Standard-setting from a competition law perspective

by Ruben Schellingerhout (1)

Competition rules to ensure that the benefits of standards materialise

Competition regulators pay attention to standard setting because legally a standard constitutes an agreement between companies. However, the Commission has always taken the view that there are also clear benefits associated with standard-setting. As early as 1992 the Commission outlined this general point. (2) In its 2001 Horizontal Guidelines it therefore provided guidance on when it considered standard setting to be unproblematic.

Since the adoption of the 2001 standardisation Guidelines, a number of issues have come to the fore. It became increasingly clear that malpractices were occurring in the standard setting process which could lead to serious distortions of competition. (3) In response, the Commission revised the Guidelines in 2010 to provide more guidance to standards bodies on how they could design their rules so as to avoid restrictive effects on competition. (4)

This purpose of this article is to provide the full picture on standard-setting. It starts by outlining why competition law is concerned at all by standards. It then covers in more detail some of the issues that have arisen. The extended guidance in the revised Guidelines is then fleshed out in more detail. Finally, some thought is given to the future of standardisation.

Standards have a positive effect in the economy insofar as they promote economic interpenetration in the common market or encourage the development of new markets and improved supply conditions. Standards tend to increase competition and allow lower output and sales costs, thus benefiting the economy as a whole. These benefits are achieved through standards which ensure interoperability, maintain and enhance quality, and provide information. (5)

Within the European internal market, standards provide the additional benefits of contributing to the achievement of market integration within the EU. Common standards, be they governmental or private, help eliminate restrictions to trade among Member States. Particularly in hi-tech markets, standards - if they are properly developed - play a positive role in promoting the efficient promulgation of new technologies in a manner that is most beneficial to the consumer and the economy in general. The European Commission recognises the general benefits that standardisation brings.

In a globalised economy, standards are clearly more important than ever. They often facilitate economies of scale, and secure multiple supply sources. The primary objective of standards is to define technical or quality requirements. Standards can cover various issues, such as standardisation of different grades or sizes of a particular product, standardisation of production processes or methods, or technical specifications in markets where compatibility and interoperability with other products or systems is essential.

Standards have their biggest impact on technology markets by securing interoperability. Standards provide the very foundation of interoperability. The development of electronic communications networks has seen a rise in the importance of interoperability between equipment used, between services provided, and between data exchanged. ICT interoperability and especially software interoperability, has become critical in an ever more interconnected world. Digital convergence, the spread of communications technology, and the Internet have created a greater need for interoperability among products and services.

Interoperability encourages competition on the merits of technologies from different companies, and helps prevent lock-in. When a particular technology is chosen over others transparently and fairly, any potential restrictions of competition are generally outweighed by the countervailing economic benefits.

(1) The content of this article does not necessarily reflect the official position of the European Commission. Responsibility for the information and views expressed lies entirely with the authors.

(2) Impact Assessment § 43


Standards can be set by formal government standard setting bodies, through formalised industry collaboration in the framework of standard setting organizations or by means of ad hoc agreements between undertakings. Standards may also arise spontaneously with no connection to any collaborative process as a result of technologies achieving a high level of penetration in a given market.

The setting of standards, in spite of their benefits, can give rise to competition issues. Competition rules usually do not allow companies to discuss and agree the technical developments of an industry amongst themselves. Discussions in the context of standard setting can, for example, provide an opportunity to reduce or eliminate competition. (1)

However, the Commission takes the view that, under certain conditions, standardisation does not raise concerns. It is for that reason that it promotes open and transparent standard setting.

In order for the benefits of standards to be realised, the interests of the users of the standard also need to be protected. Certain behaviour in standard-setting organisations can directly lead to a restrictive effect on competition. Particular attention must be paid to the procedures used to guarantee that this does not happen. The Commission has therefore set out the conditions which will minimise the chance of this risk materialising.

Some commentators question whether there is a problem if intellectual property rights are not disclosed, because the owner of an intellectual property has a monopoly in any case. In their view this would allow it to charge what it likes as long as that charge is not excessive.

However, being included in a standard can change the market value of a technology. That value is not inherent in the intellectual property right. It is natural that a unique, pioneering, and innovative technology for which no alternative exists will be valued accordingly by the market. However, by being included in a standard, the holder of an essential patent can acquire an incremental degree of market power. In other words, it gives him a degree of market power which he would not possess in the absence of a standard.

This occurs when a switch to a different standard entails significant costs and industry gets “locked into” the standard. This creates a barrier to entry. As a result, potentially competing technologies are excluded from the market.

A standardisation agreement is not capable of producing restrictive effects on competition in the absence of market power. Therefore, restrictive effects are most unlikely in a situation where there is genuine competition between a number of voluntary standards. The question of market power can only be assessed on a case by case basis. (2)

Overall, it would appear that the Commission is unlikely to take issue with standard setting if it is open and transparent. As a general rule, a company that has undue control of a standard presents the greatest risk of negative, restrictive effects on competition. The example of a patent ambush illustrates this very clearly.

Patent ambush - A system breakdown

A patent ambush is a clear example of a breakdown of the standardisation system. It means that a company first hides the fact that it holds essential intellectual property rights over the standard being developed. It then starts asserting these intellectual property rights once the standard has been agreed and when other companies are locked into using it. A patent ambush frustrates the aims of standard-setting organisations and has a negative impact on both consumer welfare and competitiveness.

A patent ambush prevents competition on its merits. During the standard-setting process multiple technologies may compete for incorporation into the standard, but – as a result of the ambush - crucial information on the cost of one of the technologies is intentionally hidden. Because disclosure only occurs once industry is locked-in, the company can charge a monopoly price which it would otherwise have been unable to charge.

The Commission’s investigation in the Rambus “patent ambush” case showed the potential restrictive effects on competition resulting from non-disclosure of relevant IPR. The Commission took the view initially that Rambus could only claim royalties for the use of its patents from manufacturers complying with the industry standard at a certain level due to allegedly intentional deceptive conduct. (3) In this case, the alleged deceptive conduct consisted of the non-disclosure of the existence of patents and patent applications which were later claimed to be relevant to the adopted standard. (4)

(1) Guidelines § 277.
(2) The Commission’s preliminary view was that “Rambus’ practice of claiming royalties for the use of its patents from industry standard-compliant DRAM manufacturers at a level which, absent its allegedly intentional deceptive conduct, it would not have been able to charge raised concerns as to the compatibility with Article 102 of the Treaty on the Functioning of the European Union” (§ 3 commitments decision).
(3) In the US the issue of patent ambush has led to decisions in other cases such as Dell Computer Corp., 121 FTC 616 (May 20, 1996) and in the matter of Union Oil Company of California, FTC Docket No. 9305 (2005).
The products in the Rambus case were synchronous DRAM-chips. The DRAM-chip is the computer’s “working” memory, where information is continuously stored and read by different applications. Because these applications need to access the DRAM-chip, it is essential that the memory chip is compatible with the other components of a computer, such as the chipset and the microprocessor. It is therefore essential to have a standard.

The US-based standards organisation, JEDEC, developed an industry-wide standard for DRAM memory chips. Virtually all PCs have JEDEC-compliant DRAMs. Standard compliant memory chips account for around 95% of the market. In 2009, worldwide sales of DRAM memory chips exceeded 23 billion euros.

Because there are significant costs associated with switching, the industry is locked into the JEDEC standard. Firstly, the costs of developing standards are substantial. The development of the DRAM standards took around five years. The reason for this is that a DRAM needs to be interoperable with other computer components. All companies active in the sector would need to agree to a new standard.

Furthermore, there are significant costs associated with switching from a standard in the DRAM market. The DRAM memory chip is not an independent product, but is part of an eco-system. It is not only DRAM manufacturers who would need to adapt to a new standard, but the entire industry. Companies producing PCs and servers would need to develop and test new system architectures. Microprocessor and chipset manufacturers would also need to redesign their chips.

Overall these switching costs are prohibitive. Because industry is locked into JEDEC standards there are substantial barriers to the entry of a different product on the market.

Rambus asserts its patents against all standard compliant memory chips. Every manufacturer wishing to produce standard compliant chips has to take out a licence. This gives Rambus a dominant position.

The Commission’s preliminary view was that Rambus claimed royalties only after the industry was locked in to the standard and was therefore able to charge an artificially inflated monopoly price. It was only able to charge that price because it did not disclose its patent applications. If Rambus’s technologies had been selected fairly and squarely, in an open competition on the merits, there would not have been a competition problem. However, this was not the case.

To address the Commission’s concerns, Rambus undertook to put a worldwide cap on its royalty rates for products compliant with the JEDEC standards for five years. On 9 December 2009, the Commission adopted a decision that rendered legally binding the commitments offered by Rambus. (10) The Commission’s decision introducing commitments had a clear effect on the market. After the decision, several manufacturers of DRAM chips, including the market leader Samsung, signed a licence.

Prevention is better than cure

The Commission considers that, in the case of problems like these, prevention is better than cure. This is why it has sometimes worked with standards bodies in order to adapt their rules in line with the Horizontal Guidelines and to minimise risks. An example of how this takes place occurred in 2000. DG Competition investigated allegations that, during the development of the standard for GSM smart cards, Sun had not respected ETSI’s rules on intellectual property rights. (11) Sun only declared it had essential patents after that standard had been agreed, and then only identified what these claimed essential patents were long after the standard had been published and promulgated. Following the Commission’s intervention, no reference was made in the standard to Sun’s IPR. However, the Commission also scrutinised ETSI’s rules on intellectual property rights.

In the course of the Sun investigation, DG Competition took the preliminary view that ETSI’s rules on intellectual property rights did not provide sufficient protection against the risk of a ‘patent ambush’ during the ETSI standard-setting procedures. (12) In response to the Commission’s concerns, ETSI approved changes to its standard-setting rules which strengthened the requirement for early disclosure of those intellectual property rights which are essential for the implementation of a standard, and which minimise the risk of patent ambush occurring.

Through the Sun/ETSI and Rambus case the Commission sent a clear message to standards bodies. They have a responsibility to design clear rules in order to reduce the risk of competition problems, such as patent ambushes.

The lessons learned in these cases are reflected in the revised Guidelines. The revised horizontal Guidelines provide more guidance to standards bodies on how best to design their rules. This is in line with the principle that prevention is better than cure. I will now deal with the Guidelines.

More detailed guidance for standard setting

The revised Horizontal Guidelines provide guidance to companies as to which actions they can undertake without the risk of infringing competition law and without prescribing a specific set up. In general, it is not and should not be the role of an antitrust agency to interfere in the standard setting process. The Guidelines therefore leave the companies a choice, but they do have a responsibility to design clear rules that reduce the risk of competition problems.

The standardisation chapter sets out the criteria under which the Commission will normally not take issue with a standard-setting agreement. By analogy with block exemptions, this could be called a ‘safe harbour’. The chapter also gives more guidance on the Commission’s view on the inclusion of IPR in standards from the angle of competition law. Some new points are now dealt with in the guidelines, for example on “ex ante” disclosure. I will go into some more detail on each of these points.

The Guidelines point out that where participation in standard-setting is unrestricted and the procedure for adopting the standard in question is transparent, standardisation agreements which contain no obligation to comply with the standard and provide access to the standard on fair, reasonable and non-discriminatory terms will normally not restrict competition within the meaning of Article 101(1).

The Court has confirmed that the Commission is right to apply these assessment criteria if a standard restricts competition. In EMC the complainant claimed that European cement producers had infringed Article 101 by creating barriers to entry, the most significant of those barriers being a standard. The Court held that the Commission was correct to examine whether the complaint was justified by assessing whether “the procedure for adoption of the Standard had not been non-discriminatory, open and transparent” and was not binding on the members. The Commission concluded that these criteria were fulfilled and rejected the complaint.

This means that standard-setting will normally not restrict competition if the following four principles are met.

1. Participation in standard-setting is unrestricted;
2. The procedure for adopting the standard in question is transparent;
3. There is no obligation to comply with the standard;
4. Access to the standard is on fair, reasonable and non-discriminatory terms.

Below I will go into some more detail for each of these four points.

Firstly, in order to ensure unrestricted participation, the rules of the standard-setting organisation need to guarantee that all competitors in the market affected by the standard can participate. They also need to have objective and non-discriminatory procedures for allocating voting rights.

By their nature, standards will not include all possible specifications or technologies, and in some cases it may be necessary for the benefit of the consumers or the economy at large to have only one technological solution. The Guidelines therefore stress the importance of non-discriminatory, open and transparent procedures.

Secondly, with respect to transparency, procedures need to be in place that allow stakeholders to effectively inform themselves of upcoming, on-going and finalised standardisation work in good time at each stage of the development of the standard.

Thirdly, where members of a standard-setting organisation remain free to develop alternative standards or products that do not comply with the agreed standard, the risk of a likely negative effect on competition is quite low. However, if the agreement binds members to only produce products in compliance with the standard, the risk of a negative effect on competition is high. Under certain circumstances this could even give rise to a restriction of competition by object?

Fourthly, the rules of the standard-setting organisation would have to ensure effective access to the standard on fair, reasonable and non-discriminatory terms. Standards that are not accessible to third parties may discriminate or foreclose third parties or segment markets according to their geographic scope of application.

IPR disclosure policies allow members of the standard-setting organisation, and the standard-setting organisation itself, to have an early understanding of the IPR that might read on the standard under development. This in turn also allows the standard-setting organisation either to ask for a licensing commitment from the IPR holders or to try to work around that particular solution. The IPR disclosure obligation is also intended to avoid the standard being blocked at a later stage by an IPR holder that is unwilling to license on reasonable terms or at all. In practice, the problem of IPR holders bluntly refusing to license their IPR seems to be rare.

---

(14) EMC Development Case T-432/05 of 12 May 2010.
(15) EMC Development Case T-432/05 § 65
(16) Impact Assessment § 70.
Case experience, academic research and literature, and also the input into the public consultation, show that the increasing involvement of intellectual property rights can lead to an increased risk of an outcome that is anti-competitive in various ways.\(^{(16)}\) For example, an owner of an intellectual property right that is essential for implementing the standard could “hold up” users after the adoption of the standard by refusing to license.\(^{(17)}\) This would mean that users would in effect be unable to apply the standard. If a company is either completely prevented from obtaining access to the result of the standard, or is only granted access on prohibitive or discriminatory terms, there is a risk of an anti-competitive effect.\(^{(18)}\) When the standard constitutes a barrier to entry, the company could thereby control the product or service market to which the standard relates.

However, even if the establishment of a standard can create or increase the market power of IPR holders possessing IPR essential to the standard, there is no presumption that holding or exercising IPR essential to a standard equates to the possession or exercise of market power.

For the safe harbour this requires that a number of conditions be fulfilled:

- There must be clarity concerning the intellectual property rights situation.
- A commitment to license is made and respected.

**Clarity on the intellectual property rights situation**

Information on the IPR situation needs to be available in order for the members of a standard-setting organisation to take a properly informed decision. The amount of IPR reading on a technology will often have a direct impact on the cost of access to the standard. Rules requiring ex ante good faith disclosure of essential IPRs are necessary to allow the members of a standard-setting organisation to factor in the amount of IPR reading on a particular technology when deciding between competing technologies. It could also lead them to choose a technology which is not covered by IPR.

Changing technology might be impossible once a standard is set, so this information needs to be available ex-ante. Different standard-setting organisations are organised differently and they therefore draft disclosure rules in different ways, but it is essential that their members are well informed. For example, since the risks with regard to effective access are not the same in the case of a standard-setting organisation with a royalty-free standards policy, IPR disclosure would not be relevant in that context as long as a commitment is given by the IPR holders to license royalty-free.

Industry can therefore get locked into the standard because switching to a new standard will entail significant costs. A company may therefore unfairly gain control over a standard, thereby unfairly excluding potentially competing technologies from the market and erecting an unjustified barrier to entry. It may therefore be able to charge an artificially inflated ex post monopoly price for its intellectual property rights. As we have already seen, this also depends on the market power which the standard confers. Where there are several competing standards, for example, the standard may not confer any market power.

There is therefore an important pro-competition rationale behind requiring the disclosure of patents and patent applications before a standard is set. A system where potentially relevant IPR is disclosed up-front may increase the likelihood of effective access being granted to the standard, since it allows the participants to identify which technologies are covered by IPR and which are not. This enables the participants both to factor in the potential effect on the final price of the result of the standard (for example choosing a technology without IPR is likely to have a positive effect on the final price) and to verify with the IPR holder whether they would be willing to license if their technology is included in the standard.\(^{(19)}\) The Commission’s practical experience so far shows that an IPR disclosure obligation is in principle positive for the competitive outcome and that it would therefore be beneficial for competition.\(^{(20)}\)

**A commitment to license is given and respected**

In order to ensure effective access to the standard, the IPR policy would also need to require participants wishing to have their IPR included in the standard to provide an irrevocable commitment in writing to at least offer to license their essential IPR to all third parties on fair, reasonable and non-discriminatory terms. This is the known as a FRAND commitment.

From an antitrust perspective, FRAND commitments are designed to ensure that essential IPR protected technology incorporated in a standard is accessible to the users of that standard on fair, reasonable and non-discriminatory terms and

\(^{(16)}\) Impact Assessment § 43.  
\(^{(17)}\) Impact Assessment § 40.  
\(^{(18)}\) Guidelines § 268-269  
\(^{(19)}\) Guidelines § 268.  
\(^{(20)}\) Impact Assessment § 74.
conditions. In particular, FRAND commitments can prevent IPR holders from making it difficult for a standard to be implemented. This could happen, for example, if there was a refusal to license or as a result of requesting unfair or unreasonable fees, in other words excessive fees, after the industry has been locked in to the standard.

To ensure the effectiveness of the FRAND commitment, IPR holders who provide such a commitment need to ensure that any company to which the IPR owner transfers its IPR is bound by that commitment, for example through a contractual clause between buyer and seller. The same conditions naturally apply to a commitment to license royalty-free.

Outside the safe harbour

For standardisation agreements that do not fulfil the safe harbour criteria, the chapter also provides guidance to allow companies to assess whether they are in line with EU competition law. For example, in the case of several competing standards or in the case of effective competition between the standardised solution and non-standardised solution, a limitation of access may not produce restrictive effects on competition. (21)

In a similar vein, the greater the likely market impact of the standard and the wider its potential fields of application, the more important it is to allow equal access to the standard-setting process. However, if the facts at hand show that there is competition between several such standards and standard-setting organisations (and it is not necessary that the whole industry applies the same standards) there may be no restrictive effects on competition. (22) In certain situations the potential negative effects of restricted participation may be removed or at least lessened by ensuring that stakeholders are kept informed and consulted on the work in progress. (23)

**Ex ante disclosure of maximum royalty rates**

Many stakeholders asked for guidance on the points of unilateral ex ante disclosure of maximum royalty rates. For example, ETSI has for a number of years had the possibility of “ex ante” unilateral public disclosure of licensing terms. However, the ETSI members have not availed themselves of this possibility, perhaps because they were afraid of infringing competition law. It therefore appeared appropriate for more guidance to be given.

The purpose of ex ante disclosures of the most restrictive licensing terms is to allow the standard setting organisations and the industry to make an informed choice about the technological solution to put in a certain standard, not only on technical but also on commercial grounds. The concomitant objective would then be to ensure competitive prices for those implementing the standards and therefore also increasing the likelihood of competitive prices at consumer level.

The Guidelines clearly recognise the potential benefits of such ex ante schemes. They have the potential to generate strong pro-competitive benefits by allowing a comparison on quality and price. The US Department of Justice also considers that “ex ante” IPR disclosure policies are in line with US competition law.

It goes without saying that those who innovate deserve to be rewarded accordingly, and that incentives to innovate are therefore important. Ex ante price disclosure rules would not reduce incentives to innovate. If a company has a unique, pioneering and innovative technology for which there is no alternative, then the market will value it accordingly. In the consultation on the horizontal Guidelines, some stakeholders expressed concerns that ex ante schemes like these might simply be some kind of artificial front for illegal price-fixing, but it is clear that this would create a problem. It is obvious that standardization agreements will be prohibited if they are used as a cover for a broader restrictive agreement the aim of which is to increase prices, reduce output, or exclude actual or potential competitors.

**The future of standardisation**

CEN, Cenelec and ETSI are the three standard-setting organizations currently recognised as European Standards Organisations. (24) Their rules are well established. In recent years, however, there have been signs of an increase in the more ad-hoc or one issue standard-setting organizations referred to as “consortia” or “fora.” These bodies are often more short-lived and more focused on the development of a particular standard or set of standards than is the case for the more formal and accredited standard-setting organizations.

Fora and consortia have produced many ICT standards. This is the case with standards covering

---

(21) Guidelines § 294
(22) Guidelines § 295
internet protocols established by IETF and web accessibility guidelines produced by W3C, although the WiFi Alliance that is promoting the WiFi standard and the Bluetooth group is also outside the more formal standard-setting organizations.\(^{(25)}\)

It is expected that better cooperation between the European Standards Organisations and ICT fora and consortia will reduce the risk of fragmentation, duplication and conflicting standards in the ICT field. The cooperation and coordination efforts will improve interoperability and thus increase the market uptake of innovative solutions.

In December 2010 the Commission announced a plan to promote interoperability among public administrations as a way to deal with this plethora of different standards.\(^{(26)}\) This plan included a European Interoperability Framework. The Framework is an agreed approach to interoperability for organisations that want to collaborate in providing joint delivery of public services. It sets out common elements such as standards and specifications.

There are many different IPR policies adapted to individual circumstances to be found among standards-developing organisations. These differences do not in themselves pose a problem, provided that IPR policies relevant to the standard are given proper consideration in the process and that they comply with competition rules. Standard-setting policies should also be stable, predictable, transparent and effective. They should enable competition and facilitate product innovation. Openness, and ease of access to standardisation processes, as well as the availability of standards to all interested parties, are important prerequisites to be ensured by the implementation of effective IPR policies.

**Conclusion**

The Commission has continued its policy of not prescribing in detail the rules that standards bodies must adopt. The Guidelines provide guidance as to what may or may not be problematic from an anti-trust perspective so as to ensure that industry can make the most informed choices, but they leave the final choice to industry. The Commission considers that different rules may be appropriate for different bodies and sectors, and industry will generally have a better knowledge of what works.

These views are shared by other regulators. The US Department of Justice and the FTC have already issued guidelines. The Japanese and South Korean regulators have recently also adopted quite similar guidelines on standard setting.

If standard bodies have designed effective internal rules, the European Commission is unlikely to intervene in individual cases.

\(^{(25)}\) See www.wi-fi.org