

ISSUE II: DRIVERS AND INHIBITORS OF INTEROPERABILITY

Suggested discussion issues:

- *What are the driving and inhibiting forces that have led to the status quo in the different areas examined?*
- *How does the level of interoperability (and the method by which it is achieved) vary in relation to e.g. business models, customer needs, nature of a product (platform or stand-alone), product maturity, market maturity, type of technology, political and regulatory environment and other relevant factors?*

MIRA

GENERAL PERSONAL REMARKS [not for citation]

It seems difficult to identify a single pattern of inhibitors or promoters of interoperability, which will readily unify the cases we looked into during the morning sessions.

One could say – it's the "invisible hand", since everyone pursues "his own gain".¹

But we need to think in terms beyond-Adam-Smith.

In this sense, in order to give shape and form to the discussion that will unfold in the next hour, I would like to offer two remarks.

The first one has indeed already been mentioned but I found its reiteration necessary.

I SHORT TERM *VERSUS* LONG TERM

The case studies we looked at, involved essentially different types of markets – some in a nascent state, some rather mature. This made me think that when discussing interoperability and in particular with the purpose of creating a white paper, it is vital to set time frames – and follow defined short / middle / long term of view. And consider *whether* and precisely at which stage interoperability becomes indispensable?

One can imagine, for instance, that after the digital switchover (about to take place 2010-2014 for all EU Member States), the situation in audiovisual media will look quite differently.

A more fundamental observation: we are dealing with inherently dynamic markets.

There is a tendency in networked environments to reactions swinging from excess inertia to extreme volatility.

What we pursue is a win-win situation – a kind of a virtuous circle.

In the end, a key driver is users' reaction to the undertaken changes (liabilities, pricing, etc.).

Many of the data available thus far concern specific sectors and/or early adopter population.

These may not be fully representative of the mature market, for these reasons, e.g.:

- (i) late adopters may have systematically different willingness to pay for 'walled garden' protections and specialised or user-generated content;
- (ii) convergence should not be overestimated.

¹ ADAM SMITH, *An Enquiry into the Nature and Causes of the Wealth of Nations*, New York: Modern Library, 1937 (first published 1776), available at <<http://www.gutenberg.org/etext/3300>>. The most well-known and cited passage therein is the following: "He [specifically each individual] generally, indeed neither intends to promote the public interest, nor knows how much he is promoting it...[He] intends only his own gain, and he is in this, as in many other cases, led by an *invisible hand* to promote an end which was no part of his intention".

The importance of examining all layers (networks / logical / applications / content). All of which are complex adaptive systems (i.e. with multiple variables at play) in a dynamic environment.

Market Power

The presence of market power is a key factor to consider when approaching standardisation and/or interoperability issues.

The presence of IPRs adds another level of complexity to the processes of standard wars and negotiations and allows for strategic games and configurations. "The fact that someone has exclusive rights of use concerning that essential technology allows for the potential restriction of the standardization process, or the corruption of it, undermining its role for the purpose of private pecuniary gain".²

Walled gardens versus open access

"Walled gardens" – large vertically and/or horizontally integrated actors seek control of vital commercial "pinch points" or bottlenecks in the value chain. They are motivated by the need to reduce risk and transaction costs in leveraging assets into new business areas;

"Open access" – value meshes of virtual smart organisations emerge. They are footloose but tend to form clusters.³ Value mesh networks' responses are not as uniform, smooth and predictable as in the traditionally linear, vertically-integrated or controlled environments.

Is interoperability a must? At which stage does it become a must?

For instance, Marc Bourreau and Pinar Dogan note that, "...regulating interoperability is essential for maintaining effective competition whenever there exists market power or a tendency for market dominance. For the markets in which there are no distortions due to market dominance or interface control, it might not be necessary to impose interoperability. Moreover, such control in these markets might have some important drawbacks in terms of innovation, as the operator who wishes to keep exclusive provision of its innovative services might be under an incentive to develop innovative and differentiated services".⁴

Perhaps we need a more general discussion regarding proprietary rights:

Answers to the "discussion of whether the existing intellectual property regime functions as intended – to stimulate innovation and thus promote long-run competition – or whether the system is out of balance, granting excessive intellectual property rights, and could be improved so as to avoid retarding innovation and/or harming consumers"⁵ will have to be sought. In network environments, the threshold for intellectual property protection could prove to be "higher than in traditional market settings so as to foster the adoption of standardized interfaces. In addition, compulsory licensing may be justified in particular circumstances to enable the full realization of network externalities".⁶

² ALAN CUNNINGHAM, "Telecommunications, Intellectual Property, and Standards" in IAN WALDEN and JOHN ANGEL (eds.), *Telecommunications Law and Regulation*, 2nd edition, Oxford: Oxford University Press, 2005, pp. 341-375, at p. 353.

³ CHRIS MARSDEN, JONATHAN CAVE, EDWARD NASON, ANDREW PARKINSON, COLIN BLACKMAN and JASON RUTTER, *Assessing Indirect Impacts of the EC Proposals for Video Regulation*, Report Prepared for the UK Office of Communications, RAND Europe, 2006, at p. 43 and pp. 49 et seq.

⁴ MARC BOURREAU and PINAR DOĞAN, "Regulation and Innovation in the Telecommunications Industry" (2001) *Telecommunications Policy*, Vol. 25, pp. 167-184, at p. 174.

⁵ JOSEPH FARRELL and CARL SHAPIRO, at p. 5.

⁶ PETER S. MENELL, at p. 142, referring to PETER S. MENELL, "Tailoring Legal Protection for Computer Software" (1987) *Stanford Law Review*, Vol. 39, pp. 1329-1372.

Competition law (as Urs has pointed out in his discussion paper) can only be applied if the undertaking unwilling to interoperate is in a dominant position. Even if the Courts weigh against the IPR of the undertaking, the proceedings normally (Microsoft) take a substantial period of time and rarely clarify all essential aspects in order to guarantee legal certainty.

The importance of innovation and creativity

Innovation is associated with one of the generic benefits of competition, namely the achievement of *dynamic efficiency*, under which firms have the appropriate incentives to *improve* the range and quality of products and services, *invest* and *innovate*.

It could further be linked to the general goal of governments of achieving sustainability.⁷ If compared to the other static types of efficiency (i.e. productive and allocative), dynamic efficiency could, in the long term, lead to the greatest improvement in social welfare.⁸

Since Paul Romer we know that innovation is not an exogenous but endogenous factor of economic growth.⁹

In addition to this the *web 2.0 creativity* as new ideas distributed and communicated in a way that allows for swift feedbacks and pooling of knowledge. It should also be added that for consumers the Web 2.0 phenomenon indicates that user-generated and distributed content may be central to their Internet experience.¹⁰

There are certain trade-offs that all players within the interoperability game essentially face. Defining long-term policy objectives may be vital for choosing the more beneficial part of a certain "trade-off" pair.

Shapiro and Varian identify 7 key assets of market players important to win a standard war: (i) control over installed base of users; (ii) intellectual property rights; (iii) ability to innovate; (iv) first-mover advantages; (v) manufacturing abilities; (vi) strength in complements; and (vii) brand name and reputation.¹¹

Excerpts:

The telcos plan to enable monetization and discrimination by marking their content with priority tags that the routers in their last-mile networks can read, thus gating the flow of all other bits.¹²

"There is nothing wrong with making money from private property. If a telco or cableco was merely charging for access to the movies it owned, the network neutrality controversy would never have arisen. The problem is that there is little or no competition in the market for

⁷ See e.g. ROBERT N. STAVINS, ALEXANDER WAGNER and GERNOT WAGNER, "Interpreting Sustainability in Economic Terms: Dynamic Efficiency Plus Intergenerational Equity", *Regulatory Policy Program Working Paper RPP-2002-02*, Cambridge, MA: John F. Kennedy School of Government, Harvard University, May 2002.

⁸ MARC BOURREAU and PINAR DOĞAN, "Regulation and Innovation in the Telecommunications Industry" (2001) *Telecommunications Policy*, Vol. 25, pp. 167-184, at pp. 167-168. On the importance of dynamic efficiency, see also THOMAS KIESSLING and YVES BLONDEEL, "The Impact of Regulation on Facility-Based Competition in Telecommunications: A Comparative Analysis of Recent Developments in North America and the European Union", 1999, available at <http://www.tik.ee.ethz.ch/~m3i/related-work/cm/Cost-Regulation-in-TelecomsKiess_Mar99.pdf> (21 March 2005), at p. 4, referring also to JOSEPH A. SCHUMPETER, *Capitalism, Socialism and Democracy*, 2nd edition, New York: Harper, 1950, at p. 140.

⁹ PAUL ROMER, "Endogenous Technological Growth" (1990) *The Journal of Political Economy*, Vol. 98, No 5, pp. S71-S102.

¹⁰ YOCHAI BENKLER, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, New York: Yale University Press, 2006.

¹¹ CARL SHAPIRO and HAL R. VARIAN, *Information Rules*, Boston, MA: Harvard Business School Press, 1998, at pp. 270 *et seq.*

¹² SUSAN P. CRAWFORD, "Network Rules" (2006) *Duke Journal Law & Contemporary Problems*, at p. 10.

broadband access, and the telcos/cablecos are planning to leverage their power over transport into power over content".¹³

"...the reality is that the telcos did not create the entire value of 'the internet', and it is 'the internet' that their subscribers want to access".¹⁴

"The internet is nothing but an agreement to interconnect and to use a common protocol and naming system".¹⁵

"The internet is itself a complex adaptive system, made up of many interacting agents (including many non-state communities) whose dynamic engagements provide elaborate, decentralised, permeable membranes regulating information flow".¹⁶ "For optimal results, complex systems should be divided into competing, co-evolving (and sometimes selfish) patches. From the internet perspective, one can think of these patches as sets of rules (or membranes) permitting particular information flows".¹⁷

"The convergence of regulatory ambition [of content industries and enforcement authorities] and public concern is unmistakable. It could well lead to actions that we will regret, as regulatory agencies take the occasion of public fear to assert greater – but ultimately counterproductive – control over online applications and devices".¹⁸

"Competition is generally good, but some regulation may be required to make sure that competition takes socially beneficial forms. The goal of a footrace is to see who can run the fastest, not who is the most adept at tripping their opponents or rigging the clock".¹⁹

If there are high transaction costs to bargaining, compulsory licensing of intellectual property may be an option.

"Power to implement crisis management in the decentralised marketplace for digital content arises from a confluence of private and public interests and is amplified by the dynamics of technical standards processes. The emergent regime of pervasively distributed copyright enforcement has profound implications for the production of the networked information society".²⁰

In aggregate, these [restricting norms] are designed systematically to shift the locus of control over intellectual consumption and communication away from individuals and independent technology vendors and toward purveyors of copyrighted entertainment goods".²¹

In theory, more meaningful possibilities for end user resistance might arise in the market for standards, at the point where policy is inscribed in technology. Here, though, users must be determined enough and informed enough to overcome a series of significant hurdles, including the relative opacity of computing infrastructures, the need to understand and appreciate the significance of automated enforcement measures long before implementations surface in the consumer marketplace, the closed nature of many standard-setting processes, and the technical complexity of the subject matter".²²

¹³ Ibid., at p. 16.

¹⁴ Ibid., at p. 20.

¹⁵ Ibid.

¹⁶ Ibid., at p. 102.

¹⁷ Ibid., at p. 147.

¹⁸ SUSAN P. CRAWFORD, "Shortness of Vision: Regulatory Ambition in the Digital Age", at p. 100.

¹⁹ HAL R. VARIAN, Mattioli Lectures, 2003, at p. 29.

²⁰ JULIE E. COHEN, "Pervasively Distributed Copyright Enforcement" (2007) *Georgetown Law Journal*, Vol. 95, at p. 1.

²¹ COHEN, at p. 3.

²² COHEN, at p. 36.

*RAND Europe Four Portraits and Likely Outcomes*²³

Midband malaise (plenty of regulation, bottlenecks, less innovation)

User-controlled commons

Winner-takes-all

Win-Win (Only where content can be deployed interoperably across all platforms can it be truly described as a win-win; the price in permitting controlled content to replace user-generated content may be paid in delayed innovation).

Virtuous circle of broadband supply, skills and demand – development of infrastructure >> increased supply of content and services >> improved skills >> broadband infrastructure [...].

²³ Ibid. at pp. 127 et seq.