

Getting Requirements Right

Towards a nuanced approach on Standardisation and IPRs

By Jochen Friedrich

Global ICT standardisation takes place in a diverse ICT standards ecosystem. Different organisations cover different technology areas. This includes a diversity of IPR policies – tailored by the members of the respective standards bodies so that the market is served best and innovation is promoted in an optimal way. Governments reflect this in their policy making when including a reference or requirements to standards and specifications. The differentiate between policy areas and the needs that evolve for standards supporting the respective actions. This level of differentiation leads to a nuanced approach which best serves the markets and unleashes the potential for innovation which can be achieved with the support of standardisation.

Introduction

Standards are the backbone of open ICT ecosystems. Standards facilitate market access by complying with basic regulatory requirements in the areas of health, safety and the environment. Standards are a key instrument for the broad adoption of new technologies. And standards enable and ensure interoperability and thus allow all market players to provide innovative technologies and compete on fair grounds. This is particularly critical for the combination of technologies in order to build new, innovative solutions. Prominent examples for innovations where

technologies are integrated and therefore different standards are combined are Cloud, smart grid, smarter cities, etc.

Successful standardisation builds on two success factors: (i) the availability of technologies, i.e. the willingness of the owner, inventor or innovator to contribute their technologies to standardisation and thus make them available for broad exploitation; and (ii) the broad adoption of the standards on the global market place.

Both are also key aspects when looking at patented technologies. The intersection of IPR (Intellectual Property Rights) and standardisation is a complex and heavily debated area. Sometimes the debate seems to much to be held in black and white – especially in the context of the role of public authorities. This paper will give some perspectives on the topic and argue in favour of a nuanced approach.

Excursus: The Global ICT Standardisation Ecosystem

Standards bodies are to provide a platform for industry and other interested stakeholders to develop standards that suit the marketplace. Standards bodies are member driven and independent organisations.

There are formally recognised standards bodies, both on national, European and international level. These formally recognised standards bodies develop standards (norms) in so-called full-consensus processes, i.e. with broad and systematic stakeholder consultation in a public enquiry, and are in a position to provide standards/norms that are used in support of regulation. The binding rules for formal international standardisation are laid down in an Annex to the WTO TBT Agreement. In Europe the standardisation system is defined in a new Regulation which came into place on January 1, 2013 (1025/2012).

On the international level the three formally recognised standards bodies are ISO and IEC with the national formally recognised standards bodies as their members, i.e. BSI in the UK, AFNOR in France, DIN in Germany, etc. The similar structure exists for CEN and CENELEC in Europe. This structure includes that development of standards is done in a national delegation principle where national standards bodies set up mirror committees to the international or European projects and all mirror committees agree on delegates that are sent to the international or European level to represent the interests and decisions of the respective mirror committees. For the ICT sector ISO and IEC have established a Joint Technology Committee, the ISO/IEC JTC 1, where ICT standardisation takes place in the same way with national delegations.

For telecommunications there are ITU on the international level and ETSI in Europe. Both have different membership structures with national delegations where national governments have a key role in leading the delegations when it comes to developing formal standards. In ISO, IEC, CEN, CENELEC and in the national standards bodies the predominant business model is on selling the standards document. Abstracts – and sometimes pre-final drafts – are available publicly, but the final standards document is acquired from the standards body.

In Europe, the European Standardisation Organisations (ESO) have the explicit task to develop harmonised standards in support of the European common market. This concerns the areas health, safety and the environment which are governed in the New Legislative Framework in the EU including the New Approach Directives, e.g. the Directives on Product Safety, Electromagnetic Compatibility (EMC), Low Voltage (LVD). In short: In these areas the European Commission lays down the government requirements. Industry can voluntarily develop European

Standards (EN) in order to meet the requirements. Those who implement the respective standards therefore comply with the requirements on the basis of a presumption of conformity. The ENs are listed in the Official Journal of the EU.

In addition to this structure of formal standards bodies there are many other global standards bodies which, especially in the field of ICT (Information and Communication Technologies) develop global standards that are broadly used and implemented. Examples for such organisations include the IETF, W3C, OASIS, ECM international, OAGi, OMG, IEEE etc. The leading ICT standards bodies have broad global membership including all stakeholder groups and operate with open standards development processes that don't differ from the processes in the formal standards bodies. Some even may be regarded as having a higher level of openness and transparency based on the use of IT technologies and web tools. In W3C, for instance, all interested parties, whether members of the organisations or not, can follow the discussions and can give comments which are considered in the process.

It is fair to say that for IT technologies the private global organisations have the lead in developing the relevant global standards around the internet, the web, software and business processes. With some simplification it may be said that this applies for all areas that are relevant for the marketplace without affecting regulation in the areas of health, safety and the environment. When regulation comes to play some linkage with the formally recognised standards bodies and their processes is established. A prime recent example here is web accessibility where the respective W3C standard has been put forward via CEN for being eligible for referencing in EU regulatory contexts and for achieving a harmonised approach towards web accessibility –

harmonising across all EU member states and avoiding fragmentation.

There are some areas of technology where public interest exists to some extent and where, therefore, there is an interest in transposing specifications that were developed in private global organisations to the level of formal standards. Document formats are an example. Such standards and specifications may have relevance on a policy level outside of regulation. In order to accommodate the respective needs the leading global ICT standards bodies have created a liaison with ISO/IEC JTC 1 and have got PAS submitter status. PAS refers to “publicly available specifications” which means that organisations can submit their specifications directly for national voting and, thus, for adoption as a formal international standard.

Public authorities may trigger the development of standards or activities around standardisation in several ways. Regarding the use of standards in support of regulation the EU Commission may issue a Standardisation Mandate to the three ESOs in Europe. The ESOs evaluate the Mandate and propose respective work items. Notwithstanding, standardisation activities are voluntary and it is up to the stakeholders to decide whether to take up the work and engage in a standardisation activity.

According to the new EU Regulation on Standardisation (No 1025/2012) the EU Commission can also follow a process to identify global ICT specifications so that they can directly be referenced in public procurement. This allows for global Open Standards to be used and provides a basis for much broader adoption of global Open Standards by public authorities. Thus governments can further promote interoperability as well as competition via their power as a customer of ICT technologies and systems. And procurement plays a role in actually

implementing government internal policies and thus strengthen policy making.

The Role of Standards Bodies regarding IPR

Standards Bodies need to have an Intellectual Property Rights (IPR) Policy which lays down the rules how IPRs that are included or critical for standards are dealt with. Typically such an IPR policy includes issues like which are essential claims?; when do they have to be declared?; what is the policy for licensing patents in standard?; until what point in time can a party opt out of a technical committee?; etc.

The IPR policy is developed by the members of the respective standards body. It needs to comply with basic law, e.g. patent law, competition law. Otherwise the members of the standards body are free to design a policy which suits their needs and ensures fair collaboration within the organisation.

With their IPR policies standards bodies thus ensure that patented technologies that are included in a standards are available for implementers. On a simplified level it may be said that for Information and Communication Technologies (ICT) the leading global standards bodies have chosen two models regarding the rules for patent licensing:

FRAND – Fair, Reasonable, Non-Discriminatory

FRAND is the model that has traditionally been applied in the context of technology. FRAND is a promise that members of a standards bodies give when declaring a patent as standards essential. It means that the respective patent holder is willing to license the patent to implementers on a fair and reasonable basis.

The actual negotiations between patent holder and licensee take place on a bilateral basis outside of the standards body.

The FRAND principle achieves that technical work on standards development can take place within the framework provided by the standards body. Commercial discussions are, as it were, kept out and therefore don't impact the technical work. The FRAND model has successfully been practiced for decades. This does not mean that there are no disputes. Disputes and impasses do occur once in a while and are usually dealt with in court or by arbitration. Yet, again, this happens outside of the actual standardisation environment and without direct impact on the standards bodies.

Royalty-free

The dominant model around technologies for the world wide web and for software interoperability is Royalty-free. The leading global standards bodies in this field have – based on the agreement of their members – implemented Royalty-free policies which require from the patent holders to license their patented technologies which are standards essential without compensation.

One Policy with Multiple Options

Some standards bodies have implemented a policy which includes different options so that it is possible to chose case-by-case between FRAND and Royalty-free. The most prominent example is OASIS. And even though over 90% of all OASIS standards have been developed by applying the Royalty-free option, the FRAND option is available and may be chosen in certain cases.

OASIS has also included another option which may be chosen – a non-assert commitment. This means that patent holders commit that they will not execute their patent claims for the respective standard. This does, however, not mean that there is a general licensing on Royalty-free terms, but entirely circumvents the issue of licensing.

Diversity serving the Dynamics of the Marketplace

Diversity in standards bodies and in IPR regimes serves the market place with high success. It allows to apply policy approaches and rules in relation to specific markets and market needs. There is clearly no “one-size-fits-all” approach that would suit all technology areas and all purposes.

Industry and other stakeholders are, therefore, working jointly in different global standards bodies in order to develop the best IPR rules possible for the given technology area that is covered and addressed. Standards bodies are independent and sovereign bodies where stakeholders collaborate in open and transparent processes to reach consensus on what they find suits markets best. Competition that takes place between standards bodies on the global level further promotes a regular revision and transformation process including IPR policies. As a consequence this leads to constant improvements and adaptations to the needs of the market place.

Especially for a dynamically changing technology sector like ICT it is of high importance that standards bodies provide flexible platforms for best-of-class, market-driven standardisation. At the same time the presence of a broad spectrum of stakeholders in standards bodies balances out interests.

Innovation and IPRs

A major consideration for the choice of IPR policy in a standards body is how to best promote innovation. Both models described above, FRAND and Royalty-free, play an important role in promoting innovation in the context of standardisation.

Bringing base-technology into standardisation

It is essential to have new, patented, innovative base-technology available for standardisation. FRAND plays a key role here because it allows for compensation. This means via FRAND it becomes attractive for patent holders to bring in their patented technologies into standardisation. FRAND enables that patent holders will receive some reward for the efforts they have put in into Research and Development.

It is important to stress that the actual innovation in this case has taken place on the level of research and development activities preceding standardisation.

Innovation on the level of standards implementation

Standardisation as such is not normally innovative. Innovation mostly takes place on the level of the implementation of standards including the integration of technologies and the combination of standards. In this case the act of innovation takes place on top of the standards.

In order to promote innovation on the level of the implementation of standards the broad, global adoption of standards is important, if not a pre-requisite. Aspects like the availability of standards and the terms and conditions for their use are typically addressed and taken into consideration when

working out requirements for IPR policies. Free availability of standards, e.g. for download on the web, and lack of IPR encumbrances for the use and implementation are, as it were, ideal factors on the extreme side for the update and adoption of standards. But they are not necessary factors for promoting the uptake. The most important factor, for sure, is market need.

Royalty-free – innovation in software

A boost of innovation took place over the last 15 years with the internet and the world wide web. This is innovation that takes place on the level of the implementation and combination of standards in the area of software interoperability. And all the innovation of the internet and the world wide web is based on so called Open Standards which are available Royalty-free. The standards have been developed in a couple of specialised global standards bodies. And there is broad agreement amongst industry and all stakeholders on the high importance of requiring Open Standards for software interoperability. This promotes the uptake and broad adoption of standards and thus makes them available for exploitation and for innovation. It also allows for implementation in Open Source and therefore promotes a level playing field in software interoperability.

Diverse patent policies in global standards bodies

A look at the different patent policies applied in global standards bodies shows that (i) there is a good deal of diversity amongst the leading IT standards bodies worldwide; (ii) that the choice of rules is taken in relation to the technology area where the key expertise of the standards body lies.

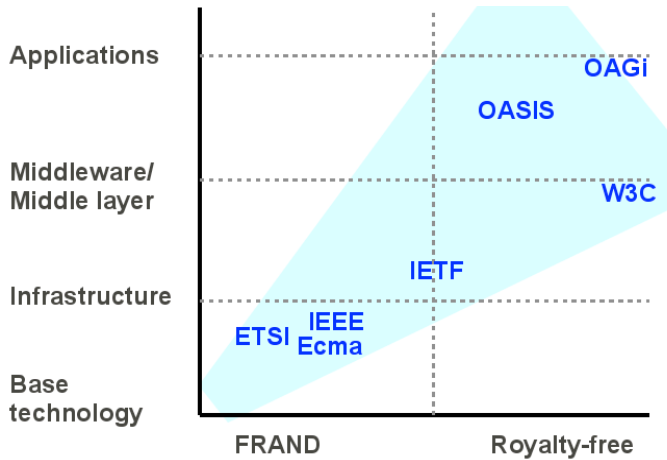


Figure 1: Global Standards Bodies and Patent Policies

On a simplified level it is fair to say that the higher-up in the stack, the more that software interoperability is concerned, the more has a Royalty-free patent policy been implemented. Figure 1 illustrated this picking some examples of the leading global internet and IT standards bodies.

It is on the middle-ware and application level where standardisation is about interoperability in software, about protocols and data formats. Royalty-free is the dominant model on this level. While for base technology, where innovation is largely in the technology components that are contributed to standardisation, that FRAND is the dominant model which has been chosen and implemented in patent policies.

Openness and Diversity

Openness is a major requirement in standardisation. But openness is not a clear cut state. It is rather a collection of requirements

which should be met but which may be met to certain degrees, some in a more open way, some less. In other words, openness is some sort of continuum which starts beyond “closed” - which is clearly not part of the openness continuum – and extends into “fully open” with all requirements being met to the utmost.

Requirements or criteria to look at in the context of addressing openness in standardisation are (i) development process; (ii) maintenance; (iii) consensus building; (iv) availability; (v) rules for implementation.

Openness is, therefore, not contradictory to FRAND. Yet, there may be other criteria determining openness in certain contexts so that – depending on the area of technology – it may be appropriate to have different requirements on openness.

As explained above, one such area is software interoperability. It is important that software interoperability standards can be implemented in Open Source. This creates a level playing field for Open Source technology providers on the marketplace and makes the respective Open Standards available for broad adoption and thus promotes innovation that takes place on top of the standards.

The diversity of global standards bodies with different rules and policies that have been tailored to the specific needs of the stakeholders and the market is an ideal ecosystem for global standardisation in ICT. This also means that the global needs regarding innovation in relation to standardisation are best served with a diverse standardisation ecosystem.

Public Policy, Openness and Standardisation

As described above, there are different ways how standardisation and standards may be used in support of public policy. In a nutshell: standards ensure interoperability. They are key in providing a level playing field for competition and thus play a role

in promoting openness, innovation and growth. Public authorities reap these benefits by referring to standards or demanding the use of standards in the context of public policies.

In Regulation, voluntary standardisation has proved to be an effective and efficient instrument in Europe for meeting regulatory requirements under a presumption of conformity. The respective standards that are used in the context of EU legal frameworks like Regulations or Directives normally need to be formal standards that have been developed with or adopted by the ESOs and their processes including in particular the formal public enquiry procedure. Broad consensus and an open, transparent and inclusive development process are key requirements which public authorities put onto the standards.

Another perspective is taken when innovation policy or industrial policy is concerned. In innovation policy public authorities usually wish to promote the adoption of new technologies in order to push innovation. This means, the broad availability of technologies is important and, in order to have a level playing field for competition, standards need to be implementable in Open Source when software interoperability is at stake. Therefore, governments typically take a strong stance in requiring Open Standards for eGovernment and software interoperability contexts. The Open Standards must have been developed in an open process and be available for implementation on Royalty-free terms and conditions.

Looking at innovation policy in other areas, e.g. where complex systems are concerned, the requirements need again be different – or better: more nuanced. Examples here are Smart Grid, eEnergy, eMobility, Intelligent Transportation, smart water supply etc. These are areas where technologies from different sectors are integrated which highly contributes to innovation of smarter ways and methods of how to do things. This integration of

technologies is possible by combining the different standards into complex systems which address different levels of technology. It certainly remains a key requirement for the level of software interoperability that the respective standards should be Open Standards available for implementation on Royalty-free terms. Yet for other technology levels included, e.g. those where base technology is concerned, FRAND is the absolutely appropriate direction.

On the overall level, therefore, government rules need to be flexible and allow for the full spectrum of standards which have been developed in open processes to be available for referencing and use. Notwithstanding such a general framework, it is up to specific policies, e.g. in the area of eGovernment, to set their specific requirements to Open Standards. Such a nuanced approach will best serve different interests and objectives and will be the most effective way for promoting openness and innovation.

Concluding Remarks

The space between black and white is not grey but full of colours. It is important to be able to have access to all colours, to pick and chose the right ones for the right purpose and to combine the right ones into harmonious paintings.

The global ICT standardisation ecosystem provides an environment for standardisation that can serve the market needs in specific technology domains. Stakeholders all over the globe collaborate in the respective global standards bodies. This collaboration includes the agreement and improvement of IPR policies so that the respective organisation can work efficiently and produce best-of-class standardisation deliverables for broad market adoption.

In the context of public policy making, for standards that are used in support of public policy, it is important that specific requirements are made which meet the respective needs and can best support the policy objectives. Both, FRAND and Royalty-free have their role. FRAND is important for getting base technology into standardisation. Royalty-free is required in software interoperability in order to effectively promote innovation and competition and allow for implementation in Open Source. Bottom line: It is important to get the requirements right.

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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. He worked as operations manager for the IBM European Voice Technology Development team and was responsible for Business Development and Project Coordination for Voice Research projects in Europe. Jochen has broad experience in driving new, emerging technologies, managing multi-national and multi-company teams and setting up multi-company projects in the European Union research framework.

In addition to his IBM responsibilities, Jochen is a member of a regional board of the German Association of Electronics, Electrical Engineering and Information Technologies (VDE), he was a foundational Board member of the Enterprise Interoperability Centre (EIC) and holds lead roles in European industry associations, most notably in the OpenForum Europe (OFE) where he chairs the standardisation task force, in DigitalEurope (DE) and in the German ICT association BITKOM.

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