? The goal of the public body should be to improve the adoption of mature and usable open standards. Therefore they might prefer standards to be as open as possible in terms of: documentation, IPR, open participation, independence of the Standard Setting Organization (SSO) and organized version management. Some governments' first choice is royalty free for essential IP, because standards are infrastructure on which companies should compete: Public authorities might further promote related IPR instead of technologically or economically essential IPR.

---

<sup>14</sup> NIST (2012): An Empirical Study of the Effects of Ex Ante Licensing Disclosure. Policies on the Development of Voluntary Technical Standards; under: URL: <http://www.ftc.gov/opp/workshops/standards/exantereport.pdf>

We do support these views to some extent; however different industries have different profit and R&D intensity levels and these have to be considered. In our perspective the question should rather be which standards to choose from, in terms of costs. It's not about the question whether or not the IPR is royalty free; it's the total cost of ownership. These may e.g. also include related services. Another important issue is to get innovation into standards. In telecommunications R&D investment is extremely expensive. Patents are an outcome of innovation and therefore also essential patents need to be rewarded. But there is also innovative implementation on top of standardization that needs to be considered. We believe that those standards should be favored that generate the highest benefit for society and highest R&D incentives to the market. These could also include patents that are licensed out.

We believe that it is perfectly possible to adopt OSS in standardization and even include patents according to the F/RAND mode. Interoperability between the OSS world and F/RAND is possible. The big question is when to choose on standards? E.g. should we choose Open Cloud standard just now, or wait and see how markets develop?

When for example comparing the standardization of GSM and the internet: Should software be handled differently to hardware? We believe that there should be different licensing regimes for different technologies: The Internet or other Platforms is where you make a business on top. And it thus always depends on different income models. In GSM you need return on investment with your patents. Some require rewarding schemes (Telcom), some not (Internet)! Procurement should thus only in some cases prefer RF over royalties. It can also be argued that it is more complex than only differentiating between hardware and software: Internet as a network and GSM as a network is the only comparable domain. We believe that on the network level there are not many differences. However, the application layer is different. Applications are usually mashups of sometimes unrelated technologies which are put together.

However, there is no authority to differentiate between hardware and software so why should we have different regimes? Outcomes are different because the incentives are different but not the framework: All technologies are converging, it is hard to differentiate. It is sometimes not easy to say this is a pure software standard. And there is a lot of innovation going on without IPR. Companies just have different business models. Some of these business models compete, which is good for competition. And therefore also proprietary and open source business models compete too! We believe that we should keep these mechanisms alive.

**9) Does selecting open standards which are compatible with a free or open source software license exclude certain suppliers or products?**

Standards are supposed to define protocols, formats and interfaces, not to describe implementations. Commercial suppliers are free to implement proprietary implementations of open standards, if a business model for doing so can be found. Compatibility with a Free Software license will not cause a requirement for commercial solutions to adopt the license as well. From this point of view, open standards compatible with free software licenses should not restrict suppliers or products.

**10) Does a promise of non-assertion of a patent when used in open source software alleviate concerns relating to patents and royalty charging?**

It does, as long as such an assertion can be enforced by the potential infringer through affordable legal actions. It should not be possible to reverse such an assertion in any way, which means a legal instrument is required as a defense for users of the patent. The assertion also needs to cover both implementers of the patent and end users.

**11) Should a different rationale be applied when purchasing off-the-shelf software solutions than is applied when purchasing bespoke solutions?**

The fundamental requirements should be the same - software products need to support Open Standards based file formats and communication protocols to be able to communicate with other solutions and to facilitate the exchange of data across the boundaries of organizations.

**12) In terms of standards for software interoperability, data and document formats, is there a need for the Government to engage with or provide funding for specific committees/bodies?**

To the extent that the government needs to ensure interoperability for its own use, the government is well advised – in contrast to current practice (see Blind, Lorenz, Weber et al.

2009)<sup>15</sup> - to take part in the standardization process and provide partial funding for relevant standards bodies. Preferably the standards bodies are international organizations. It should be investigated if concentration of standards bodies should be encouraged, maybe by communicating a selection of well accepted standards bodies that are considered influential to the government, in combination with ensuring the effectiveness of their operation and procedures.

**13) Are there any other policy options which would meet the described outcomes more effectively?**

## **Chapter 2: Proposed open standards mandation policy**

**1) What criteria should the Government consider when deciding whether it is appropriate to mandate particular standards?**

Since the goals of improving UK government IT operations and procurement breaks down to a set of potentially conflicting political implications, a single alternative policy option is probably not viable. The government's primary interest is in operating its own IT, but it will have to reflect on goals of innovation, growth effects in the local economy and efficient functioning of markets for software solutions. Open Standards are expected to support these goals overall in a well-balanced manner. We thus again support the criteria that have been supported by the EU in the standardization processes, meaning all stakeholders have the same possibility of contributing to the development of the standards. -Transparent government and processes. -Open access to information for any stakeholder. -No barriers to implementation- FRAND licensing in a way that allows implementation in both proprietary and open source software

---

<sup>15</sup> Blind, Lorenz, Weber (2009): „Einkäufer Staat“ als Innovationstreiber“ URL: [http://www.vergabe24.de/fileadmin/dateien/Dokumente/Downloads/Studie\\_Staat\\_als\\_Innovationstreiber.pdf](http://www.vergabe24.de/fileadmin/dateien/Dokumente/Downloads/Studie_Staat_als_Innovationstreiber.pdf)

## **2) What effect would mandating particular open standards have on improving value for money in the provision of government services?**

As to our understanding a mandatory mandate of specific procurement standards would cause anti-competitive behavior since this would restrain certain technology solution in the market. However a recommended open standard would have the effect to ensure a level playing field for all interested parties. It further increases possibilities to enter new IT markets and reduce risks of investments.<sup>16</sup>

## **3) Are there any legal or procurement barriers to mandating specific open standards in the UK Government's IT?**

In accordance to the question we believe that the European Procurement Directives have to be taken into account:

- Formal European Standards should always be the promised standards. Even though the European Procurement Directives are open to other standard organizations, especially in the case of ICT, formal European standard should still be considered as the first choice.
- Any reference to a specification has to be attached to the supplementing restriction: “or comparable”. Thus specific standards should not be mandated without equivalent solutions.
- In that sense: A standard should not be a mandatory regulation!

## **4) Could mandation of competing open standards for the same function deliver interoperable software and information at reduced cost?**

In the long term, duplication both of standardization and implementation efforts does not provide for an optimal allocation of resources. Suppliers will effectively be encouraged to support all application standards for the same field of functionality, leading to a duplication of effort. For the process of adopting an Open Standards policy however, mandating competing

---

<sup>16</sup> Se Blind (2008) Driving innovation – standards and public procurement, in: ISO FOCUS September 2008 URL: <http://publica.fraunhofer.de/dokumente/N-84022.html>

standards can be beneficial to enforce interoperability, providing a migration path for incumbent suppliers to supporting truly Open Standards.<sup>17</sup>

### **5) Could mandation of open standards promote anti-competitive behaviour in public procurement?**

Authorities of competition policy are concerned with standardization practices in terms of the direct coordination among competing companies that work together on a commonly agreed technology. The main antitrust issues used to be open participation and appropriate technology selection.<sup>18</sup> The first issue addresses the participation bylaws of Standard Setting Organizations (SSOs), which have to insure that membership is open to any stakeholder that is interested the standard in question. Even though standard setting is very costly in terms of personnel and travel expenses and thus usually only attracts big or medium sized firms, formal standards organizations are by law and policy open to all interested parties.

The second issue deals with the appropriate standard selection. The appropriate choice of standard proposals can usually not be evaluated by antitrust authorities due to a lack of technical expertise. However, one can argue that the appropriate standard is selected when all affected stakeholders in the market agree to the standard. The selection procedures of standard proposals always requests consensus decisions. These rules are defined in the bylaws of all formal SSOs. Majority voting is usually not accepted. However, some industry standards may not be set by formal standard organizations. Informal standards consortia may have differing policies and standardization procedures, which are less inclusive in terms of membership and which less consensus in terms of decision making.

Furthermore a mandatory mandate of specific procurement standards would also cause anti-competitive behavior since this would restrain certain technology solution in the market.

An uprising issue that became very relevant for antitrust questions in the last decades is the role of patents that are essential to a standard. Essential patents have a special position on a technology because they may leverage market power and lead to exclusive effects. Whereas patents are actually intended to allow its owner excluding others from using the protected invention, the main objective of standards is to encourage the spread and wide

---

<sup>17</sup> See also Blind (2011) An Economic Analysis of Standards Competition: The Example of the ISO ODF and OOXML Standards, in: Telecommunications Policy (35) (2011), pp. 373-381.

<sup>18</sup> Teece, David J.; Sherry, Edward F (2003): Standards Setting and Antitrust Symposium: The Interface between Intellectual Property Law and Antitrust Law.

implementation of the standardized technology. Manufacturers that create products are not able to bypass standards or invent around standardized technologies, since standards shape the interface to connect, communicate or work on or with other products and platforms. E.g. a smart phone without GSM or UMTS compliance would not be able to connect to any network. A patent that blocks a standard would thus also block a whole technology or even whole industries. This apparent conflict is resolved by licensing. Antitrust law interprets the licensing of essential patents to be a market of its own. A company that owns an essential patent would thus hold a dominant position in this market. The defendant has the right to get a license under FRAND terms, which can be raised as a defense in infringement cases. An important body of academic research interprets FRAND commitments as restricting the maximum height of royalty requests and attaches little attention to examining whether pricing is non-discriminatory among the licensees. This general line of interpretation is somehow uncomfortable for antitrust scholars, since competition policy, especially when dealing with patents, should not aim at restricting profits, but at guaranteeing a level playing field for competition.

Diverging interpretations of FRAND commitments are a frequent source of conflict. Very important cases of alleged breach of FRAND commitments have motivated politic and academic debates intended to give a concrete meaning especially to the terms “fair” and “reasonable”. The interest has concentrated on definitions of reasonable terms of licenses, which is seen as the maximum amount of royalties a patent holder can ask. “Fair” and “reasonable” is understood in terms of how much weight the patented technology has compared to other parts that frame the standard or product. If other components of the standard are patented too, a so called cumulative license has to be considered when estimating a “fair” and “reasonable” license. Especially when several companies license out for a specific standard and the license contracts are not transparent, the problem of double marginalization may arise. In these situations every patentee would overestimate the value for its own essential IPR and the costs of a cumulative license would not be “fair” and “reasonable” anymore.

Many complaints about anticompetitive effects of standardization and cases of antitrust litigation focus on the structure of pricing, i.e. on claims that specific licensing schemes put some licensees at a competitive disadvantage with respect to their direct competitors. In several industries, but especially consumer electronics and mobile telephony, holders of essential patents compete on the production market against producers who do not hold

patents. The argument is that patent holders take profit from standardization using cross licensing or joined licensing schemes to exclude their downstream competitors.<sup>19</sup>

The UK government should be aware of these possible anti-competitive behaviors and only recommend standards that fulfill certain criteria that ensure a level playing field. In this context the UK government must observe the European Commission's formal investigations on the abuse of dominant position connected to standardization and licensing of essential IPRs.

**6) How would mandation of specific open standards for government IT software interoperability, data and document formats affect your organisation/business?**

See Answer of Question 4 Chapter 1

**7) How should the Government best deal with the issue of change relating to legacy systems or incompatible updates to existing open standards?**

See Answer of Question 5 and 6 Chapter 1

---

<sup>19</sup>Several literature articles explore explicitly what non-discrimination term in FRAND mean with respect to non-discrimination in general antitrust law: Baumol William J., Swanson Daniel G. (2005): Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power, 73 ANTITRUST L.J. 1, 13.; Crane, Daniel A. (2008): Patent Pools, RAND Commitments, and the Problematics of Price Discrimination Cardozo Legal Studies Research Paper No. 232.; Geradin, Damien (2008): Pricing abuses by essential patent holders in a standard-setting context: A view from Europe; Paper prepared for the "The Remedies for Dominant Firm Misconduct" Conference June 4-5, 2008 – University of Virginia.

**8) What should trigger the review of an open standard that has already been mandated?**

Any standard needs to be reviewed on a regularly basis once mandated, to see if it still reflects the technical state of the art. Indicators for sub-par standards include growing market shares of competing free or proprietary solutions, discontent amongst users or increasing interoperability problems.

**9) How should the Government strike a balance between nurturing innovation and conforming to standards?**

See Answer of Question 5 and 6 and 7 Chapter 1

**10) How should the Government confirm that a solution claiming conformity to a standard is interoperable in practice?**

Most standards are set in international standard bodies. Participants at the standard setting meetings should include all interested stakeholders. If the criteria of *-Open participation in the standardization processes. -Transparent government and processes. -Open access to information for any stakeholder and -No barriers to implementation.* are fulfilled, interoperability is ensured by the market participants themselves.

**11) Are there any are other policy options which would meet the objective more effectively?**

To our knowledge, there are no alternative policy options that promise to cause similar or better effects to the Government, society and economy compared to consistently guidance Open Standards.

## **Chapter 3: Proposed international alignment policy**

**1) Is the proposed UK policy compatible with European policies, directives and regulations (existing or planned) such as the European Interoperability Framework version 2.0 and the reform proposal for European Standardisation?**

**2) Will the open standards policy be beneficial or detrimental for innovation and competition in the UK and Europe?**

**3) Are there any other policy options which would meet the objectives described in this consultation paper more effectively?**

To our knowledge, there are no alternative policy options that promise to cause similar or better effects to the Government, society and economy compared to consistently guidance Open Standards.