

# Technology Neutrality in Internet, Telecoms and Data Protection Regulation<sup>1</sup>

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Technology neutrality is one of the key principles of the European regulatory framework for electronic communications. The principle was first introduced in 2002, and reinforced in 2009 with the revised EU telecoms legislation. Since the 2009 revisions, all spectrum licences in Europe are supposed to be “technology neutral”. Since 2011, technology neutrality has also been recognised as a key principle for internet policy.<sup>2</sup> The concept now appears in the proposed EU Data Protection Regulation,<sup>3</sup> and the proposed EU Directive on Network and Information Security<sup>4</sup> (the so-called NIS Directive), both of which are likely to be adopted in 2015. Technology neutrality sounds like a good idea, but its meaning is not immediately clear. The purpose of this article is to unpack the concept of technology neutrality, and examine its meaning (and utility) in different contexts.

## The meaning of technology neutrality

Depending on the context, technology neutrality can have three different meanings:

- **Meaning 1:**

technology neutrality means that technical standards designed to limit negative externalities (e.g. radio interference, pollution, safety) should describe the result to be achieved, but should leave companies free to adopt whatever technology is most appropriate to achieve the result.

- **Meaning 2:**

technology neutrality means that the same regulatory principles should apply regardless of the technology used. Regulations should not be drafted in technological silos.

- **Meaning 3:**

technology neutrality means that regulators should refrain from using regulations as a means to push the market toward a particular structure that the regulators consider optimal. In a highly dynamic market, regulators should not try to pick technological winners.

In practice, Meaning 1 and Meaning 3 can overlap. A regulator may impose a given technological solution both as a means to limit harmful externalities, such as radio interferences (Meaning 1), and as a means of structuring the market in a certain way (Meaning 3). We examine each of these meanings in more detail below.

### *Meaning 1—technology neutrality is used in standards intended to limit undesirable effects*

Technology neutrality can be used in connection with standards designed to limit negative externalities. The standards may be designed to protect the environment, to enhance automobile safety or limit radio interference. In this context, technology neutrality is synonymous with the term “performance standards”, which are standards that describe the output expected (e.g. the amount of radio interference), but do not impose a given technology (e.g. GSM or UMTS). The concept of performance standards was developed in the US in the 1980s in the context of the “better regulation” movement. Performance standards are deemed to be more efficient than so-called “design standards” because performance standards give freedom to regulated entities to choose the technology best suited to achieve the outcome specified in the standard.<sup>5</sup> By contrast, design standards incorporate technological choices made by the regulator which can become quickly outdated and inefficient. Moreover, design standards can harm competition because they will lock in certain technologies at the expense of other competing solutions. The choice of technology by the regulator may also be subject to regulatory capture by strong industry players who have the resources to lobby for a particular technological solution. President Obama’s 2011 executive

<sup>1</sup> A French version of this article appeared in the journal of the French telecommunications regulatory authority, *Les Cahiers de l’ARCEP*.

<sup>2</sup> OECD, “OECD Council Recommendation on Principles for Internet Policy Making” (December 13, 2011).

<sup>3</sup> Commission Proposal for a Regulation of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation), COM(2012)11 final (January 25, 2012).

<sup>4</sup> Commission Proposal for a Directive of the European Parliament and of the Council concerning measures to ensure a high common level of network and information security across the Union, COM(2013) 48 final (February 7, 2013).

<sup>5</sup> S. Breyer, *Regulation and its Reform* (Harvard University Press, 1982).

order on good regulatory principles reaffirms that the US Government should use performance standards whenever feasible.<sup>6</sup>

Performance standards can be more difficult to understand and apply, particularly for small companies.<sup>7</sup> If a standard requires the installation of a certain component, companies will have no difficulty understanding the standard and applying it. By contrast, in the case of a performance standard, companies may be left guessing what kind of technology would result in the output specified in the standard. In order to address this problem, particularly for small companies, some technologically neutral regulations give examples of technologies that will satisfy the output described in standard, while leaving the door open to other kinds of technologies. Technological choices can also be made in the context of self-regulatory or co-regulatory initiatives. This approach is envisaged in the proposed European Data Protection Regulation, in connection with implementation of “privacy by design”.<sup>8</sup>

The use of a performance standard can increase the costs of verification and enforcement for the regulator. Performance standards may therefore be inappropriate where verification of compliance is difficult, and the risk associated with the negative externality is high, for example in the context of safety standards for nuclear power plants.<sup>9</sup> On balance, however, performance standards (technology neutrality under Meaning 1) generally promote innovation and efficiency.<sup>10</sup>

### ***Meaning 2—technology neutrality defines the scope of regulation***

The second context in which technology neutrality is used is to define the scope of regulation. In the field of electronic communications, the European Framework Directive of 2002<sup>11</sup> makes “technology neutrality” one of the guiding principles for regulation of the telecommunications sector in Europe. Wherever possible, regulators are to ensure that their rules are “technology neutral”. When used in the 2002 Framework Directive, the concept of technology is designed above all to reflect the phenomenon of convergence between electronic communications networks and services.<sup>12</sup> The idea is that regulators would apply the same principles of market analysis and remedies to all kinds of electronic communications networks and services. At the time, this unified approach to regulation was revolutionary because previously each kind of network (public switch telephone network, cable network, mobile network) was subject to separate sets of rules. Under the “technologically neutral”

European approach, all networks and services are subject to the same competition law based test under which regulators identify relevant markets and dominant actors on the market, and apply appropriate remedies to address enduring competition problems. This market analysis process often leads to market definitions and remedies that are not technology neutral. For example, retail mobile services are generally not considered substitutes for fixed-line services, leading to the conclusion that they belong to different relevant markets. This in turn leads to different conclusions relating to market dominance, and to remedies. As a result, mobile operators in Europe are generally free from economic regulation at the retail level, whereas in the fixed-line market, the incumbent operator is generally subject to significant regulatory burdens. Remedies are also not technologically neutral. Access obligations such as wholesale bitstream access or unbundling of the local loop may be imposed on copper networks, but not on other kinds of networks.

In 2009, the concept of technological neutrality was pushed to a new level in Europe. Under the 2009 Better Regulation Directive,<sup>13</sup> European law-makers imposed the principle that spectrum licences should be technologically neutral except in limited cases. This means that regulators could no longer impose a particular technology on mobile operators. In theory, mobile operators holding spectrum under an old 2G GSM licence should be able to deploy 4G LTE technology over that spectrum. The 2009 Directive led to a wave of “spectrum refarming” in Europe. Operators are not allowed to convert to new technology unilaterally, but must ask permission from the regulator. The regulator then evaluates whether the change in technology would disrupt competition on the relevant retail market, and if necessary will rebalance the spectrum assignments so as to level the playing field. In the context of spectrum licences, technology neutrality is more akin to “performance standards”, i.e. Meaning 1 of our definitions.

For spectrum licences, the 2009 Better Regulation Directive went even further, recommending the principle of “service neutrality”. This principle means that the holder of the spectrum licence should not be restricted in the kinds of services offered. In theory, the services could be mobile interpersonal communications, fixed communications or even broadcasting services. In practice, the idea of service neutrality is not easily applied to spectrum licences because of the way the spectrum is divided into blocks. The organisation of the spectrum channels will predetermine the kind of service that can usefully be offered. For example, the assignment of a

<sup>6</sup> Executive Order No.13563, “Improving Regulation and Regulatory Review” (January 2011).

<sup>7</sup> D. Hemenway, “Performance vs. Design Standards”, National Bureau of Standards, US Department of Commerce (1980).

<sup>8</sup> Proposed European Data Protection Regulation art.30.

<sup>9</sup> Hemenway, “Performance vs. Design Standards”, National Bureau of Standards, US Department of Commerce (1980).

<sup>10</sup> See D. Besanko, “Performance versus Design Standards in the Regulation of Pollution” (1987) 34 J. of Pub. Econ. 19; and C. Coglianese, J. Nash and T. Olmstead, “Performance-Based Regulation: Prospects and Limitations in Health, Safety and Environmental Protection”, Harvard Faculty Research Working Paper 02-050 (December 2002).

<sup>11</sup> Directive 2002/21.

<sup>12</sup> U. Kannecke and T. Körber, “Technological Neutrality in the EC Regulatory Framework for Electronic Communications: A Good Principle Widely Misunderstood” [2008] E.C.L.R. 330.

<sup>13</sup> Directive 2009/140.

duplex channel including a return path de facto means that the service is likely to be two-way communication, as opposed to broadcasting. This principle also holds true to some extent for technology neutrality. The way the spectrum assignments are organised, including the size of guard bands and interference rules, will to a large extent predetermine the kind of technology that can be deployed by an operator. The engineers who decide how the spectrum should be divided up and assigned to operators will do so with one or more technologies in mind.

In the context of Meaning 2, technology neutrality brings considerable benefits to regulators, because it permits regulators to adapt to new technologies without having to be concerned with jurisdictional boundaries. Section 5 of the FTC Act, prohibiting unfair and deceptive practices, is an example of a technologically neutral rule. The FTC can apply the rule to new forms of technology and business models without fear of overstepping the FTC's jurisdictional boundaries. The future EU Data Protection Regulation would also be technologically neutral in this sense.<sup>14</sup>

The flexibility given to regulators by technology neutrality can help them put pressure on regulated entities to find self-regulatory solutions.<sup>15</sup> The regulators can use the threat of future regulation as an incentive to push the market toward self-regulatory or co-regulatory solutions, which may be more effective than command and control regulations. As noted above, co-regulatory solutions of this kind are envisaged in the proposed EU Data Protection Regulation in the context of "privacy by design".

Regulations that are technologically neutral give regulators flexibility, but this flexibility could encourage regulators to extend their authority to new markets and technologies prematurely, before there is evidence of an enduring market failure that needs to be corrected. In this sense, technology neutrality could encourage over-regulation of new emerging markets. Conscious of this risk, law-makers in Europe included in the Electronic Communications Framework Directive a statement that competitive or emerging markets should not be subject to ex ante regulation.<sup>16</sup> Technology neutrality therefore needs to be accompanied by a healthy dose of regulatory restraint.

In the same vein, where technology neutrality creates uncertainty regarding the scope of regulation as applied to new technologies, companies may react to this uncertainty by deferring investments. A number of incumbent operators in Europe have complained that uncertainty regarding the application of access remedies to new fibre networks in Europe inhibits investment decisions. This in turn triggered debate in Europe about whether certain new network technologies should be

granted a "regulatory holiday". Similar arguments are raised in the US regarding whether mobile operators should be subject to net neutrality rules.

### ***Meaning 3—technology neutrality (or the absence thereof) can be used to nudge the market in a certain direction that is considered desirable by policy-makers***

For example, regulators might have a particular vision regarding the build-out of fibre networks. In order to implement that vision, the regulator may adopt rules that are not technology neutral. In some cases, the only way the regulator's vision can be implemented is through a non-technologically neutral regulation. An example of this approach is the choice of the GSM standard for mobile telephony in the 1990s. The imposition of the GSM standard was considered critical in permitting the development of a European market for handsets and interoperable mobile services. Whether the imposition of the GSM standard ended up working better than market-driven voluntary standards is a question beyond the scope of this article. The point is that the objective of the regulator is not just to limit harmful interference (Meaning 1), but to structure the market a certain way (Meaning 3). Whether non-technologically neutral regulations are useful in this context depends a great deal on the risk of error in the policy-maker's vision. In a fast-moving market with rapid technological change, the risk of regulatory error is high, making non-technologically neutral regulation risky.

A parallel can be drawn here with the debate surrounding government-imposed standards, such as UMTS, versus voluntary standards such as Blu-ray. The question is in what cases are government-imposed standards preferable to market-led standards. In a recent article, Llanes and Poblete show that market standards are preferable where there is a high level of uncertainty surrounding the benefits of the technology.<sup>17</sup> A similar conclusion could be made for technology neutrality: the higher the level of uncertainty surrounding technological evolution, the more it becomes important to make standards technologically neutral. When used in the context of the *OECD Recommendation on Internet Policy Making*, technology neutrality is meant to address this point.

### **Technology neutrality versus platform neutrality**

Technology neutrality should not be confused with platform neutrality. Some European policy-makers believe that the principles of net neutrality should not be limited to internet access providers, but should also extend to large internet platforms including search engines, app

<sup>14</sup> Proposed EU Data Protection Regulation, Recital 13.

<sup>15</sup> G. Halfteck, "Legislative Threats" (2008) 61 Stanford L. Rev. 629.

<sup>16</sup> Electronic Communications Framework Directive, Recital 27.

<sup>17</sup> G. Llanes and J. Poblete, "Coalition Formations in Standards Wars" (unpublished manuscript, August 2014).

stores and social media. The idea is to extend some form non-discrimination obligation, or “duty of loyalty”, to these platforms, even if doing so would not be justified under competition law. The idea of making net neutrality rules “technologically neutral” has some superficial appeal. However, imposing neutrality obligations on internet platforms could have significant adverse effects. The first adverse effect is the potential impact on innovation. Shelansky<sup>18</sup> and Manne and Wright<sup>19</sup> have shown that in antitrust remedies, the risk of regulatory error is high when dealing with new internet-based business models. Regulators have a systematic bias towards seeing anti-competitive conduct in new business models. More importantly, the cost of error is much higher in the case of a so-called “Type I” error (i.e. when a regulator mistakenly imposes a remedy) than for a “Type II” error (i.e. when a regulator mistakenly fails to impose a remedy). This leads to the conclusion that where there is significant uncertainty owing to rapid technological and market changes, regulators should have a bias in favour of doing nothing rather than imposing a remedy. In fast-moving markets, the perceived harms are often addressed by the market, making regulatory remedies unnecessary.

The second adverse effect relates to freedom of expression. Imposing “platform neutrality” would create restrictions to freedom of expression and to freedom to conduct a business, both of which are fundamental rights recognised by the European Court of Justice. In Europe, television broadcasting platforms can be subject to “must carry” obligations, but the case for extending must-carry

or other public service obligations to internet platforms has not yet been made. Audiovisual regulations are typically justified owing to the scarcity of audiovisual spectrum and the “push” character of scheduled audiovisual programming. Neither of these factors (scarcity or “push” character of content) is present on most internet content platforms.

### Conclusion

As the US looks at rewriting its telecommunications laws, technology neutrality in the sense of Meaning 2 will be a prime consideration. The US law is built around technology silos that should probably be eliminated in any rewrite. Data protection law is already technology neutral (Meaning 2) in Europe, and that neutrality will be reinforced in the new EU Data Protection Regulation. Section 5 of the US FTC Act is likewise technology neutral in the sense of Meaning 2. For standards developed in the context of cyber-security legislation (such as the proposed EU NIS Directive), and for “privacy by design” (under the EU Data Protection Regulation), technology neutrality in the sense of Meaning 1 will be critical to encourage innovation and efficiency. Self- or co-regulatory instruments may be necessary to help give guidance to companies on technological options. Finally, in internet policy, cyber-security and telecoms policy, regulators should not attempt to structure the market using technology-based regulation (Meaning 3), because such attempts are likely to create more harm than good in fast-moving markets.

<sup>18</sup> H. Shelanski, “Information, Innovation, and Competition Policy for the Internet” (2013) 161 U. Penn L. Rev. 1663.

<sup>19</sup> G. Manne and J. Wright, “Google and the Limits of Antitrust: The Case Against the Antitrust Case Against Google” (2011) 34 Harvard J. of L. & Pub. Policy 1.