



Intellectual Property and **Legal Issues** in **Open Innovation** in **Services**

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European Commission
Information Society and Media



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Foreword

This report on legal issues for open innovation in services is a synthesis of the work by Ms Jacqueline VALLAT. She had her traineeship in DG Information Society and Media, Directorate H: ICT Addressing Societal Challenges being actively involved in the development of the Directorate actions supporting open innovation for services.

The work is the first one in the series of reports addressing issues for open service innovation. Open innovation is seen as a co-creative process between different stakeholders (public, private people partnership, PPPP) enabling not only faster and more successful services development but also better capture of the societal capital, often referred to as creative commons.

We in Europe need to better capture the potential of societal and simultaneous technical innovation in a systemic manner.

In modern understanding of innovation both the societal and technical innovation need to be simultaneous for full impact, and moreover this interaction needs to be a continuous process. This collaborative process among the various players, who not all are formal organisations, lead to a challenging new legal and policy framework.

In this context the report shows clearly the need for further in-depth policy dialogue, and also dialogue to change the legal framework to a more catalytic, positive one, supporting service innovation on broad base rather than being only neutral or even inhibiting it. Services innovation is one of the cornerstones for European competitiveness.

The issues on IPR and competition as well as privacy need all to be tackled properly enabling sharing of the societal experience and open platforms boosting the service sector development.

The work is closely linked to the strategy work of the Open Innovation Strategy and Policy group OISPG, which is an industrially led think-tank advising the Directorate in its approach to service innovation, both on research and policy matters.

I hope that this report by Ms Vallat is giving a good overview of the importance of creating a positive legal framework for open service innovation, based on sharing and co-creativity. As the reader can observe, many of the issues are rather controversial to the existing framework, thus requiring a thorough re-thinking on how to foster best the development of service platforms and the service sector as whole in Europe.

I wish you interesting reading

Brussels 23.2.2009

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I. Introduction

This report is intended as a review of the most important legal issues which Open Innovation in services is currently facing. Due to time constraints, the survey may be narrower and the analysis a little shallower than the author would wish.

A necessary starting point before any such analysis is the suggestion of a precise definition of Open Innovation.

The definition which is proposed in the context of this industrial group (Open Innovation Strategy and Policy Group) differs slightly from the one initially put forward by the theory of Open Innovation, as described by Henry Chesbrough¹.

The latter sees Open Innovation as a direct antithesis of the previous innovation model, where vertically-integrated firms developed a technology, right from the research stage to commercialisation, in an exclusive environment.

Instead, Chesbrough identifies 5 key elements of Open Innovation²:

- Networking. In this literature, networking allows both the commercialisation of internal knowledge and the use of external knowledge. Though networking is undeniably one of the major benefits of Open Innovation, it is here understood in a narrow sense.
- Collaboration is a formal type of networking, involving partners, competitors (increasingly), universities, and users.
- "Corporate Entrepreneurship" describes the alternative ways of marketing ideas, especially through corporate venturing, start-ups and spin-offs.
- Proactive Intellectual Property Management: in Chesbrough's theory, this goes beyond the traditional defensive use of intellectual property, which seeks to ensure that researchers have the freedom to work on a technology. Here the idea is to buy and sell intellectual property, thus creating markets for technology. Intellectual property plays a crucial role in helping these markets to deve-

lop, since it provides the means to embody an idea and make it marketable.

- R&D remains important, as a way of obtaining a competitive advantage on the marketplace but also as a way of developing a company's absorptive capacity, i.e. its potential to assimilate and use new knowledge.

Though Open Innovation is seen as a new trend in business innovation, companies have been behaving in some of the ways described above for at least a decade. Henry Chesbrough conceptualises rather than invents the model.

Its rising importance in business literature is due to its generalisation to all sectors and industries, and its increasingly widespread implementation. Open Innovation is rapidly becoming the new mainstream method of innovating.

In Chesbrough's theory, the comparison with the previous innovation paradigm, characteristically very closed, leads to a narrow definition of 'openness'. The issue is that Open Innovation has become an expression which catches a wide variety of situations, with different possible interpretations of 'openness'. This calls for a clearer definition of the concept in order to analyse its implications.

Our proposition is to push Henry Chesbrough's model to another level by developing its core elements and redefining its openness.

The philosophy underlying Chesbrough's approach to networking and collaboration is that innovation can be made quicker, easier and more effective by the exchange of ideas fostered by collaborative environments. However, he essentially sees this as a means of improving the marketing of ideas, to the advantage of the companies involved.

We propose to see the rewards of networking from a broader perspective, as a way for firms to improve their

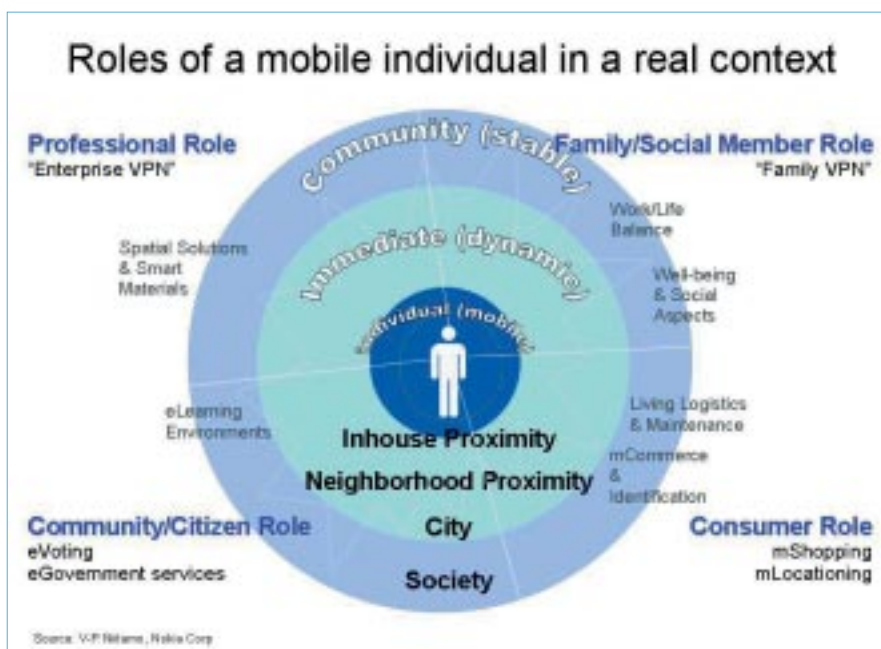
innovation base so as to make optimal use of the societal capital and “creative commons” at their disposal. In addition to exchanging technology, by informal or even formal means, as in Chesbrough's ideal, the focus here is on the involvement of *all* actors in the innovation ecosystem, including end-users and end-user communities, brought together to share experience, information and best practices, and build strategic alliances and cross-disciplinary collaboration. Only this type of networking harnesses the benefits of Open Innovation to their full extent. It helps to create a common pool of knowledge and experience, the precious “creative commons”, which organisations can fruitfully build upon. It also favours the development of “Valley dynamics”, so successful in the Silicon Valley example³. Positive spill-over effects stimulated by the open environment enhance value creation for the benefit of society as a whole, and not only for the firms involved.

Contrary to an exclusively organisational perspective which Chesbrough takes, we see societal capital, creative commons and communities as essential components of Open Innovation. It is imperative to capture as much of their creativity as possible. It is the communities and the individuals, acting in the multiple facets of their life (professional role, personal role, consumer role and community/society role), which mother the common pool of knowledge and experience [see figure 1]. Thus, the importance of technical innovation is matched with that of societal innovation. It is crucial for Open Innovation to have a framework which nurtures (fluid) interaction between actors and refines processes for capturing ideas. The expression “organicsation” has been used in this context to reflect the idea of “living” innovation ecosystem, which develops from its living components (here the users and user communities).

In this context, diversity and multiculturalism are very valuable qualities, with the potential to yield such

advantages as the improvement of companies' absorptive capacities⁴ and a higher productivity in the knowledge creation process⁵. Europe stands to gain from this more systemic approach, due to its rich cultural and economic diversity, and the possibility of attaining a critical mass in the EU single market. In fact this definition of Open Innovation reflects an inherently European perception, with its unmistakable focus on the *societal* benefit of business.

Furthermore, Chesbrough only touches upon the involvement of the user in the process. User innovation here is a central feature of Open Innovation, since it is a fundamental way of capturing creativity from communities through



a form of "crowdsourcing". It enables optimal leveraging of the creative commons.

Empowered by new communication technologies, particularly Web 2.0, the user is propelled to the heart of innovation⁶. His increasing role as innovator implies a high level of interaction between the industry and the user community throughout the innovation process, so that it becomes effectively a type of *co-creation*. This interaction ranges from user feedback, to user idea generation, incremental user innovation and user contribution (e.g. to development).

In addition to this role in Open Innovation, the user is also the object of a developing service convergence, facilitated by technology convergence. Service convergence places the user at the centre of business concern, and makes the provision of highly personalised and context-sensitive services the key driver of business models. To this end open functional platforms are essential, both as a vehicle for the provision of services and for their individualisation by the user.

All these elements call for a more comprehensive definition of Open Innovation based on a broader understanding of openness.

Openness is a difficult word to define and has been hotly debated for many years, particularly in politics⁷. How it is applied in context is subject to various interpretations, as can be seen from the fierce opposition between the Open Source community and software industries in the case of open standards, for instance.

Generally, openness includes the ideas of allowing access without restriction (on those who wish to participate), of being frank and communicative, and of being receptive and accessible to new ideas⁸.

In our definition, openness is an underlying principle attached to the key elements of Open Innovation. It implies a form of Open Source thinking in the inno-

vation process, and is essential in order to optimise the benefits of sharing and collaborating. Indeed, without openness to contributions (an open process) from *all* participants (open access), the construction of creative commons would not be possible. Further, the idea of an "organicsation" requires an open system, which is in interaction with its surroundings, by receiving input and returning it to the environment as output⁹.

This vision of openness derives from values which are inherently capitalistic and are not new *per se*. For example tolerance, individual freedom, learning, participation and cooperation are readily associated with openness¹⁰ and capitalistic democracies. What is new is the introduction of these values in innovation, bolstered by Web 2.0 and the rapid development of information and communication technologies.

This leads to a revised definition of Open Innovation, which focuses on the following fundamental elements:

- Extensive networking between all actors involved in the innovation process (including industries, universities and research organisations, public entities, end-users and end-user communities) to enable the creation of creative commons and the development of positive spill-over effects within the ecosystem. This is wider than Chesbrough's vision, since many forms of collaboration are possible, between more actors, with the focus on *total* value creation, rather than value capture by the firms.
- User involvement and user centrality, to associate the user throughout innovation since he is both the starting point (technological needs) and the ultimate aim (service convergence) of innovation. This reflects a "service pull" model of innovation, where the role of the user is critical. Innovation thus becomes a *co-creative* collaborative procedure between the industry or service provider and the user.



Related to this is a form of crowdsourcing, to capture valuable ideas produced by communities, and essential to make the best use of the societal capital at hand.

These are the elements which will fuel the innovation ecosystem and make it successful.

→ To enable the above, open functional platforms are a must. They make it possible to capture ideas from wide communities in a costless and effective way. They also allow the interaction between users and service providers. These platforms are increasingly becoming central to the way service-providers view service-provision in the future: as a way for the user to orchestrate between the different services he needs and personalise them completely¹¹.

In more general terms, Open Innovation here requires open access to the elements used in the innovation process. This is the necessary counterpart of user-centricity.

Open Innovation raises a number of legal issues in different areas. Intellectual property seems inherently in contradiction with the philosophy underlying this theory, and competition law is relevant to the proposed structures used in this paradigm. This report will concentrate mainly on these areas, and time only allows a brief survey of other branches of law.

II. Intellectual Property Issues in Open Innovation

The term 'intellectual property' has been used for more than a century to refer to a set of exclusive and proprietary rights, granted to an innovator to reward his mental or creative effort. Intellectual property rights include patents, copyright, trademarks, designs and a set of relatively recent 'related rights'.

A presentation of the context in which intellectual property will be analysed, namely services, is a useful starting point.

Services account for approximately 70% of gross value added in the European Union¹². Web 2.0 and modern information and communication technologies are changing the way services are – and will be – developed and delivered. Content and service composition is increasingly done by the *end-user* or *end-user communities*, based on open or semi-open building blocks supplied by the service providers. The end-user will either act himself to compose the services adapted to his needs, or use (cyber or real) configuration agents to do so. Service providers can build their end-user focused service on the functional platforms available.

The future of services lies in the vision of an empowered user, satisfying his wants by orchestrating between different interoperable and integrated service solutions, accessible in various contextual situations¹³.

Thus empowered, the user is changing the trend in services development towards a highly context-sensitive and user-centric model. This user-centricity magnifies the significance of the human or societal element in services development, described in the introduction.

In order to take this into account, innovators and other actors are encouraged to build creative *commons* from shared experiences and knowledge, to fully exploit the richness and multidisciplinary at hand and create extensively personalised and adapted services. This is considered the best way to respond to the particularly low success rate in services, which, depending on classification criteria, can reach as low an average as 4.5%¹⁴.

The modern innovation process *has* to be open. Open Innovation, as defined above, is the only way to fully enable services to develop towards the model described previously. Not only does it allow for the necessary interaction between the different actors in the innovation *ecosystem* (industries, public authorities, universities and research organisations, end-user communities, end-users), but it facilitates the association of the user throughout the innovation process, and offers a solution for the need to capture valuable creative ideas from user communities.


This immediately begs the question of the compatibility of such a model with existing intellectual property laws.

It is proposed to narrow the analysis of intellectual property rights to those which are the most relevant to services and service innovation. Information and communication technologies as well as the Internet are – already – central to service delivery. From an intellectual property perspective, this means that mainly copyright and patent law are involved, with sometimes also the database *sui generis* right. These will be the focus of attention in this chapter.

Two types of justifications are traditionally advanced in favour of intellectual property rights: ethical and moral arguments on the one hand, and more economical arguments, which emphasise the desired effect of these rights, on the other hand¹⁵.

The former rely on the idea of a creator's natural entitlement to some form of control over the fruits of his labour – frequently argued in copyright cases. The latter vary from the desire to provide an incentive for inventors to continue investing in research, to the belief that creations and inventions are only optimally exploited when the inventor is given property rights over them.

The counterpart for the public interest lies in access to information which would otherwise have remained secret. In this sense, intellectual property plays an important role in the dissemination of works or inven-



tions. In theory, since intellectual property rights afford sufficient protection to eliminate the fear of misappropriation, the inventor or creator no longer has to resort to secrecy to protect his work. It can thus circulate freely¹⁶.

Evolution in services innovation calls for a renewed assessment of this logic in a modern context. It is proposed to analyse the issues according to the different elements which constitute Open Innovation, namely:

- ▶ Extensive networking for the creation of Valley Dynamics and spill-over effects
- ▶ User-driven innovation
- ▶ Open functional platforms

1. Issues in extensive networking for the creation of spill-over effects

After identifying the main problems arising in this context, we will see that various perspectives offer very different answers.

A. The fundamental questions

With talk of "openness" in innovation, the first question to spring to mind is that of the compatibility of this proposition with the issuance of exclusive and proprietary rights.

Do these not conceptually contradict any idea of openness? Will intellectual property in its current form not be a substantial obstacle to the successful development of Open Innovation? How much is it likely to hinder Open Services Innovation?

In addition, intellectual property traditionally plays another role, which is to act as a vector for the diffusion of technology, creative works and information. Is this role likely to increase in the future, since intellectual property law provides the ideal tool to keep structures open?

Finally, capturing value from the societal capital and creative commons is a challenging process for industries and other actors alike. Intellectual property is an important instrument to appropriate value from intangible assets, characteristically difficult to monetise and evaluate. The use of intellectual property to leverage resources from the societal capital is another dimension to the fundamental questions prompted by the advent of Open Innovation in services.

The answer to these queries depends on the definition of openness.

In the original theory on Open Innovation¹⁷, openness is understood in a very narrow sense. In consequence intellectual property is no obstacle to Open Innovation. On the contrary, it is a critical enabling tool since it offers an embodiment of intangible assets

which can then be marketed. The other concerns do not even arise since open structures are not a must, and leveraging the societal capital does not enter the definition of Open Innovation. This view does not question the traditional balance which present intellectual property systems strike between the interests of those involved.

However, a revised definition of Open Innovation, based on a broader conception of "openness", calls for a more nuanced position. The assertion of strong intellectual property rights potentially sets back the creation of positive spillover effects, and the supporting infrastructure raises new challenges.

B. The traditional perspective

In the founding theory of Open Innovation, openness means that

"ideas can come from inside or outside the company", in a way which puts,

"external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths to market"¹⁸.

This depicts an essentially organisational analysis: the process is seen from the perspective of firms, which stand to benefit from the exchange of ideas and technologies through licensing.

Intellectual property here allows technologies and ideas to be embodied, valued and marketed. As seen above, by affording inventors¹⁹ the necessary protection over their creations, these can circulate without fear of misappropriation:

→ Patent law reserves the right to use and market an invention exclusively to the patent owner. Importantly, patent law does not grant a *positive* right to exploit the invention, but a *negative* right to exclude others from doing so. This significant distinction means that the owner of a patent, which infringes upon another, will not be able

to use it without the consent of the owner of the first patent²⁰. The fact that the second invention is protected is no defence to the infringement of the first.


→ Copyright law similarly confers exclusive rights upon the author, in particular a reproduction right (to copy the work), a distribution right (to issue copies to the public) and a moral right of attribution or paternity to be recognised as the author of the work²¹.

This regime gives the intellectual property owner a right to take legal action to protect his interests should they be infringed.

In Chesbrough's theory, proactive management of intellectual property, whereby companies actively seek to sell and buy²² it, constitutes one of the pillars of Open Innovation. It enables the acceleration of the innovation process by short-circuiting the first stages of research and development, which would normally have to be carried out by a firm. In addition firms can enter new markets and expand their existing markets. Finally by licensing unused technology to enterprises which make better use of it, firms can earn revenue and some return on investment.

The reality of this model however may not be so easy. Chesbrough imposes sizeable constraints on the innovation environment for his paradigm to function. He refers to markets which are characteristically formal: the exchange of technology is done between formal organisations, with (formal) intellectual property rights, which enter into collaborative agreements (licensing contracts). This intensely formal collaboration constitutes the centrepiece of his theory.

The networking element outside formal collaboration is envisioned in the theory in a limited manner. It is essentially seen as a way of furthering the development of *existing* markets, and generally between organisational structures (essentially governments and local authorities, research organisations



and universities, and firms in a variety of situations: as customers, competitors, suppliers, or consultants). This narrow view of networking may prove insufficient to spark the birth of *new* markets.

In addition, the paradigm rests on the assumption that players are on a fairly equal footing with each other, in order to successfully enter into agreements. This potentially negates the participation of unequal players such as individual end-users, or even end-user communities.

Another important prerequisite to the theory, which Chesbrough later recognises²³, is that markets need to be developed at least to a certain extent for the exchange of intellectual property (protecting *existing* technology) to take place and be beneficial to market players. It thus only enables the successful exploitation of creativity in a limited number of circumstances, and does not go as far as it could to harness the substantial benefits of productive creation in a wide array of situations.

With regard to the condition that markets for technology be developed a minimum, the theory encounters several obstacles.

There is no denying that markets for technology have grown considerably: studies show that the number of patents has tripled between the 1990s and 2000²⁴. In parallel, royalty payments and receipts have increased by respectively approximately 14% and 11% between 1985 and 2004²⁵.

These markets are in reality quite imperfect. Firms face considerable challenges, especially due to high transaction costs, to difficulties in finding and being able to conclude with a partner, and in seeking out a reasonably mature technology.

A recent OECD study reveals that 24% of European firms are willing but unable to license patents, a figure which rises to approximately 50% for firms which are already licensing²⁶. The problem of finding partners is the main concern, already identified and quantified in 2004²⁷: where companies are willing

to sell technology, only 25% of them find a partner, approximately 6% enter into negotiation and only 4% end up concluding a licensing contract. Other negative factors include the costs of searching for a partner²⁸ and of negotiating and drafting complex contracts, the lack of readiness of the invention and the difficulty of agreeing upon a price²⁹.

Additionally, James Bessen and Michael J. Meurer (2008) demonstrate that, in sectors other than the pharmaceutical industry, the costs of patents and their litigation exceed the profits deriving therefrom. They thus provide quantitative measures supporting the allegation that, in certain areas, the patent system is actually failing³⁰. Such high litigation costs could have serious repercussions when there is evidence that they are acting as a disincentive for companies to engage in innovation³¹.

Licensing is therefore costly and complicated, and this model may in reality be quite challenging to implement. This has even been recognised by the Gowers Review of Intellectual Property in the UK³².

This does not condemn the underlying principles, it only suggests that, as it stands, the present system does not furnish the adequate supportive framework. On the contrary, it potentially frustrates the very aims of the paradigm. For example the underdevelopment of markets for technology entails a considerable loss for society as a whole.

Aside from this problem, by relying on the formal exchange of ideas and technology as a driving force of the innovation process, Chesbrough's model supposes that the current intellectual property system functions properly. Intellectual property rights, especially patents, should be efficiently enforceable as property rights in order to prevent misappropriation. However, there is considerable evidence that patents, in particular, are failing as property rights³³. Bessen and Meurer demonstrate that, in a majority of cases, the cost of enforcing these rights exceeds the incen-

tive to invest in them, as seen above. They identify a number of factors, which explain this flaw:

- ▶ failure of the notice function. The notice function serves the aim of informing third parties about the existence of the property and its boundaries. However, the increasingly large number of patents, complicated by the addition of massive backlogs (in the US, the backlog of patents is expected to exceed 1.3 million by 2011), and the use of obscure language, familiar only to intellectual property specialists, thwart the effectiveness of this function. This has serious repercussions since ignorance is no defence to a patent infringement case. Several cases illustrate this problem. Bessen and Meurer cite the example of E-Data, a small company, who had to engage in expensive litigation in order to have its rights respected. With forty-three different cases against more than a hundred parties, one might assume that the claim was weak, but in fact E-Data's claims were largely upheld in court and almost all the defendants had to settle. The Blackberry dispute provides another stunning instance, where an injunction against the patent infringer could have caused the immediate shutdown of several millions of users and US Government agencies, who promptly urged the parties to settle their dispute.
- ▶ Legal uncertainty: the validity of patents is only ultimately tested in courts. This makes it especially tricky and costly for a second inventor to know what he can further and develop with regard to a first patent. In addition, case-law fluctuates, and changes in policy can have severe impacts upon innovators. For example, recently in *In Re Bilski*, the Federal Circuit revisited earlier decisions and announced a new test for patentable subject-matter, which significantly restricts the possibility of patenting business methods³⁴.
- ▶ Prohibitive litigation costs: litigation costs in patent law have risen steeply in the last twenty years, and, as mentioned previously, in all sectors but the pharmaceutical industry, these costs exceed the profits


deriving from patents. This increase in costs is partly driven by the frequency of litigation, which has roughly tripled since the 1980s. The opportunistic behaviour of the controversial patent "trolls" – described as enterprises which only acquire patents with a view to earning revenue from them, particularly through litigation – may be another factor³⁵. This is probably more of a problem in the US than in Europe, since the US legal system enables a patent holder to file an infringement suit, without having to pay the defendant's costs, should the claim fail. However, there is growing concern in Europe as well, as shown by a 2007 survey of European executives³⁶.

An economic study has revealed that ninety-nine percent of patent owners do not bother to file a suit to enforce their rights³⁷. If there is so little faith in the system's ability to protect inventors' rights, how can they possibly be traded efficiently?

Copyright may not face such considerable defects, but parallels can be drawn to expose similar issues.

The legal uncertainty stemming from valid rights being tested in courts is still a problem. Case-law reversals create significant insecurity, especially within the user community, which is fairly unfamiliar with intellectual property issues. Evidence of general ignorance and unawareness of copyright infringement magnifies the legitimacy problem of these rights, particular in the context of digitalisation³⁸.

For example, in France, the Cour d'Appel of Montpellier³⁹ first considered that downloading fell within the scope of the private use exception, and so was not a copyright infringement. The Cour de Cassation⁴⁰, on the other hand, determined that it was first necessary to ascertain the legal (or illegal) source of the file before deciding whether the exception applied. This resulted in a directly contrary decision of the Cour d'Appel of Aix-en-Provence⁴¹ asserting that downloading from peer-to-peer was not a legal source and so constituted a copyright infringement.



Though this fluctuation is an inherent characteristic of all legal systems – and is seen as an essential way for law to adapt to societal and technological changes – where innovators are concerned, it can have serious implications. A creator may be investing in an activity which subsequently becomes illegal, not only nullifying the fruits of his efforts but potentially exposing him to infringement suits. The precise and consistent delimitation of each party's rights is important.

The greatest challenge which copyright faces in the digitalised age is that of the enforcement of each party's rights. This is often construed as the protection of copyright *owners'* right, but it also applies to the rights of the general public. The latter is entitled to exercise certain activities in accordance with exceptions to the copyright holder's legal monopoly. This is the case, for instance, for research and private study, criticism and review, reporting on current events and other activities in relation to work fallen in the public domain⁴².

The use of technical tools such as Digital Rights Management raises considerable concerns about safeguarding the public's rights. The Gowers review draws attention to the fact that Digital Rights Management, generally instated by private firms to protect their own rights, can prevent uses which are legally permitted and do not necessarily expire at the same time as copyright⁴³. In copyright, the major issue of "innocent infringers", so potent in patent law, is partly avoided. Copyright owners' rights are limited in comparison, since they are not violated if a person performs a work which they have created themselves. There is only infringement when the derived work *substantially* copies from the *protected part* of the initial creation.

In artistic works, the latter must be "original" in order to qualify for protection, which means it must be the fruit of the author's intellectual creation (in the UK: 'labour', 'skill' or 'effort'; in Europe 'intellectual creation')⁴⁴. Entrepreneurial works are protected to the extent that they are not copied from previous works of the same sort⁴⁵.

The scope for infringement is therefore made narrower by these two qualifications. In this respect, copyright law escapes some of the criticisms of patent law.

As mentioned before, Chesbrough's theory does not question the balance, struck by current intellectual property law, between the interests of different stakeholders.

These are, on the one hand, the inventor or creator, who wishes to protect his investments and/or efforts in research or creation, and on the other, the public, who wants access to the invented good (at a reasonable price) either to use it or to adapt/modify it.

Intellectual property is concerned with securing the inventor with enough incentive to continue investing and researching, which it does by granting him a monopoly over the fruits of his creation. The public is guaranteed access to an invention intended to improve general welfare, as well as, in the case of patents, information on its making which would not otherwise be available.

However, the progressive extension of protectable subject-matter, coupled with shortcomings of the disclosure counterpart, leaves room to doubt the fairness of the current balance.

The legal monopoly, which intellectual property owners are entitled to, is meant as a reward for financial and physical investment in the creation process. The underlying idea is that the invented and/or created goods improve public welfare and contribute to general knowledge.

In the case of patents, extending patentable subject-matter may have subverted this logic. For instance, in the US, business methods are patentable (though this is now restricted since the *In Re Bilski* decision⁴⁶) despite an unclear benefit to the general public, and the fact that there may not be a significant amount of investment to protect.

Though business methods are not protected in the European Union, the European Patent Office's construction of an excludable invention under Article

52(2) of the European Patent Convention raises similar concerns. This interpretation, often called the "any hardware" approach, does not deny protection to an invention, on the basis of Article 52(2), if it embodies or is implemented by technical means, such as a computer. All that matters is that the invention uses or embodies some form of technology ('hardware'). This explains why, despite computer programs being expressly excluded from patentability by Article 52(2)(c), many patents have been granted for computer-related inventions. This understanding of Article 52(2)(c) has caused disquiet about the number of so called "trivial" inventions⁴⁷.

Similarly, in copyright law, the work must, amongst other things, be original in order to be copyrightable. The interpretation of this requirement leads to a relatively low threshold of protection, since is original a work which is an expression of the author's personality. Originality is appreciated with reference to the relationship between the work and its author, and not as an independent novelty requirement. In addition, the adaptation of this criterion to such works as computer programs, which takes different forms depending on the jurisdiction, raises new legitimacy issues.

Furthermore, copyrightable subject-matter is itself expanding. In Europe, even temporary copies can be protected. This, combined with the legal protection of technological measures⁴⁸ controlling the use and reception of a creation, has the effect of enabling control over the mere use of works⁴⁹.


Many consider that the protection has gone too far⁵⁰. Others argue that the major role which copyright plays in the exchange of knowledge and information, enhanced in the *Information* society, coupled with the importance of the interaction between people and cultural objects, makes it critical to constantly reassess its legitimacy⁵¹.

It is fair to say that, as it stands, copyright potentially hinders the optimal exploitation of such tools as the Internet. In the context of our definition of Open



Innovation, as will be seen further on, it can seriously inhibit the development of positive spillover effects. It is suggested that a careful rebalancing of rights is necessary, especially to address the enforcement issue. The Gowers review regards the introduction of new exceptions, which do not impair authors' rights, as an effective means of combating widespread infringement⁵².

In addition to this, there is reason to doubt the reality of the disclosure requirement (in patent law). The disclosure of the invention is done by the publication of the application for a patent, later confirmed if the latter is granted. However, with the number of patent filings, and the ever-growing mass of backlogs, the procedure for obtaining a patent is extremely lengthy; in general, approximately eighteen months elapse between the filing of an application and its publication. With such a rapid obsolescence rate as is witnessed in high-tech industries, this makes the reality of the disclosure benefit highly uncertain. It



is more likely that during the business cycle, competing firms will be uncertain whether the invention is proprietary or not.

Also, here again, the sufficiency of disclosure will only be tested in courts, with the onus of proving its insufficiency generally on the defendant. This is a questionable way of ensuring that the public benefits from disclosure.

This problem does not arise as such in copyright law. Nonetheless, it is mirrored to a certain extent in the issue, discussed above, of users being increasingly restricted by Digital Rights Management and other technological measures, even when they are legally entitled to certain rights.

Finally, the reality of the incentive theory is brought into question by developments such as Open Source software. Though Linus Torvalds identifies entertainment as one of the main driving factors of the Open Source movement⁵³, a recent study has highlighted that a major part of Open Source developers are in fact revenue-earning commercial enterprises. This questions the assumption that the Open Source model is not fitted to profit-driven business models. Open Source yields a number of benefits, which could be highly relevant to SMEs and fragile start-ups. In particular, it:

- ensures low market entry barriers (low entry costs, elimination of the potential use of intellectual property as a barrier to entry)
- provides useful and costless marketing tools: participating in the open source process allows firms to gain recognition and reputation
- offers free validation services: other developers test and validate their contributions for free⁵⁴.

Concentrating on embedded-Linux, the study reveals that 42.5% percent of contributors work for device manufacturers and 22.4% for software firms, against only 15.3% hobbyists. Moreover, the authors caution that hobbyists are likely to be overrepresented in the survey, since it was done by means of an online questionnaire⁵⁵.

Therefore, the legal monopoly offered by formal protection does not always induce companies to invest in research and development. Other factors come into consideration, and alternative models have the potential to offer them.

The incentive theory is particularly ill-adapted to sectors of the economy driven by the speed of technology development. Instead, it has been shown that companies are motivated by lead time and first mover advantages, and rely on these to create a time buffer and give some form of protection⁵⁶.

In fact, intellectual property rights, especially patents, are being fundamentally questioned and face a significant legitimacy crisis. When patent offices themselves doubt the utility of the existing model⁵⁷, it becomes clear that it is high time to reconsider the present system in order to address these elemental flaws.

If we were to contemplate a model where the benefits of innovation would be more widely distributed among the stakeholders, the unbalance mentioned above would be corrected. However, current intellectual property laws do little to support the idea of an organic innovation ecosystem, where interaction and exchange form the centrepiece of the innovation process.

This perspective calls for a more nuanced answer to the questions raised in the first subsection.

C. A novel view of intellectual property in Open Innovation

In the broader definition of Open Innovation provided in the introduction, the focus of "openness" and networking is to maximise value creation, stemming from the exchange of knowledge, experience and information within the innovation ecosystem. The latter includes informal actors and players of unequal status on the market: industries, universities and research organisations but also user communities and individual end-users.

In this model, the increased value is from networking itself and not from the formalisation of its benefits by intellectual property. Networking increases the innovation base shared by firms, as long as innovation itself is *open*, which means it must involve all stakeholders and allow for the interaction of the latter throughout the whole process. Innovation is thus a *co-creation* process. The contribution from as many as possible is crucial to capture the rich and multi-disciplinary creativity of communities as well as participating industries.

The advantages of shared innovation are visible in open source software. First, it allows innovation to be thoroughly accelerated by the contribution of open source communities. "Bugs" or errors are relatively quickly identified and fixed, in conformity with Linus' Law according to which "Given enough eyeball, all bugs are shallow"⁵⁸. Also, beyond error fixing, the large number of contributors increases the improvement rate of open source software. It is now recognised that the quality of open source software is often at least as good as proprietary software.

Secondly, the creation of a network facilitates the wide adoption of an invention. Confidence and trust are values which the network has the potential to vehicle, and which, in this context, can influence the market. The establishment of a firm's reputation can thus help it conquer a large share of the market.

These advantages have already been recognised by European industries themselves in a study by the Economist Intelligence Unit, where 30% of executives surveyed estimated that sharing inventions with open-source was a priority for accelerating innovation. Near half of the surveyed will or are developing an open-source strategy (48%) and a wide majority of 58% dispute the assumption that open-source results in less innovation⁵⁹.

In addition, the importance of positive spill-over effects is emphasised in this vision of Open Innovation. The idea is to spread, and build upon, the fruits of innovation. This is crucial to respond to the time challenge which modern information technology firms face today. With the speed at which the high-tech industry and services develop, sharing experience and know-how can be critical for firms to be able to develop rapidly enough to respond to changing needs in the market.

However, in order for this new paradigm to bloom and yield the expected rewards, traditional intellectual property must be adapted. As they currently stand, these rights hinder Open Innovation seen in this light.

The exclusive and proprietary rights, which both copyright and patents afford intellectual property owners, prevent the development of spill-over effects. The advantages of networking cannot be developed to the full.

That firms need to protect themselves from imitators and copyists, stealing their ideas and inventions, is perfectly legitimate, but there is scope to question the extent of the exclusive monopoly granted in order to achieve this.

In patent law, the right to use and commercialise⁶⁰ the invention is reserved exclusively to the owner, to allow him to reap the benefits of his efforts and obtain return on his investments. Whilst this is justified, what is less so is the level of appropriation. A firm is free to not commercialise an invention, which could translate into a significant loss to the community.



It was from this that Henry Chesbrough developed the idea of creating markets for technology. The availability of firms, able to exploit the technology in the market, was seen as a way of addressing some of the possible obstacles to its marketing by the owner. However the imperfections in such markets have already been discussed.

A solution, which has been proposed by the European Patent Office in its Blue Skies scenario⁶¹, is the generalisation of Licences of Right regimes, which currently exist in the UK and in Germany. When a patentee endorses 'licences of right' upon registering the patent, anyone is able to obtain a licence to exploit the technology. It is also generally required that the possibility of obtaining injunctive relief in case of infringement is relinquished. This would facilitate the circulation and development of inventions, and

circumvent opportunistic behaviour of patent "trolls". This possibility has attracted renewed attention since it now figures in the Commission Proposal for a Community Patent. It has also been enthusiastically promoted by certain market players, especially IBM⁶². The adoption of this solution would be a considerable step in the right direction, and would do a lot to encourage a wider diffusion of innovation. Given that firms have until now shown reluctance for the model, it would have to be matched with significant incentives.

However, it does not deal with other patent issues, in particular the length and cost of procedures.

The potentially prohibitive costs have been particularly emphasised by Bessen and Meurer in their cost/benefit analysis of the present patent system⁶³. While their focus was on the US patent system, their remarks apply in a similar way to Europe. In fact, due to heavy translation expenses, costs are even higher in Europe.

The length of the procedure is incompatible with the speed at which services and high-tech develops. Firms increasingly rely on different strategies such as lead-time and first mover advantages, and secrecy. In some cases these are even used as a substitute for formal intellectual property since by the time the patent is granted (average 2 to 3 years after filing), the technology would be obsolete, and the monopoly would have little value. The legal uncertainty associated with this time problem, stemming from the unclear status of the invention during the business cycle, has been recognised by the Gowers Review⁶⁴.

Another objection, in relation to the time span, may be made as to the length of protection, which lasts an average of 20 years. Whether companies should still be able to require licensing fees when a technology has arguably reached maturity is debatable.

This was an argument raised in the fierce dispute opposing Nokia and Qualcomm in several countries, importantly before the Chancery Court of Delaware and the European Commission. At the end of the licensing

agreement, which expired in 2007, the companies were unable to agree on new terms. In particular, Nokia argued that several of the patents had been fully paid up and were not eligible for royalty payment at the same rate. It considered that the price should be lowered to reflect Qualcomm's relative contribution to 3G technology. This was forcefully contested by Qualcomm. The parties finally agreed to settle, which leaves a lot of interesting legal points unanswered by the courts⁶⁵.

In copyright law, the right of reproduction, of distribution, the right to communicate the work to the public and to perform it, are all reserved to the author. In certain countries with strong moral rights, like France, the author even has the choice of putting (or not) his work on the market and removing it when he pleases.

This regime was designed in the nineteenth century with classical literary and cultural works in mind. When this is applied to modern innovation, the prerogatives granted are arguably too wide. They certainly hinder positive spill-over effects, since redistribution without the authorisation of the author is a copyright infringement. The benefits of innovation may therefore not be shared.

By dispensing with any filing requirement, copyright avoids lengthy procedures. However, there is a strong case for saying that the term of protection is excessively long, at least, when applied to software. An EU Directive, harmonising national laws in this field, sets the duration of copyright for the author's lifetime, with an additional 70 years following his death⁶⁶. In the context of rapidly evolving technologies, this is a complete misfit.

This time issue, which is present in both regimes, is particularly debatable in services. While healthcare and life sciences arguably have long-term commitments to honour and need the monopoly profits to obtain a return on their investments, this is not necessarily the case in service, especially Web Services.

This is reflected the Economist Intelligence Unit survey, where respondents considered that leveraging open-source technologies was beneficial: this was mostly true for IT and telecoms industries⁶⁷.

Aside from the intellectual property regime itself, another important barrier to spill-over effects is the presence of non-compete covenants. Non-compete restrictions have a specific meaning in competition law, which will not be relevant here. In that context, they refer to the obligation of a buyer to purchase a certain quantity of its goods from a certain supplier. Competition law subjects them to a number of conditions in order to exempt them under the Vertical Agreements Block Exemption⁶⁸.


Here, non-compete obligations in labour law are of relevance. These refer to the contractual restrictions, in a contract binding an employee to his employer, preventing him from engaging in a profession or trade similar to the latter's, or from working for a direct competitor. These restrictions generally take effect on termination of the contract. The validity of such obligations is usually subject to geographical and time limits, so as to balance the interests of both employee and employer.

These covenants are arguably quite wide-ranging, and they can significantly restrict the circulation of information, knowledge and know-how. Professor Gilson argues that the specificities of Californian state law was extremely beneficial to the development of Silicon Valley.

California Business and Professions Code, Paragraph 16600 provides that

"every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void."

Professor Gilson considers that this favoured a collaborative culture where employees could share knowledge with different companies they worked for, and was an important factor in the success of the Silicon Valley⁶⁹.



The very nature of innovation in services and high-tech generally makes it particularly vulnerable to barriers from the intellectual property regime. Indeed, innovation is often incremental, meaning that it stems from enhancements and improvements of existing innovation.

In patent law, this means that the invention will fail the inventive step requirement, and so not be protectable. Though patent law generally recognises a right to repair or modify products, it does not entitle a person to remake a product. And yet this step may be essential to any improvement. In the UK, for example, it is uncertain that a person who tests an invention to improve it, to invent around it or to invent something else falls within one of the defences to infringement⁷⁰.

There is an additional threat. Complex inventions often enclose a great number of patented inventions, and so a fragmentation of the ownership of intellectual property in a finished product. This exposes a potential innovator to a great number of suits from an array of patent owners. This is a strong disincentive⁷¹. What is more, the possibility of obtaining injunctive relief to stop infringement is controversial in the case of a patent owner of an invention playing only a small part in the whole application. The potentially devastating effects of this were illustrated in the case opposing RIM to NTP over Blackberry devices. This is highlighted in the Gowers review.

In copyright law, incremental innovation is likely to face similar difficulties, since if it closely relates to a previous work, or takes a substantial part thereof, it will be an infringement. In the case of software, infringement is assessed both in terms of literal copying (the source code) and non-literal copying (the look and feel). And yet, the personalisation of a computer program will mainly be based on the original source code. If Open Source developers had been restricted in their ability to copy the source code so as to work on possible improvements or adaptations, it is quite possible that the tremendous benefits described previously would not have been possible.

Finally, though the intellectual property regimes in question provide some exceptions, these are too narrow to rectify the problems above.

In patent law, exceptions are generally made for private and non commercial use, and experimental use. However, their interpretations vary according to countries. For example, they are understood more liberally in Germany than in the UK. The Gowers review considered that there was a need to clarify these exceptions, and possibly widen the private and non commercial use defence, since the private requirement could be problematic for universities and public-private research bodies.

There are similar exceptions in copyright law, for example research or private study, criticism or review, reporting etc. These arguably need updating to match the needs of modern society and innovation.

Introducing broader exceptions which aren't purpose-specific may be a solution. For example, in the US, the "fair use" doctrine provides a more flexible and adaptable threshold, though this of course depends on its construction. It would have the drawback of introducing legal uncertainty, but this is the usual counterpart of flexibility.

The Gowers review highlights the fact that some restrictions are not justified. A number of common modern day acts are formally infringements (in particular copying from one format to another, for example a computer to an mp3 player), even though they do not impair the copyright owner's rights. This fuels the sense of illegitimacy in the eyes of the public, and discredits current laws. It is no help to their enforcement, especially when they support an obsolete business model which cannot reasonably be upheld.

Intellectual property can thus undeniably hinder Open Innovation. And yet the creative commons and positive spill-over effects are critical to respond to new challenges in service innovation.

Sharing an innovation base enables a certain scalability to be reached since products can be tested in

more probable life size environments. User communities provide cost effective and scalable testing methods for enterprises participating in the process. Testing in this more realistic environment highly increases the chances of a product or service's success.

It also allows demand-side innovation to be taken into account, via the interaction between the actors in the innovation ecosystem.

Acting directly on innovation is challenging. It is however possible to have indirect influence by acting on the environment, and providing a positive framework for Open Innovation. The setting needs to be favourable to cross-fertilisation, to the exchange of knowledge, experience and ideas, so as to enhance the richness of multiculturalism and multidisciplinary. Improving conditions of innovation is a prerequisite for a higher probability of creativity and success. It has been demonstrated that diversity increases the chances of breakthrough and thus the rate of successful innovation⁷². Open Innovation requires that the fruits of this diversity and richness be used to the benefit of the stakeholders involved, and of society as a whole. For this, a different approach to intellectual property is needed.


Professor Lionel Bently and Brad Sherman remark that, in patents for instance, though there is a consensus that they can be used as a regulatory tool, there are only ever economic arguments invoked in support of the present system. In reverse, extra-economic arguments, relating to harm to the environment, health and innovation, are consistently used to criticise it. They propose that patents also take into account these extra-economic theories when used as regulatory instruments, so that they do not only pursue economic ends. An example of this type of reasoning can be seen in biotechnology, where the Convention on Biological Diversity recognises the desirability of sharing equitably the benefits arising from traditional knowledge, innovation and practices.⁷³

This rationale is extremely valuable to Open Innovation, as a way of taking into account a wider range of interests and supporting "sustainable innovation". It could lay the foundations of a modern approach to intellectual property, more adapted to the emerging innovation environment.

It cannot be denied that core competencies, which give firms a competitive advantage, need to be protected. However, it is argued that this protection must not hamper the essential advantages of networking in Open Innovation. As it currently stands, not only does intellectual property stand in the way of such rewards, it even falls short of efficiently safeguarding innovators.

These competencies are probably best protected by lead-time and/or first-mover advantages than by formal protection. A 2007 survey shows that firms prize such advantages as better methods of protection than traditional patents: an average 10% and 9% of firms considered that lead-time advantage on competitors and secrecy respectively were of high importance for protecting innovation, against 6% considering it to be the case for patents. The figures are significantly lower for respondents with between 10 and 250 employees than bigger enterprises⁷⁴. Formal protection has an important role to play when it comes to businesses' relation to end-users. This relation is becoming critical to the way companies see value creation in the future. They are stressing the need to capture value from "the edge of the network", so that, in networking, it is quite probable that the business-to-consumer relation prevails over the business-to-business one, and becomes central to the definition of a valid business model.

In this respect, formal protection is crucial. Branding, for instance, acquires a new dimension since it allows companies to protect the very core of what enables them to conquer the market: their distinctiveness. In an open environment, it has already been seen that the "community effect" will be strong, i.e. that users will have increased influence over the market posi-



tion of an enterprise. With the free exchange of information and experience, a firm's reputation and image can be rapidly improved or damaged by the interaction between users and communities. Information and communication tools facilitate this effect, which is visible in existing web services, and it is likely to be further enhanced in an Open Innovation context where values such as trust and reliability will be central.

Therefore branding and the use of formal intellectual property rights such as trademarks will become an important part of business strategy⁷⁵.

The generalised adoption of licences-of-right is one element of a solution. In addition, it is proposed here that the ideal model of innovation combines minimal flexible protection with an open strategy. In a report by the Nordic Council of Ministers, it was noted that a particularly successful approach, for both using intellectual property and captivating creativity from user communities, relied on the protection of a base concept but opened the rest of the innovation process so that "add-ons" could be developed by users themselves⁷⁶. Such a "modular concept" of intellectual property would be a viable solution, supporting both networking effects and user-driven innovation. The latter will be analysed now.

2. Issues in user-driven innovation **User-driven innovation must first be discussed, before its relation to intellectual property is analysed.**

A. The "User Innovation Revolution"

The "User Innovation Revolution", to quote Leadbeater⁷⁷, refers to the rise of the user in the innovation process. The involvement of the user in innovation is not a new phenomenon. However, it is of increasing importance due to the powerful enabling effect of information and communication technologies, and this has been brought to light by recent business literature⁷⁸.

A pervading networking of over 1 billion people, combined with the growing interactive character of the Internet (Web 2.0), provide solid foundations for user empowerment. In addition, the sinking costs of user-to-user interaction are leading to the creation of 'user communities'⁷⁹ in a diversity of areas (software development, sporting equipment, computer games, social networks etc.).

User innovation is defined as innovation which is performed by a person who intends to benefit mainly from *using* it⁸⁰. It does not only refer to end-users. Firms can also be user-innovators to the extent that they are using a product or process. This is opposed to the traditional model where manufacturers innovate and expect to benefit solely from selling their innovation.

User motivations are different from those in the traditional paradigm. Von Hippel demonstrates that money making is not the central concern of user innovators, though it may of course be an additional purpose. User innovators are driven by several factors. Many users do not find precisely what they need or want on the market. This is because it is more profitable for mass manufacturers to make "one size fits all" products, and cover a large part of the mar-

ket, rather than satisfy the specific needs of a small number. This conflict of interests therefore makes it sometimes more attractive for users to innovate themselves, thus enabling them to have exactly what they want.

Also, the agency costs of hiring someone else to innovate are prohibitive. These, and the additional fact that the final product may not completely match the users' needs, don't make this solution viable.

Finally, the attractiveness of the innovation *process* itself is an important driver of user innovation. This is often the image given out by Open Source developers: that of hobbyists programming into the early hours of the night to find a solution to a gripping intellectual problem⁸¹.

Another feature of user innovation, which distinguishes it further from the traditional model, is that user innovators generally freely reveal their inventions. This is because they are aware of the significant private benefits which open revealing offers. In particular, they stand to gain from suggestions, improvements and problem solving by the great number of other users in the user community.

They also benefit from the positive effects of networking, which are only possible with free (unrestricted) revealing. A successful user can build a reputation from his innovations, and use publicity tools available through the interaction of online user communities. In fact, acquiring a reputation among peers is sometimes one of the main drivers of user innovation. Freely revealing also helps companies, especially small companies with limited resources, since frequently delivering innovation (in the case in point, source code), approved by online communities, is an efficient and cost effective marketing tool⁸².

Generally speaking, user innovators have more to gain from revealing than to lose: they have little to lose in comparison with manufacturers in the previous system. Finally, Von Hippel demonstrates that attempts at keeping innovation secret are futile, given the widespread knowledge in the user communities⁸³.

It is important to bear in mind that free revealing is not a trend seen only in Open Source software. Though it is well adapted to the kind of innovation in this area, this does not mean that it cannot be extended to other sectors.

In sport, for instance, a number of innovations actually come from user ideas, and their contributions continue to be extremely valuable. Recently, for example, a compilation of advice from experienced skiers enabled a "Wax Book" to be published, providing guidance as to the best way to wax skis⁸⁴.

User innovation requires an inherently open structure to function properly. This raises issues as to its compatibility with existing intellectual property regime.

B. User innovation and intellectual property


As Charles Leadbeater points out, if users are going to be active in the innovation process, they need to have access to the products and processes to be able to fiddle with them⁸⁵. Intellectual property rights prevents them from legally doing so

In copyright law, the following rights are the exclusive attributes of the owner:

- the right to copy the work
- the right to distribute it to the public
- the right to translate the work
- the right to perform it in public
- the right to communicate it to the public
- the right to make an adaptation of the work⁸⁶

Anyone, apart from the owner, who performs these acts, will be infringing copyright, unless they have his permission.

Bently and Sherman illustrate one of the problems with the piecemeal way in which these rights have continually expanded (including following the Information Society Directive⁸⁷): some of the rights overlap, as in the case of the rights of reproduction and adaptation. They draw attention to the growing suspicion of the judiciary – in the UK at least



– in the face of this expanding body of rights. This might ultimately result in a more consumer-lenient interpretation of copyright owners' rights (as opposed to the case now which generally favours copyright owners).⁸⁸

In addition, the regime gets more complicated depending on the type of work. There is a distinction between a co-creation, a compilation and an edited version of an existing work.

A compilation requires publication rights to be cleared. For edited works, the original author's consent needs to be given. If the work is a co-creation, permission is necessary from all the other content creators. A report from the Information Society and Media Directorate-General suggests that for co-created works, the nomination of a central 'director' with a mandate to make choices for authors would be a solution. It highlights that, aside from using a creative commons licence, there is no mechanism to enable this⁸⁹.

In France there is a distinction between "collective works" and "collaborative works"⁹⁰. Whilst the former is a form of compilation of independent works, the latter is the fruit of author's contributions "under a common inspiration", according to case-law and jurisprudence. They obey different regimes.

Copyright over the entire *collective* work belongs to the person who initiated its creation, in a way similar to the above suggestion by the Information Society Directorate report. However, authors keep their rights over *each of their individual contributions*. Collaboration works, on the other hand, entitle each author to an undivided right over the *entire* work so that without unanimity, nothing can be decided.

This complexity and variety of rights and regimes make copyright unlikely to be understood by end-users in a quest for innovation, whether they are individuals or firms. Small firms with limited resources cannot afford precious legal advice to make sense of their rights and duties.

Thus, if a user were to fiddle with the source code of a software, for example, in order to personalise it or adapt it to specific needs, he would very likely be infringing copyright⁹¹.

In addition, if a user acquires a copy of a copyrighted work which he is very happy with, he is not entitled to redistribute it for the benefit of others in the community.

Different liabilities occur depending on the role of the user as a content provider or as a content distributor. If he provides content in breach of copyright, he is liable for "primary infringement" of copyright, since he is directly committing one of the acts reserved exclusively to the owner. He is also liable for "secondary infringement" if he assists the making of or distribution of copyright-infringing work.

Similarly in patent law, we have seen above that the owner of the patent has the exclusive right to make, use, dispose of or keep the product, or in the case of a process, to use or offer it for use. This technically makes it illegal for a user to make his own version of the patented invention to fiddle with it and adapt it to his own needs, without a licence from the patent owner. This is especially problematic in incremental innovation, i.e. improvements or enhancements of previous inventions. User innovation, which is generally incremental, is thus particularly vulnerable to restrictions from the law.

While there are exceptions, as in the case of networking above, they are insufficient to allow user innovation to flourish to its full extent.

In copyright law, the Berne Convention requires that exceptions satisfy the so-called three-step test. This means that they must be limited to certain cases, not conflict with the normal exploitation of the work and not unreasonably prejudice the legitimate interests of the author⁹². This by definition makes exceptions narrow.

There is, in general, an exception for personal use⁹³. In France, for example, this brings into play two relevant

provisions. An exception to the right of representation (the right to communicate anew the work to the public) makes it legal to freely and privately represent a work in a family setting⁹⁴. In addition, a private copy, solely intended for the private use of the copyist, is a legal exception to the right of reproduction⁹⁵. Whilst these go further than provisions in the UK where no private copy provision exists⁹⁶, they are still too narrow to enable users to freely interact between themselves so as to innovate successfully.

For example, the requirement not to copy a substantial part of a copyrighted work in practice makes it illegal for users to copy the source code of a software, in order to adapt it to their needs or desires. This restriction is made worse by the fact that infringement is appreciated in terms of quantity and quality, meaning that copying even a small part of the work may be an infringement, depending on its importance to the overall work.

Moreover, exceptions as they currently stand are a considerable barrier to fan content, as illustrated in the recent case opposing J.K. Rowling to the author and publisher of *The Harry Potter Lexicon*. This publication was a fan-creation intended to be an encyclopaedia with detailed information about the characters, creatures and magical devices for the benefit of the Harry Potter fan community. Judge Robert Patterson considered that it contained too much of the original work and issued a permanent injunction against the publication.⁹⁷

Protecting the interests of the author is perfectly legitimate. However, in the present context of information and communication technologies, which support a pervasive worldwide network of users and the diffusion of cultural goods in an unprecedented way, the current system is ill-fitted. Copyright laws were introduced in a very different setting, where the reproduction of works was controllable and their distribution limited.

In view of the tremendous advantages of user innovation, with the potential to increase social welfa-




re⁹⁸, it is suggested that the current laws are unbalanced.

The Gowers Review recognises that exceptions to copyrights can lead to value creation. It boasts the "fair use" doctrine in the US as a sensible broader approach, opening up commercial possibilities for others to create value.

The exceptions in patent law are open to the same criticisms. In the UK, for instance, Section 60(5)(a) of the Patent Act excepts acts done privately and for non-commercial purposes. However, these must be 'for the person's own use'⁹⁹. This does not allow incremental innovation to be shared between user communities.

In addition, most regimes provide an experimental exception to patent rights, originally intended for



researchers to understand and improve existing products and processes, without the need to get permission.

It is unlikely that this exception would help user innovators. For one, there is generally little case-law enabling an extensive understanding of how the exceptions applies. The original idea was to promote scientific research and prevent it from being hindered by restrictive patent rights. This rationale does not really apply to user innovation, and it is arguable that courts would be unwilling to see user innovators as 'researchers'. This would be considerably stretching the meaning of the provision.

Moreover, there are important divergences between Member States. For instance, Austria has no such statutory exception. In contrast, Germany and France interpret their exception quite liberally. The Gowers review considered the exception to be very unclear in the UK. It recommends clarification based on the Swiss exception. This has resulted in a consultation, launched by the Intellectual Property Office, to amend current provisions.

Furthermore, in patent law, there is the additional problem of "patent thickets" which both Gowers and Leadbeater draw attention to. Patent thickets may be described as the intense concentration of patent rights in a technological area. These raise issues of both cumulative royalties and the fear of infringement, which stems from the difficulty of "navigating" through the "web of overlapping intellectual property rights"¹⁰⁰. The bigger risk of litigation is a strong possible disincentive for any sort of follow-on innovation, and applies to researchers and user innovators, alike.

Patent thickets illustrate one of the many shortcomings of the present system. Patent rights are potentially far-reaching, and can be wielded as powerful commercial weapons, to achieve sometimes illicit aims. The probable harm to (user) innovation is undeniable.

And yet, it has been shown above that patents are not always considered the best form of protection¹⁰¹, and that the cost of enforcing them sometimes puts owners off¹⁰².

This is a strong case for the search for a fairer balance in existing rights.

C. Towards a new thinking

Charles Leadbeater defends the idea of a flexible framework, which does not discourage users and gives them the freedom to adapt products.

Present intellectual property was designed in the previous industrial model to suit its needs. These are quite different from those of our current innovation system, and increasingly so, in view of the trend in development.

As mentioned before, in the manufacturer-centric innovation model, innovation is done in a closed environment, controlled by manufacturers, with the intention of profiting by selling it. With revenue-making as the main driver, intellectual property serves to ensure that creators and inventors get a fair share of the revenue from the value of their invention.

This paradigm fails to adapt to Open (and user) Innovation in a number of ways.

First, it ignores the difference in motivation and drive, which distinguishes user innovation from manufacturer-driven innovation. If an author or inventor intends to earn a living from his creation, then intellectual property has a central role, in its existing form.

On the other hand, if money making is not the main concern, then, as has been shown above, intellectual property is more of a hurdle than a supportive framework. And yet, more often than not, users innovate out of *need*, or for reasons other than profit-earning¹⁰³.

If creators and inventors wish to share their product, they may resort to mechanisms imagined by pri-

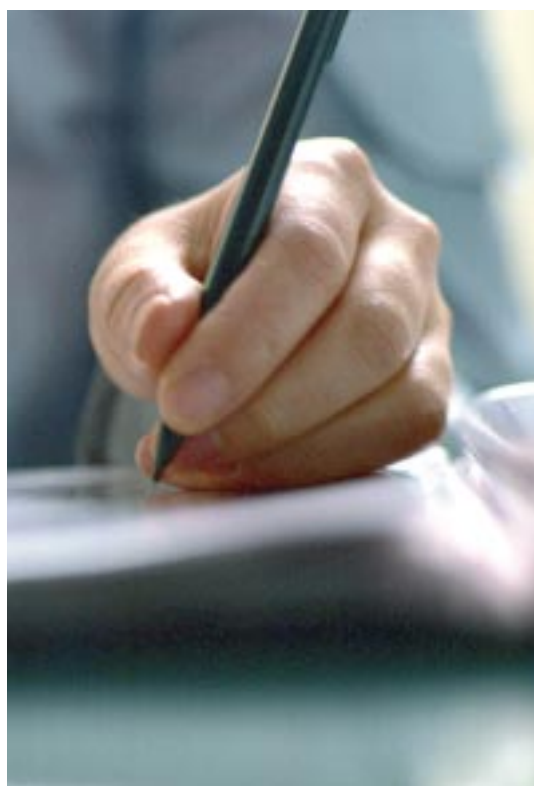
vate organisations, to adapt the existing legal structure. These may be referred to as "private ordering mechanisms", to quote Séverine Dusollier¹⁰⁴, and occur when "the rule-making process regarding the use of information is privatised, and the legal power to define the boundaries of public access to information is delegated to private parties"¹⁰⁵.

Such legal instruments include, for example, the Creative Commons licences, in copyright law. It is important to bear in mind that these licences are not a separate legal model, but rely on copyright law itself. They were designed by the organisation of the same name, founded by Lawrence Lessig, with the intention of adapting the copyleft licences, already existing in software, to creative works¹⁰⁶. A variety of licences are available, depending on the intentions of creators and the rights they wish to protect.

Similar projects exist in patent law. Most were developed in biotechnology. Some schemes essentially seek to curb patentability by defensive publishing and continuous release of data in the public domain. A patent on the data would thus fail the novelty test, which requires that the patentable subject-matter has not been previously disclosed or available to the public. The Human Genome Project is an illustration of this type of strategy: it does not claim any patent on any part of its mapping of the human genome and constantly publishes its findings.


The fact that subsequent patents, on the use of this data, are not prevented has encouraged some to improve the model in order to ensure that the commons remain accessible and open. Thus, the HapMap project developed a licence similar to the General Public Licence, which prevents patentability and downstream restriction on accessible data¹⁰⁷.

This is a perfect illustration of an alternative and critical function of intellectual property: contrary to its original exclusionary logic, it also serves as a legal instrument to ensure collective access and sharing of intellectual resources, in a wholly *open* way. Whoever benefits from one of these licences is in



turn compelled to submit his own work to the same conditions, *i.e.* to keep it open and accessible. This has led to these types of contracts to be described as "viral"¹⁰⁸, since the essential feature of upstream licences, which is to enable accessibility and openness, transmits to any ensuing licence by automatic effect.

It is quite striking that such mechanisms were privately developed, *i.e.* not the result of legislative initiative. This reveals a profound disconnect between law and policy, and the requirements of modern day technology and markets. Dr Francis Gurry, Director General of WIPO, recently recognised this divide, and drew attention to the intruding role of markets and technology in the regulation process.¹⁰⁹



Though private ordering may be a response to the imperatives of the market, it does not go without risks. For one, 'viral' clauses themselves may not necessarily be valid and enforceable¹¹⁰. Further, these models sometimes rely on the grant of world-wide, non-exclusive, royalty-free licences, for both the use of the creation itself and that of its subsequent improvements, as in the case of the Biological Innovation for Open Society (BiOS)¹¹¹ in Australia, for instance. The validity of such licences could be opposed by intellectual property law itself¹¹², contract law or legislation on unfair contractual terms or abusive clauses. In addition, there is uncertainty regarding the enforcement of these licences. A recent US Court of Appeal decision has comforted the Open Source community, by deciding that the breach of an Open Source licence was as much a breach of contract as a copyright infringement. This has important implications, since it means that it is possible to have recourse to injunctive relief, whereas a breach of contract only entitles to the award of damages. This decision reversed the District Court judgment which only allowed for damages as a remedy for breach of such a licence.¹¹³

Though it has been described as a 'major victory for Open Source'¹¹⁴, this judgment may not be followed by judges in other US states, or in other countries around the world. This is a compelling reason for these types of arrangements to be made legally available through the traditional law-making process.

Secondly, the current regime fails to take into account the increasing role of the user as an innovator. This is visible in the issues described above, since a user-innovator will mostly be engaging in illegal activity. It can also be seen from the failure to offer adequate protection to user innovators, should they desire it. It has already been said, that due to the inherently incremental nature of user innovation, for most cases, inventions will frequently lack the inventive step or non-obvious requirement necessary to obtain a patent. In copyright law, even if a creation is quite easily

protected, provided it meets the 'originality' requirement – a fairly low threshold, the user-innovator is nonetheless exposed to the risk of infringement, which is likely to be amplified in the case of (incremental) user innovation.¹¹⁵

There is a clear need for greater flexibility in the system. That companies should be protected from copyists and imitators is normal. However, how do you distinguish a user, adapting an invention to his tastes, or a fan sharing insights and inspired creations with a fan community, from a copyist or imitator? The difference is becoming more and more difficult to make, and there is a strong argument for saying that the criteria, currently used in this respect, are not adapted. They amount to saying that a majority of the population is performing illegal activity. Either this, or the law needs to change to take into account major cultural and technological changes.

There is already evidence of difficulties in applying the present regime to new technology. The tricky application of a "citation" – a legal exception to French copyright for short extracts of an original work¹¹⁶ – to a multi-media environment, is a good example. What is a 'short extract' in this case?

One of the driving factors of user innovation, which is the idea of sharing creations and inventions between user communities and end-users, goes directly against traditional copyright and patent laws. This has to be amended in order to release the full benefits of this type of innovation.

It is widely recognised that most intellectual property infringers, especially in copyright, are unaware of their duties under the present system. Arguably, users are not aware of these restrictions, because they do not conform to their expectations. Since law is meant to embody existing and widely accepted norms within a society, it may be that intellectual property goes too far and is no longer normatively accepted. It is not suggested here that all forms of copying and imitation should be permitted, so that, for instance, copyists stealing and appropriating the crea-

tions of others should be immune. On the contrary, the law has a challenging task of maintaining some form of justice, especially given the considerable legal void on the Internet. Open Innovation is not about taking the ideas of others, but building upon and extending the existing common knowledge base.

However, information and communication technologies are changing, in an unprecedented way, the environment in which these rights are considered. The law has an important part to play in the shaping of future society. It is argued here, that a lot of energy is wasted on issues which belong to a previous industrial model, and which are secondary in today's context. The cultural changes spurred by technological development cannot be countered. Instead, the focus should be on providing an adequate supportive framework for the emerging model.

The need to strike a fairer balance has been voiced by several reports. An OECD report endorses the thinking in the Gowers review, which recommends a broader exception to copyright, based on a flexible approach. The proposal to implement a "fair use" standard, similar to the one in the US, has already been discussed in this chapter. The OECD supports this view, preferred to rigid purpose-specific exceptions as they currently exist in most European countries.¹¹⁷ This would allow for flexibility, with the possibility of adapting the balance between the different interests, depending on situations. For example, the fact that a party had acted *bona fide* could be taken into account. As always when flexibility is sought, this would also introduce a certain amount of legal uncertainty. This is a trade-off which needs to be thoroughly assessed, but seems worth while.

Interestingly, the Gowers review also recommends (Recommendation 11) the creation of an exception for creative, transformative or derivative works, within the parameters of the Berne Three-Step Test. This would be a considerable effort to support user innovation, and would address some of the important problems discussed above.

In patent law, the European Patent Office's Blue Skies proposal for Licences-of-Right would significantly improve the situation for user-innovators, as well as help solve some of the issues debated in the first section.

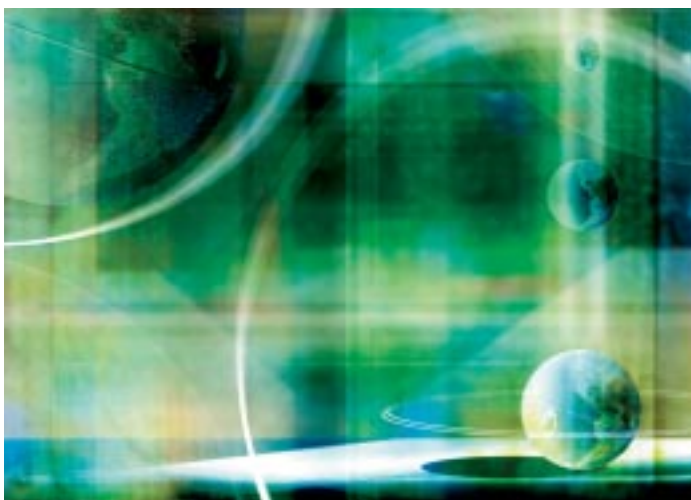
These solutions do not impair the interests of the creators, or are subject to the condition that they do not, which is in itself proof that the current protection goes too far. They would help build a more supportive infrastructure for innovation.

These amendments are all the more necessary when user innovation is seen in another light.

Companies are increasingly moving up the value chain in business models, so that they are shifting from models based on the sale of products, to more consultancy-based models. The trend has been, and is more and more, towards service-orientated business. This is particularly well illustrated in the case of telecommunications, and the mobile telephone market, where handsets are often provided for free, in order to give access to a service. It is the latter which is paid for, and which forms the basis of the business model. Greater value is thus in the *service* rather than in traditional manufacturing of devices or handsets.

This drive towards service-orientated business presents new challenges to businesses, and they are gradually relying more on user communities to address them. They need to be able to provide optimal services, to the maximal satisfaction of the customer. Increased personalisation logically becomes a must. This makes user involvement in innovation indispensable and central.

For example, Nokia's acquisition of the Symbian foundation, which controls the Symbian operating system on devices such as handsets, has thrown the Finnish telecom giant on "the open road". By opening up to users the majority of functionalities available on their devices, Nokia intends to make the best use of innovations and contributions from end-users, particularly from the Open Source community. Users will be



empowered to completely personalise their devices, and will be able to benefit from an array of suggestions and solutions from the wider user communities.

This strategy was seen as a response to the many challenges the company faced in previous market launches. It fits with the "modular approach", advocated by the Nordic Council of Ministers, and seems to make the best of both systems.

Interaction with user communities enables enterprises to build the most favourable conditions to the reception of products and services. The simultaneous development of services and markets can be used as a way to test market maturity, thus improving the chances of success of a service or product's final release in the market.

The fact that user innovation is becoming a part of business rationale only makes an adaptation of existing laws, so as to provide a supportive framework, all the more necessary.

3. Issues in the use of semi- or open functional platforms

Increasingly, service content and composition is being developed by end-users or end-user communities, with or without the help of real or cyber configuration agents, on the basis of open or semi-open functional building blocks put at their disposal by service providers.

The future of services lies here, with the vision of an empowered user, orchestrating between different services, through interoperable (mobile) devices which allow access to a common multi-functional platform. Technology convergence of computing and information technology, media content and communication networks considerably facilitates this process. It is also being matched by a service convergence centring on the user.

User-centricity and the ability to provide highly personalised and context-sensitive services are the new imperatives for services providers. It is therefore critical for them to be able to build their end-user focused services on an accessible and coherent set of functional platforms.¹¹⁸

An example of this structure is EZWEB¹¹⁹, which is the implementation of a basic front-end platform in NESSI (Networked European Software and Services Initiative). It contains service mash-up functionalities and relies on a context-sensitive interaction between users so that they can adapt their services according to their profile.

Several intellectual property issues arise in this context. They relate first to the necessary interoperability between building blocks or platforms as well as the access portals, then to the need for open standards.

A. The interoperability problem

Interoperability between the different platforms, and functionalities on a platform, is an essential prerequisite for them to function in a smooth efficient user-centred way.

Though there is a common understanding on the meaning of interoperability, when it comes to a precise definition, there are a number of possibilities. The Software Directive, for instance, defines it as the "ability to exchange information and mutually to use the information which has been exchanged".¹²⁰

An EU study¹²¹ identifies several categories of interoperability:

- Technical interoperability refers to "machine-to-machine communication"¹²², associated with hardware, software, systems and platforms. According to a Communication, this involves "defining and using open interfaces, standards and protocols in order to build reliable, effective and efficient information systems"¹²³.
- Syntactical interoperability refers to data formats, since the syntax and encoding of a message needs to be clearly defined in order to facilitate its transfer by communication protocols.
- Semantic interoperability concerns the meaning of the content, especially "its human rather than machine interpretation"¹²⁴. The idea is that the interpretation of the content is relatively uniform, and does not vary substantially, so that the meaning intended by the end users is not altered.
- Organisational interoperability is "the ability of organisations to effectively communicate and transfer (meaningful) data (information) even though they may be using a variety of different information systems over widely different infrastructures, possibly across different geographic regions and cultures".¹²⁵

The complexity of services relying on functional platforms makes interoperability particularly important. The system applications need to connect and communicate with the integration server, and persons at the different front-ends need to be able to use additional functions, such as identity management, trust building and trusted network services, security and financial transactions, service roaming, location identification and location-based services etc.¹²⁶

The importance of interoperability and the potential benefits for consumers has been recognised in several areas of EU policy and law.

One of the Commission's objectives in its i2010 strategy is to ensure that interoperability exists between and within networks, platforms, systems, devices and components¹²⁷.


The Commission considers it to be "one of the four main challenges for the creation of a single European information space and essential for ICT-enabled public services".¹²⁸

In its report cited above, the Commission emphasises the harmful effect of lack of interoperability for both users and the internal market¹²⁹.

Interoperability receives particular attention in the Framework Directive¹³⁰, which aims to establish a common regulatory framework for electronic communications networks and services.

In intellectual property law, the Software Directive's preamble further emphasises the importance of interoperability in computer programs since:

"the function of a computer program is to communicate and work together with other components of a computer system and with users and, for this purpose, a logical and, where appropriate, physical interconnection and interaction is required to permit all elements of software and hardware to work with other software and hardware and with users in all ways in which they are intended to function"¹³¹.



It has been argued that the Microsoft case and the interpretation of the concept of interoperability under the competition law rules – which, importantly, are Treaty provisions – make it an overarching standard in Community legislature, which contributes to the creation and development of a European "interoperability regime"¹³².

Interoperability acts as a safeguard against *de facto* standards and strikes a healthy balance between the interests of different parties involved.

This should normally lead to the conclusion that interoperability is not an issue in Open Innovation. Unfortunately, the devil is always in the details. There are difficulties with intellectual property, which relate to the correct legal qualification of the functionalities at issue, and the enforcement of legal exceptions.

1 The legal qualification of service platforms and functionalities

In this area, the legislation on computer programs is particularly relevant since "Web Services are not executable things in and of themselves; they rely on executable programs written using programming languages and scripts"¹³³.

Under the Software Directive, computer programs are protected as literary works within the meaning of the Berne Convention, which means that they are protected by copyright law. With a view to harmonising national laws in this area, the Directive grants a set of exclusive rights to the copyright holder, including the right of reproduction; the right to translate, adapt, arrange and alter the program; and the right to distribute and rent the program¹³⁴.

The Directive also provides an express limitation on and exception to the exclusive rights given to the rightholder, in order to promote interoperability.

This is first done by a reverse-engineering exception which entitles a developer to "observe, study or test the functioning of the program"¹³⁵ in order to understand the underlying ideas and principles. This enables the type of reverse engineering referred to as "black box" analysis, which determines the ideas and principles governing the functioning of the program by analysing its external inputs and outputs. It does not require the source code.

A person other than the copyright owner can therefore use the underlying ideas and principles of a program to create an independent but interoperable program. The Software Directive emphasises on several occasions that ideas and principles are not protected, either by copyright law or by the Directive¹³⁶. This is what makes this exception possible. The Directive thus promotes interoperability, which is extremely useful to curb negative effects such as user lock-in, whereby manufacturers make it difficult for a user to switch to a competitor's products or services.

In addition, Article 6 provides an exception for decompilation. Decompilation may be described as a process by which

"the object code in the program [is reduced] to a form that approximates with the source code"¹³⁷.

It is another form of reverse-engineering which, contrary to black-box analysis, requires the access to the codes and inner workings of the software. This provision was the most controversial aspect of the Directive when it was adopted.

Contrary to the above exemption for observing, studying and testing a program, the decompilation exception expressly aims to achieve interoperability, and it is the latter which conditions the application of the defence. Decompilation is only permitted, without authorisation of the rightholder, if it is

"indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs"¹³⁸. It is further subject to several provisos¹³⁹:

- The person undertaking the decompilation must have a licence or a right to use the program
- The information necessary to the process must not be available or have been previously disclosed
- Decompilation is confined to the parts of the original program which are necessary to achieve interoperability.

Though these exceptions are carefully drafted to safeguard both the interests of the rightholder and of competitors, their importance is further emphasised by the Directive by the fact that no contractual waiver is possible. Any agreement to the contrary is automatically null and void¹⁴⁰.

Nonetheless, the Directive does not create a positive duty to make software interoperable. In the context of Open Innovation, this deserves fresh consideration.

From the end-user perspective, it is crucial for the building blocks provided by different service providers to integrate so as to offer him a coherent set of services. The interoperability exception is not likely to help him, if he is not proposing to develop a separate service functionality himself. And yet, without some sort of duty of interoperability, nothing guarantees that the services will integrate in a smooth and efficient way, so that the end result is satisfactory.

The market may be able to correct this to some extent, since it is thought that market players would have a lot to gain by providing interoperable service solutions. However, there may not be sufficient incentives from the market alone, and existing examples of attempts to lock-in customers and other strategies, suggest, on the contrary, that the market is not a sufficient corrective tool.

The complexity of service platforms implies that they will not only rely on computer programs. For instance, an identity-management functionality will need to store information and data, which involves hardware. Other intellectual property rights come into

play and this is where the legal qualification of the different service platforms becomes critical.

In the case of hardware, patent law becomes relevant. In patent law, there is no exception for interoperability. This was precisely what caused the Proposal for the Patentability of Computer-Implemented Inventions¹⁴¹ to be turned down. The question of introducing such an exception became the battle ground for pro- and anti-software patentability lobbyist groups. Following the removal of the exception by the Council of Ministers, the European Parliament rejected the proposal in 2005. It has been argued that a similar exception in patent law could be beneficial¹⁴².

Further, insofar as some of these functionalities may well be or include a compilation of information or be organised in a "systematic or methodical manner", they may be entitled to protection as databases.


The Database Directive¹⁴³ gives a particularly vague definition of a database, as a

"collection of independent data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means"¹⁴⁴.

This potentially covers a lot of material. Its ambit is made even wider by the interpretation of the European Court of Justice, which considers that the notion of database was intended to have a "wide scope, unencumbered by considerations of a formal, technical or material nature"¹⁴⁵.

A service platform could therefore also be a database. Databases are protected under copyright where they are 'original', meaning that "by reason of the selection or arrangement of their contents" they are "the author's own intellectual creation"¹⁴⁶. The Database Directive also requires Member States to introduce a *sui generis* right to protect 'non-original' databases, where there is substantial investment on the part of the maker in either the obtaining, verification or presentation of the contents¹⁴⁷.

The qualification of a service platform or functionality as a computer program and/or a database is



an important issue, highlighted by L. Bently and B. Sherman¹⁴⁸, which has important repercussions on the exceptions regime. Indeed, the exceptions to the database *sui generis* right are less extensive than those in copyright, in particular they do not include an interoperability exception, which is especially tailored to computer programs. The overlap of protection could mean that the exceptions under copyright are inapplicable.

This could be a serious impediment to the efficient functioning of platforms if interoperability then infringes upon the database owner's *sui generis* right.

It is hoped that the general importance of interoperability recognised by the European "Interoperability regime" could mitigate this issue. It may influence interpretation of given texts, but it is difficult to see however how courts can do very much in view of the wording of existing statutes. In order to enable the benefits of Open Innovation to flourish, through the use of thoroughly interoperable platforms, the possibility of a general interoperability exception extending to different intellectual property regimes might need to be envisaged. To the extent that interoperability does not encroach upon intellectual property owners' rights, this could be a solution.

Legal qualification difficulties are likely to increase with the development of complex service configurations. This throws doubt on the coherence of the current legal regime, and its ability to keep pace with technological and service changes.

A case is here made out of configuration agents, for instance, for a travel organisation service. These agents can be real or cyber, and aim to help the user compose his service. If they are cyber agents, they will most likely fall within the scope of the Software Directive, so that interoperability can be ensured to a degree. If they are real, it is difficult to imagine a transposition of the regime existing for cyber agents.

Can a real agent be required to provide services interoperable with those offered by potential competitors?

It is difficult to imagine a similar legal structure for them without raising considerable issues in competition law, contract law and the regulation of professions.

At first sight it constitutes a breach of the freedom to trade and freedom to contract. If such an obligation were to be instituted by contract, it would raise many competition questions.

These difficulties get even more complicated when one bears in mind that the Software Directive does not actually create a *positive* obligation of interoperability.

And yet, from an end-user's perspective, should real agents be treated any differently from cyber agents, so that he may feel a difference in the quality of the service offered?

2 The interpretation and enforcement of interoperability

■ Interoperability triggers important interpretation issues. How much information disclosure is required to satisfy interoperability, without the intellectual property owner's rights being violated? Different opinions on this make it susceptible to debate, as shown in the *Microsoft* case¹⁴⁹.

Before the Court of First Instance, a major part of the dispute concerned the Commission's interpretation of interoperability in the Software Directive. To Microsoft, the Commission was in effect asking it to reveal information which enabled its competitors to clone the Windows work group server. It was thus an interference with its intellectual property rights.

The Court rejected this view and supported the Commission's position. It recognised that the concept of interoperability differed depending on the context and was a matter of degree. It however refused the idea that the degree of interoperability required by the Commission's decision in any way exceeded what was envisaged by the Software Directive, since it didn't enable software developers to clone Microsoft's product by using its source code or other implementation details.

The Court also made an important point regarding the subject of the debate;

"The question in the present case is not so much whether the concept of interoperability in the contested decision is consistent with the concept envisaged in [the] directive as whether the Commission correctly determined the degree of interoperability that should be attainable in the light of the objectives of Art. 82 EC."¹⁵⁰

This is precisely what is likely to be an issue with regard to service platforms. As much as it is central, the required degree of interoperability is also infinitely debatable.

The Court's decision has itself been criticised by academics for supporting an erroneous interpretation of interoperability by the Commission and one which goes far beyond the requirements of the Software Directive¹⁵¹. Others on the other hand suggest this is only the enforcement of a concept which underlies a number of EU laws and policies and cannot be restricted to the narrow scope of the directive¹⁵².

■ Competition law plays an important role in the enforcement of interoperability¹⁵³. Article 82 of the EC Treaty on the abuse of a dominant position enables the control of a dominant firm's position if it refuses to make interoperability information available to competitors. This was the instance in the Microsoft case cited above. Article 81 on anti-competitive agreements, decisions and concerted practices is less likely to regulate interoperability since the Software Directive automatically renders any contractual arrangement contract contrary to the decompilation exception null and void. However, competition law can only serve as a regulatory tool provided the necessary thresholds are reached to trigger its application, i.e. either that the firm in question is in a dominant position, or that there is an agreement or decision or concerted practice in issue. Furthermore, this use of competition law to control interoperability has been criticised by academics who consider it to be beyond the objectives of competition law¹⁵⁴.

Even with these provisions, which are primary legislation in European Union law, the enforcement of interoperability may prove difficult. This was once more illustrated by the Microsoft case where after inflicting a record fine in its first decision, the Commission was forced to issue another decision with additional financial penalties in February 2008 because Microsoft had still not complied with its previous decision.


Interoperability also intervenes in other areas of law. For example breach of confidence or similar legislation can protect know-how which is essential to interoperability, without there being measures to safeguard the latter.

The harm which the lack of interoperability potentially inflicts to both end-users and competitors is not matched with adequate legal measures. A general interoperability provision, which spans several branches of law and consistently overrides contractual agreements to the contrary, may have to be considered in the future.

B. The use of open standards

The standards referred to here are *de jure* standards, which means that they have been endorsed by standardisation organisations¹⁵⁵, as opposed to *de facto* standards, generally dealt with by interoperability requirements. *De facto* standards become standards because of their wide adoption in the market. Standardisation is only one way of enabling interoperability. Interoperability is also possible:

- by collaboration, where industry participants agree to jointly design technologies
- by design: creating products that are interoperable with known technologies and standards or making use of translators or converters
- through access, for example by supplying a licence with a software development kit¹⁵⁶.



The best way to achieve interoperability depends on a great number of factors, including the market structure and technological landscape. However, standards are an extremely efficient way of ensuring interoperability, especially in ICT, where the complexity of technologies increases the risks of holdup from the many potential intellectual property owners in a single device.

Open standards in particular are an efficient means of enabling services to develop in an integrated and interoperable way, in the vision of Open Innovation described above. They are certainly the preferred way advocated by the Berkman Centre Publication Series on "Breaking Down Digital Barriers"¹⁵⁷, especially in the case of mashups which are a specific case study¹⁵⁸.

Whether open standards are a prerequisite to Open Innovation calls for a discussion, since the definition of 'openness' is subject to debate, and the degree of openness depends on the priorities of the developers and other stakeholders involved.

Standards have been defined by the International Standards Organisation (ISO) as

"Document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context". Standards are technical specifications which come in many forms, ranging from security and safety standards, to quality control and interoperability.

Their importance as a support for interoperability has been recognised by the European Union in several areas of policy, in particular in the Framework Directive where "the importance of standardization at the Community level to ensure interoperability in the single market"¹⁵⁹ is expressly stated.

Also the EU study on ICT standardisation consistently links interoperability with standardisation:

"In order to promote the implementation of European standards and in order to increase interoperability of European applications and services, the European Commission, Member States and all public administrations should refer to European standards in the procedure of ICT products, services and applications"¹⁶⁰.

Because standards facilitate interoperability among technologies manufactured by different vendors on the market, so as to increase the choice of products and services available to the consumers, they are often seen as beneficial for innovation and commerce. The beneficial effect of weights, measures, time and currency in economic progress is exemplary¹⁶¹.

Standards can be open or proprietary.

Proprietary standards, often protected by copyright or patents¹⁶², are owned and sold by developers with the hope that they will be implemented in products and services in order to ensure interoperability between them. The idea underlying proprietary standards is the control which the owner exercises over the access to his standards, their evolution and modification.¹⁶³

Open standards, on the other hand, are generally publicly available and accessible, though there is no consensus on a precise definition of open standards, because of the disputable meaning of "openness".

Ankur Gupta notes that open standards are characteristically product independent, meaning they are not bound to a product or service of a particular vendor, but can be adopted by whoever may benefit from their implementation.¹⁶⁴

Whether or not a fee must be for paid for access and implementation is one of the varying factors in the definition of "open" standards. In particular, whether licensing standards on RAND (Reasonable And Non-Discriminatory) terms enters the definition of open standards is controversial and is increasingly considered to be the case, even though this does not seem "open" in the true sense of the word.

For example, OASIS, Organisation for the Advancement of Structured Information Standards, favours RAND licensing, and rejected using mainly royalty-free licensing, which it offers as a subsidiary option to its members. The revision of its policy in 2005, where RAND licensing was introduced, sparked considerable criticism from the Open Source community.

A suggested definition of an open standard is as follows:

"a publicly available technical "specification" (i.e. a set of technical instructions and requirements) that is developed or approved/ratified and maintained by a consensus-based process in a voluntary, market-driven standards-setting organisation that is open to all interested and qualified participants, and for which any patent rights necessary to implement the specification are made available by those developing the specification to all implementers on reasonable and non-discriminatory terms (with or without a royalty or fee)".¹⁶⁵

This understanding is consistent with that of many open standards organisations around the world.

There are different levels of openness which account for its varying degrees. Openness can be in the availability of the specifications, participation in the standard-setting process and/or in implementation and use of the standards.

Different classifications have thus been proposed depending on the degree of openness. For example, Gupta distinguishes between "concerted disclosed standards", which are publicly available though participation is restricted, and "concerted open standards" where the open participation of members is considered central to the development of the standard.

Which structure is best to adopt depends greatly on the context and on the fixed goals of the organisation. Royalty-free standards may not always make sense¹⁶⁶.



Interestingly, the European Interoperability Framework considers a royalty-free basis to be an inherent part of the very meaning of open standards, which sparked some anger among manufacturers.

Well-known intellectual property issues arise in open standards. Whether the openness is in the availability of the specifications and/or in their use and modification, it contradicts exclusive rights granted to intellectual property owners.

The availability of standards can be – and often is – protected by secrecy, but can also be formally protected by intellectual property. In copyright, the rights of distribution and of communication to the public are the exclusive prerogative of the owner. In patent law, the rights to make and to use the protected product, and the right to use the process, are reserved to the patentee.

Similarly these rights protect the use and modification of standards, which then require the authorisation of the owner.

Intellectual property rights thus give the owner full control over the standards.

It is important to bear in mind that it is not merely the *existence* of intellectual property rights which is a problem in standardisation, but rather their *assertion*, which explains some existing policies in standardisation organisation, to "disclose but not assert". In ICT, this policy is particularly weak since the potentially large number of intellectual property owners on a single product requires a great deal of coordination, so that none of them assert their rights.¹⁶⁷

Standard-setting organisations face the difficult task of having to balance the need for industry participation with the possible adoption of a wide standard through intellectual property management. They usually tackle problems raised by intellectual property by two requirements:

- the *ex ante* disclosure of all relevant intellectual property rights
- imposing the licensing of essential protected technology

Both these requirements are difficult to implement in practice, as several notorious cases have demonstrated.

1 The disclosure requirement

How much information must be disclosed to satisfy this condition?

This has already been discussed above in the context of the *Microsoft* case. The conflict of interest between the standard-setting organisation and the innovative firm/intellectual property owner makes the application of this requirement very tricky.

In addition, knowing which intellectual property rights are relevant can be problematic, particularly in the

context of rapidly-evolving technologies such as information and communication technologies. A 2002 study reveals that, though most standardisation organisation have disclosure rules about intellectual property rights, few actually require the firms to conduct a search of their own files, and importantly, few include pending patent applications, in spite of the backlog and increasing time-lag between patent applications and grants¹⁶⁸. This heightens the risk of an allegedly unencumbered technology being adopted as part of a standard, when it is, in fact, protected.

The Rambus case is a good example of some of these difficulties. Rambus failed to disclose patents on essential intellectual property rights, in violation of the standard-setting organisation (SSO) policy, and allegedly used its position through a patent "ambush" to charge unreasonable royalties. This was seen by the members of the SSO as a form of deceptive behaviour and several of them sued Rambus for fraud. The Federal Trade Commission also took action on grounds of antitrust law.¹⁶⁹

2 The licensing terms

SSOs deal with intellectual property by requiring their members to license, but several terms of licensing exist:

- licensing can be on a royalty-free basis
- SSOs can have intellectual property rights assigned to them (which is rarer)
- SSOs can impose RAND or FRAND (Fair And Non-Discriminatory) terms.

Licensing terms in SSOs have staged many battles between open-source communities and advocates of business-driven standards.

For example in the World Wide Web Consortium in charge of HTML and related web standards, heavyweight industries including Microsoft, Apple, Hewlett-Packard, IBM and others initially proposed licensing on RAND terms in 2001. This was

hotly contested by the open-source community, who eventually won the cause of a royalty-free basis, adopted as policy in 2004.

Conversely OASIS, mentioned above, revised its policy to adopt a RAND-policy which included royalty-free as a subsidiary option for its members, despite this choice being heavily criticised by open-source proponents in an open letter to all OASIS members.

Royalty-free licensing terms appear as the only "truly open" option to encourage the wide adoption of "open" standards. However the most appropriate choice depends on the objectives of the SSO and the technological context.

In relation to Open Innovation, anything other than open standards would be contrary to the very philosophy of Open Innovation. It seems futile to strive for a more open innovation process developing spillover effects and involving end-users (communities), to then hinder these benefits by not demanding open technical means of enabling this innovation. It is beyond doubt that open standards can spur and enrich Open Innovation, by allowing for wide adoption and unrestricted use of specifications supporting interoperable and integrated platforms and services. The interoperability between these platforms and services is perhaps too crucial an element to the success of the whole process, to be left in the hands of individual manufacturers driven by commercial imperatives.

The question then turns on the required level of openness. In particular, the crux of the problem is whether the licensing terms should be on a royalty-free basis or whether RAND licensing terms are permissible.

As mentioned above, it is not possible to answer this question in an anticipatory and generalised way. The best suited policy depends on the specific needs of the relevant market and on the technological context.


Requiring the negotiation of a licence and a fee could hamper and significantly slow down innovation, which Open Innovation aims to make faster and more effective. In addition, royalty-free licences go hand in hand with the ideas of participative innovation and the benefits of sharing, which Open Innovation has in common with open source.

Open standards understood in this sense bolster competition, which shifts from standards to the downstream market of implementation, where manufacturers strive to make a difference and provide consumer choice. They are then an effective way to prevent technological lock-in.

The objection that royalty-free standards may not suit commercially-oriented enterprises is met with the observation that revenue-making simply moves from selling standards, to providing ancillary and support services. Firms stand to gain from a wide adoption of their interoperable offerings, which potentially yields both supply-side and demand-side economies of scale. IBM's initiatives to give open source developers free and unfettered access to 500 of its software patents in 2005 is an example of how a company's commercial strategy can fit within a royalty-free licensing policy.

A good example of the low impact of royalty-free licensing on participation in SSOs is in the World Wide Web Consortium (W3C). This strategy makes sense to compete against a dominant standard, or where core infrastructure is concerned, as in the case of the W3C¹⁷⁰.

However, a general requirement for royalty-free licensing has several drawbacks. It considerably narrows down the number of business models available to companies developing technology on the standard, and runs the risk of reducing industry participation, which is crucial to the very adoption of the standard. Companies may find they benefit more from competing on an alternative standard rather than access to a bigger market with necessarily more players. Importantly, opening standards to potential modi-



fications may lead to downstream forking¹⁷¹, detrimental to interoperability and the possibility of fully integrated supporting infrastructures. It possibly defeats the very rationale of standardisation.

RAND-licensing terms are a compromising formula enabling the combination of open objectives with commercial strategies. Essential technologies can be opened up on "reasonable" terms to interested parties hoping to gain wider adoption of their products relying on the standards.

RAND licensing is becoming a dominant feature in SSOs. Tim Simcoe considers that this is because of its minimal impact on participation in SSOs¹⁷². Since, in practice, the definition of the terms is rather vague, members of SSOs have latitude to set the price and honour their commitment. He also points out that the fact that these terms have worked relatively well in the past may encourage further adoption by newer SSOs. Finally, vague commitment terms render RAND terms neutral from a competition perspective, where they may fall within anti collusion provisions of competition law (Article 81 EC Treaty) if they become detailed and strict.

The issue with RAND licensing terms is on the definition of "reasonableness". While it does not stifle industry participation, it lends itself to potential hold-up by intellectual property owners and bitter fights over the fairness of the price.

The lawsuits against Qualcomm are a good illustration of this problem. Qualcomm owns intellectual property rights on 3G mobile technology in the European Telecommunications Standards Institute (ETSI) and was accused, especially by Nokia, of not honouring its FRAND commitments. Though the two companies eventually settled, the difficulties of agreeing on the price of licensing are evident, and RAND terms do not help to clarify them.

RAND licensing is a compromising solution, enabling *availability* of standards for implementers as well as ensuring the participation of intellectual property

owners who are still guaranteed a share of the revenue. It is still however the subject of considerable controversy among participants.

It is difficult to propose a conclusive solution on the best form of open standards for Open Innovation. A blind discrimination against one form rather than the other can ignore certain market imperatives and backfire. Studies attempting to advocate a preferable form in open source were forced to remain inconclusive¹⁷³. The same may be said for Open Innovation; it is best for a solution to be found on a case-by-case basis depending on the imperatives of the technology and the context of the market.

The need for more precise *ex ante* licensing terms has been voiced by academics, SSOs, and companies involved in SSOs alike, particularly in ETSI and the Institute of Electrical and Electronics Engineers (IEEE), where discussions on detailed anticipatory terms were held. The weakness of this strategy is that it requires a great deal of foresight. The pace of commercialisation and market pressure can limit the effect of this policy.

However, it would present the significant advantage of offering a solution to some existing problems in RAND licensing terms, described above. In particular, it would circumvent opportunistic behaviour, and help avoid litigation and disputes over price.

4. Concluding thoughts

It is important to keep in mind the number of uses which intellectual property has.

As well as traditionally protecting financial and intellectual investment in creation, it serves an important defensive function, since it ensures that a creator/inventor is not prevented from continuing work on an invention by a subsequent firm filing a patent for it.

Furthermore, intellectual property is a legal tool which supports a variety of strategies. For example, it can entail greater options for openness, by providing an enterprise with effective means of leveraging downstream markets. A licence to the dominant patent for certain commercial markets, for instance, could be exchanged for access to the improvement patent technology.¹⁷⁴

Open Access initiatives have understood this perfectly, and leverage exclusive rights of intellectual property to guarantee and maintain the public accessibility of works and inventions, and derivative creations. The instrument used is the licence, which often (depending on the licence) grants, in advance, to anyone, the right to use, modify and redistribute a licenced work, on the condition that derivative works are made available on the same terms, thus creating a "viral" effect.

The fact that these mechanisms have been developed privately and have not been endorsed by the normal public law-making process has several shortcomings, which have already been discussed, not least a questionable validity.

Intellectual property is therefore increasingly used to serve the purpose of 'openness'.

The need to reform current laws has been argued enough in the previous chapter. In the fresh context of Open Innovation, the inadequacies of the existing system are likely to be felt more acutely as innovation environments evolve.



If reform is to take place, however, the many subtle functions of intellectual property, described briefly above, will have to be taken into account, for any revision of the present structure to be efficient. In addition, the potential importance of intellectual property's role in 'openness' in the future calls for consideration by law and policy, which so far have been successful in ignoring these developments.

Furthermore, legislative measures in support of self-regulatory rules, such as codes of conduct or guidelines, might be a useful preliminary to reform. Such a combination exists in data protection law in the US, for instance. It would help promote wider adoption and awareness of Open Innovation values in the market, and give legislative reform a better chance of success. It does not however mean that we must wait for the market. On the contrary, policy and regulatory action is necessary to trigger a change and encourage the market to adopt Open Innovation values,

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153. See Chapter II on competition law.
154. K. McMahon, *Interoperability: 'Indispensability' and 'Special Responsibility' in High Technology Markets*, (2007) 9 *Tul. J. Tech. & Intell. Prop.* 123.
155. Contrary to what is suggested by the term *de jure*, these standards cannot be legally enforced by standard-developing organisations. These usually function on a voluntary basis and often have no power to compel their members to abide by the technical rules agreed upon.
156. J. Markwith, *Key Intellectual Property Issues in Acquisitions Involving Open Source Software*, (2008) 14(2) *CTLR* 45.
157. Following a publication sponsored by IBM and Oracle in 2005, entitled *Roadmap for Open ICT Ecosystems*, the Berkman Center for Internet and Society at Harvard Law School, in partnership with the Research Centre for Information Law at the University of St-Gallen, have continued with a series of case studies, exploring the relationship between interoperability and innovation in the ICT space. See <http://cyber.law.harvard.edu/inter-op> (visited January 12, 2009).
158. See U. Gasser and J. Palfrey, *Mashups Interoperability and Innovation*, Berkman Publication Series, November 2007 (accessible on website in previous footnote.).
159. The Framework Directive, Recital 30.
160. EU Study on ICT standardisation, fn. 121.
161. A. Gupta, *Are Open Standards a Prerequisite to Open Source? A Perspective in Light of Technical and Legal Developments* (2009) 15(1) *CTLR* 3.
162. There is some debate about whether standards can really be protected or not. The interoperability exception in the Software Directive suggests that, in principle, compatibility standards cannot be generally copyrighted. In patent law, the rejection of the proposal on the patentability of computer-related inventions has created legal uncertainty in this area. Though many patents have been granted by the European Patent Office which may cover compatibility standards, their validity remains a legal issue. This is discussed in detail by Mikko Välimäki and Ville Oksanen, see fn. 142.
163. A. Gupta, fn. 161.
164. A. Gupta, fn. 161.
165. J. Markwith, see fn. 156.
166. M. Välimäki and V. Oksanen, fn. 142.
167. T. Simcoe, *Open Standards and Intellectual Property Rights*, in H. Chesbrough et al., *Open Innovation: Researching a New Paradigm* (Oxford University Press, 2006).
168. M. Lemley, *Intellectual Property Rights and Standard Setting Organizations*, (2002) *California Law Review* 90.
169. In the Matter of *Rambus Inc*, FTC Docket No. 9302, August 2, 2006.
170. For a discussion on the relation between Open Source and open standards, see M. Välimäki and V. Oksanen, fn. 142 above, and A. Gupta, fn. 161.
171. See [http://en.wikipedia.org/wiki/Fork\(software_development\)](http://en.wikipedia.org/wiki/Fork(software_development)) (last consulted January 13, 2009).
172. T. Simcoe, fn. 167.
173. See M. Välimäki and V. Oksanen, fn. 142 and A. Gupta, fn. 161.
174. S. Boettiger, *Issues in IP Management to Support Open Access in Collaborative Innovation Models*, *First Monday*, volume 12, number 6 (June 2007), accessible at http://firstmonday.org/issues/issue12_6/boettiger/index.html (last consulted January 14, 2009).

III. Competition Law in Open Innovation

Competition rules seek to promote effective and undistorted competition in the market. They are particularly important in free market economies, where allocation of resources is determined by supply and demand, and not directed by government regulation. They are necessary to correct market imperfections: firms driven by profit-making may behave in ways detrimental to overall market conditions, and supply and demand alone cannot prevent this.

Competition law strives to maintain economic efficiency which is threefold: allocative efficiency, where the production of goods matches demand; productive efficiency, which requires the production of goods at the lowest possible cost; and dynamic efficiency, which is concerned with how well the market delivers innovation and technological progress.

Welfare is the measure of how well a market performs. However, there are different concepts of welfare. Total welfare is the sum of producer surplus and consumer surplus. Producer surplus is the profit stemming from the sale of goods above the production price. Consumer surplus is the difference between what consumers are prepared to pay and what they do pay. It is generally acknowledged that, for European Competition purposes, consumer welfare is equated with consumer surplus, though competition authorities might have a broader conception of it¹⁷⁵.

Consumer welfare is undeniably at the heart of competition law discourse, especially so since the recent "modernisation" of competition rules.

However, even if one accepts that the goal of competition law is to achieve allocative efficiency and to maximise consumer welfare, there is the question of whether this should be the *sole* objective. Competition laws have always pursued different goals over time and in different jurisdictions. In particular, the protection of competitors and fair competition, social and political issues such as the preservation of the environment or employment, and

EU Treaty objectives including the capital objective of the single market integration, have all been relevant in past case-law¹⁷⁶.

Arguments against competition policy and intervention were formulated at the dawn of the "new economy" era. New economy markets are generally understood to include electronic communications, high technology industry, computer software and hardware, biotechnology and aerospace. The significant technological changes introduced in these markets were said to warrant a completely different approach to competition policy – some even arguing that competition law should not intervene at all.

This begs the question of whether this debate should be revived in the renewed context of Open Innovation.

It is undeniable that competition law has an important role to play in Open Innovation. Market imperfections still need to be corrected, even if they might be minimised by the inherent structure of these new markets.

Uncertainties and complexity associated with the latter should not ban competition authorities from intervening. Mario Monti¹⁷⁷ rejected these arguments in relation to new economy markets, and the same should be done with regard to Open Innovation.

This does not, however, exclude that a different approach may be required, and care may have to be taken in applying the relevant competition provisions to this new model.

Open Innovation raises a number of questions in connection with competition law. The use of intense networking between firms to develop the creative commons and positive spill-over effects implies a concentrated market structure, and significant cooperation between firms. This prompts legitimate antitrust concern and calls for a competition analysis. Furthermore, user innovation and service platforms suggest there might be a new place for competition law in the Open Innovation paradigm.



We will only deal here with EC Competition law. Time does not allow for an analysis of national laws, and the important harmonisation in this field would make such a study futile. Competition rules were set within the European Community legislature right from the outset: the provisions are enshrined in the Treaty of Rome and serve the objectives outlined in Article 2. Article 3, in particular, refers to "a system ensuring that competition in the internal market is not distorted", as one of the activities necessary to achieve the purposes of Article 2. The relevant rules in the context of Open Innovation are essentially Articles 81 and 82 of the Treaty and the European Community Merger Regulation.

Starting from an exploratory analysis of the application of Competition law to Open Innovation, this chapter will then highlight likely antitrust concerns, which magnify the importance of competition provisions in this new context. Finally, we will review issues with competition law, which have already been brought to light by new economy literature, and which remain highly relevant to Open Innovation.

1. Applying competition law to Open Innovation

This analysis is purely exploratory and time will test its validity. The essential question is whether the existing competition tools are adapted to Open Innovation, which makes a study of the specific instruments in turn necessary.

The challenge here is for competition law to grasp the concept of "coopetition"¹⁷⁸, and to integrate user innovation within the competition analysis. The law needs to be permissive enough for collaborative structures to develop while monitoring particular areas where antitrust issues are likely to arise.

A. Coopetition

Coopetition refers to the need to maintain competition and at the same time allowing the creation of an open innovation ecosystem where competitors share best practices and collaborate. The OECD efficiently outlines the ambiguous relation between innovation and competition. Competition is vital to innovation insofar as it puts pressure on firms to innovate. However, in certain industries, excessive competition can slow down or even hamper the innovation process. In this case, cooperation might be extremely beneficial, but this must be weighed against the risk that it will facilitate collusion between undertakings¹⁷⁹.

A delicate balance needs to be struck between cooperation and competition. This calls for an analysis under all the relevant provisions.

① Article 81

The focus will be on the specific elements which require attention in the context of Open Innovation.

Article 81 states that "all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effect

the prevention, restriction or distortion of competition within the common market" are prohibited as incompatible with the common market. It then sets out a non-exhaustive list of prohibited practices. The provision aims to catch any type of collusive behaviour which distorts competition, whether by intent or not.

Article 81 contains the conditions for the provision to apply: there must be some sort of collusion, which takes place between undertakings, either with the object or with the effect of restricting competition. Case-law has in addition required that there be an appreciable effect on competition and on trade. This has been endorsed in Notices by the Commission¹⁸⁰.

■ The concept of an undertaking is relative. The focus is on the activity of the entity at issue: this means that a same entity can be regarded as an undertaking for part of its activities while the rest will be outside the scope of competition rules. The key criterion to qualify as an undertaking is the exercise of an economic activity¹⁸¹. Case-law suggests that its characteristic feature is the offering of goods and services on the market, where the activity could be undertaken by a private undertaking to make a profit.

The legal status of an undertaking is irrelevant, which means that natural persons and legal persons are potentially caught. Individuals have been held to be undertakings in past case-law¹⁸².

In the context of Open Innovation, this means that user-innovators as individuals could be subject to competition law. However, they will fall outside the scope of competition provisions if they do not seek to profit from their innovation. Since for most cases, they are driven by other motivations, as demonstrated by Eric Von Hippel¹⁸³, it seems unlikely that user-innovators will be considered as undertakings.

And yet, if companies were to develop a business model whereby they bought ideas from user-innovators, the latter would arguably be making a profit out of

their activity. It is therefore possible that, in the future, depending on the development of Open Innovation, user-innovators come to fall within competition rules.

Article 81 applies where there is an agreement, a decision or a concerted practice (agreement in shorthand). The terms are interpreted broadly, since the aim is to catch any type of coordination, excluding only unilateral behaviour. The precise characterisation, as an agreement or concerted practice or decision is not necessary, and does not alter the subsequent legal analysis.


■ The term 'agreement' is given a liberal construction. Its form is unimportant, and the fact that it doesn't amount to a contract under national law is irrelevant.

What matters is that "the subjective element which characterises the very concept of the agreement, that is to say the concurrence of wills between economic operators"¹⁸⁴ exists.

This gives the term a very wide scope. It is sufficient that there is the "faithful expression of the parties' intention"¹⁸⁵, which can be proved by direct or indirect findings. The key element is the concurrence of wills. There is no need for a contract to prove an agreement, in fact, it is immaterial. The fact that a company was bullied into concluding the agreement is no defence, contrary to a contract where this could nullify the consent and render the contract void.

For there to be an agreement, mere *consent* to behave in a specific way on the market is enough.

However, there has to be a *concurrence* of wills. This excludes unilateral behaviour from the scope of Article 81. Competition law makes a subtle distinction between *apparently* unilateral behaviour and truly unilateral behaviour, in order to catch as many forms of coordination as possible. Behaviour is only *apparently* unilateral where it receives the explicit or tacit acquiescence of another, whereas it is truly



unilateral where the aims of the conduct can be achieved without participation of another¹⁸⁶.

The line between the two concepts is very thin and has led to some controversial decisions. For example, in *Sandoz*¹⁸⁷, the ECJ approved the Commission's view that Sandoz's policy of sending invoices with "export prohibited" upon them to their customers was not unilateral behaviour, but formed part of the general framework of commercial relations between the undertaking and its customers. The repeated orders and successive payments without protest of the invoices bearing those terms constituted tacit acquiescence on the part of the customers.

Similarly, in *Ford*¹⁸⁸, the Commission refused to exempt a distribution system, where Ford had stopped delivering right-hand drive cars to German dealers, in order to prevent the export of those cars to the UK. The Commission saw this as an inherent part of the agreement between Ford and its German dealers, since the admittance to the Ford network implied acceptance of this policy. The ECJ upheld this finding.

However, in two cases raising the same issues, the CFI annulled Commission decisions considering that the latter pushed the concept of agreement too far. In *Bayer*¹⁸⁹, where the company reduced the volume of drugs supplied to prevent re-export, the CFI refused to see in the renewed orders by the wholesalers a tacit acquiescence of this policy. It pointed out that the conduct of the wholesalers actually went against this policy, and stressed the fact that it could be implemented without the participation of the wholesalers. This suggested that it was truly unilateral, since no tacit acquiescence could really be read in the continuing commercial relations. A similar conclusion was reached in *Volkswagen*¹⁹⁰.

Though these recent decisions have helped to rationalise the concept of agreement in the context of unilateral behaviour, it is important for the Commission to exercise care in the finding of an agreement. The danger is of finding one where none exists. The Treaty does not intend to regulate unilateral behaviour by

a non-dominant firm. Article 81 deals with collusion between non-dominant firms and Article 82 is concerned with unilateral or collective behaviour of dominant firms. However anti-competitive, unilateral activities of a non-dominant firm should be free. This is because, in principle, the market is enough to regulate this type of conduct. The firm being non-dominant, alternatives exist for customers, and they can in theory switch to another company.

This makes the difference between unilateral behaviour and agreements critical. The Commission should be careful not to read too far into an activity.

In the context of Open Innovation, this distinction becomes essential, in order to maintain some legal certainty. It is important that companies know when their conduct will be caught by Article 81 and when it will not. This is even more of a concern since the "modernisation" of competition law, with the entry into force of Regulation 1/2003¹⁹¹, given that assessing the validity of an agreement under Article 81 is now the responsibility of enterprises themselves and their lawyers. They can no longer rely on the Commission granting an individual exemption, since it is now up to national courts to decide on the possibility of an exemption under 81(3).

The discrimination that competition law operates between large integrated firms and small and medium-sized companies (SMEs) only amplifies the need for a clean distinction between what is an agreement caught by Article 81 and what is permitted¹⁹². Indeed, the ECJ held in *Consten and Grundig*¹⁹³ that Article 81 intended to leave untouched the internal organisation of an undertaking. This means that, how a large company organises its R&D and production units, and its distribution system, is largely unregulated by competition law. By contrast, SMEs do not have the advantage of an international organisation and usually have to do this in cooperation with others¹⁹⁴. These agreements will inevitably be caught by Article 81. It is then critical that their

strategy is not inhibited by an excessively broad interpretation of competition law provisions.

■ Similar remarks can be made about the concept of a 'concerted practice'. Defined as a form of coordination which, "without having reached the stage where an agreement, properly so called, has been concluded, knowingly substitutes practical cooperation between them for the risks of competition"¹⁹⁵, it acts as a safety net to catch loser forms of coordination¹⁹⁶.

Contrary to agreements, the term concerted practice implies that the concertation should be practised or implemented in the market. Without some sort of implementation, there would be no "practice". The ECJ confirmed this requirement in *Hüls*¹⁹⁷.

Here again it is important not to find a concerted practice where there isn't one. In *Wood Pulp*¹⁹⁸ the ECJ reminded the Commission that parallel conduct was not in itself proof of a concerted practice, unless there was no other explanation for such conduct. The same mindset is adopted for unilateral price announcements. It is conceivable that they will constitute a concerted practice, if there is no valid explanation for them other than anticompetitive conduct¹⁹⁹. The ECJ also emphasised that Article 81(1) does not preclude a firm from adapting its behaviour intelligently to the market or the conduct of competitors²⁰⁰.

In relation to Open Innovation, the interpretation of concerted practices raises the same concerns as agreements, essentially that they must not be interpreted too widely and must not catch independent behaviour.

However, in this context, this risk is to some extent mitigated. Indeed, an anticompetitive concerted practice is only likely to be successful in a transparent market with homogeneous products. In Open Innovation, competition will be for innovation rather than prices, with firms differentiating themselves on their innovative capability and the quality of their service or product. This makes it arguably more difficult for an efficient concerted practice.

Furthermore, an appropriate construction of agreements or concerted practices is closely linked to a correct assessment of their anticompetitive effect, meaning that even if an agreement or concerted practice is found to exist, it is only if they are thought to have an anti-competitive object or effect that firms will be concerned by Article 81(1).

Case-law on the exchange of information could be of particular relevance to Open Innovation. In principle, the exchange of information is not a problem, since the theory of perfect competition relies on the assumption that there is perfect freedom of information. However, information can also make it easier for firms on the market to act in concert.


Generally, the exchange of information has been considered in the context of a cartel, where it is seen as a means of implementing the latter or of facilitating collusion. But it may be possible that it is in *itself* sufficient to establish a price fixing agreement or concerted practice which infringes Article 81(1) by object²⁰¹. It then has to be carefully scrutinised to determine whether it has the potential of restricting competition.

In current case-law, the exchange of *sensitive* information is problematic. Information is sensitive when it concerns prices or capacity.

This begs the question of whether the sharing of experience and know-how in the context of Open Innovation can be seen as a concerted practice. Where competition is based on innovation, can information about innovation be "sensitive information" by analogy with previous case-law, where in a market driven by price competition, information on prices was crucial, and its exchange suspicious?

It has been suggested that exchanging information on business secrets or research projects is likely to infringe Article 81(1)²⁰².

The ECJ has however made the point that exchange of information cannot be assessed in the abstract²⁰³, but must be considered in the market context.



Information is likely to be sensitive when products are homogeneous and where the market structure is prone to cartelisation.

The idea is that the exchange of information will be harmful where firms have the ability to "fall in line with the behaviour of their competitors" and where "the improved knowledge of market conditions aimed at by information agreements strengthens the connection between the undertakings"²⁰⁴.

In Open Innovation, the market structure suggests that exchanges of information will have a different effect. This knowledge will probably not enable firms to align their behaviour in a way harmful to overall market conditions. Where competition is driven by innovation, it is unclear how a firm can directly react to the knowledge of a competitor's future service offering. It will certainly not benefit from an increase in production or a change in prices, as it traditionally would have. In addition, low market entry barriers, in the context of Open Innovation, will in all likelihood minimise any advantage of collusion stemming from exchange of information.

The exchange of experience and know-how is on the contrary encouraged in Open Innovation, in order to build the creative commons and develop common pools of knowledge. The Commission will have to take this into account in its anticompetitive assessment of exchanges of information between competitors. If it is general practice to exchange such information, which in the optic of Open Innovation it should be, this will probably lessen its potential harm to competition. To a certain extent, this type of exchange has already been excluded from the ambit of Article 81(1). The 1968 Notice on cooperation agreements²⁰⁵ exempts agreements, the sole object of which is to exchange opinion and experience, joint market research, joint comparative studies of industries. Though the new Guidelines on Horizontal Cooperation, adopted in November 2000²⁰⁶, do not specifically deal with information agreements, it is probable that the idea underlying the 1968 Notice exemption still applies.

In *Dyestuffs*, the Court was concerned with exchanges which eliminate "the risks of competition and the hazards of competitors' spontaneous reactions by co-operation". It remains to be seen how such exchanges, in the context of Open Innovation, could have this (unlikely) effect.

This does not exclude that an anticompetitive threat remains. It is quite possible that new forms of anticompetitive agreements or concerted practices involving the exchange of information will surface. The increased risk of foreclosure in new economy markets, discussed further on, makes it plausible that information agreements may serve exclusionary purposes, in which case they are in all probability anticompetitive, and should be prohibited by competition provisions.

An interesting related question is the competitive concern raised by a practice known under the colloquial name of "vapourware" announcements. Vapourware is software or hardware that has been advertised but is not yet available to buy, either because it is only a concept, or because it is still being written or designed²⁰⁷.

In the US, liability for predisclosure of technological changes was considered in the first *Microsoft* case. Judge Sporkin refused to sanction a decree between Microsoft and the government because of concern for the anticompetitive effect of the preannouncement of vapourware. There was evidence that Microsoft engaged in this practice in order to stave off competitors and prevent consumers from buying from them. The Court concluded that the practice could preclude effective competition, when it was engaged in by a monopolist in a network market.

According to Hovenkamp, Janis and Lemley²⁰⁸, the competitive effect depends on network effects. A network effect is classically defined as the effect which one user has on the value of a product or service to all the other users. If it is a positive network effect, which is what we consider here, the value increases with additional users.

They explain that network effects comfort such a strategy since even if a customer is deceived by the preannouncement, there is still a strong disincentive to change network if the product does become a standard when it is introduced. In that sense, preannouncements can influence the outcome of a standards war and create barriers to entry²⁰⁹.

They emphasise the specificity of the software market. If preannouncements are potentially anticompetitive in the latter, the same cannot be said for other industries, like the film industry where preannouncements to drum up market demand is the norm. They suggest that vapourware announcements only be sanctioned under antitrust law if they are false, and if they are intended to mislead customer in order for the firm to maintain dominance.

This analysis takes place in the context of antitrust control of dominance. In EC law this would be done under Article 82. It does not answer the question of whether these sorts of preannouncements could potentially be prohibited under Article 81(1). In previous case-law, the ECJ has made it clear that unilateral price announcements in advance were not *per se* an infringement of Article 81(1). It required evidence that this constituted a means of indirect communication between competitors²¹⁰. The upshot of this jurisprudence is that price announcements could amount to indirect contact between undertakings and an illegitimate concerted practice, if they do not correspond to a legitimate business justification²¹¹.

Applying this to vapourware announcements, if competitors use the latter as a means of coordinating their behaviour in a way detrimental to market conditions, vapourware announcements could possibly infringe Article 81(1).

However, it is important to stress the Court's concern that there should be proof that these announcements amount to a means of contact between undertakings, with an anticompetitive aim in mind, or at least, with such an effect. There must be some form of *concer-*




tation in the practice to be caught by competition provisions. A concerted practice should not be found where none exists.

As Hovenkamp, Janis and Lemley²¹² emphasise above, there only seems legitimate concern for such preannouncements where they are the doing of a dominant firm. Where the latter has the power to exclude competitors or to artificially influence the market in its favour, antitrust concern is justified. It is uncertain that a non-dominant firm can cause enough damage to warrant intervention. Competition law should not interfere excessively in the commercial strategies of firms, *a fortiori* non-dominant firms, particularly since intervention is not without its own harmful effects on the market.

What is more, proof of a concerted practice will become increasingly difficult. The analysis is turned on its head in the finding of a concerted practice, since the effect on competition is usually the starting point. For example, general and uniform price increases are suspicious and prompted antitrust enquiries in *Dyestuffs*²¹³.

This way of proceeding will be complicated when dealing with intangible assets such as innovation. This



is another reason for authorities to exercise great care when taking action, and they should adopt an extremely rigorous approach.

■ This leads us to other interrogations about anti-competitive practices in Open Innovation. In particular, the model relies on the use of common building blocks and platforms to enable service providers to create and deliver services to the end-users. To what extent can these platforms constitute a medium for a cartel?

Mario Monti notes that sectors particularly prone to cartels generally present a high degree of concentration, significant barriers to entry, homogeneous products, similar cost structures and mature technologies²¹⁴.

In Open Innovation, the availability of such platforms and the benefits of networking work to lower barriers to entry. Competition is based on innovation and product differentiation, and product life cycles are likely to be very short. These characteristics make the set-up and success of cartels extremely challenging, and temper the threat of their existing in this context. Intangible values like innovation and quality take centre stage, and make it much more difficult for companies to concert than when dealing with prices.

It is hoped, on the contrary, that common platforms will help to spur innovation by shifting competition to the creation and composition of services, where competitors have to strive for differentiation. In this respect, maintaining access to the platforms will be a crucial element of competition regulation and will be discussed further on. In addition, to face the danger that firms will collude on a particular platform to exclude new entrants, interoperability will be essential to enable end-users to switch platforms without facing deterrent costs.

So though the line is thin between sharing experience, best practices and know-how to build creative

commons, and information sharing which can facilitate tacit collusion and parallel behaviour, it is proposed that the market structure inherent to Open Innovation considerably minimises the risk of detrimental collusive behaviour. Competition authorities should be careful to properly take into account market characteristics in their analysis.

The case-law on Business-to-Business (B2B) marketplaces gives an encouraging view of Commission policy. There was concern that such markets would create the ideal climate for collusion, given the increased communication and transparency in the market, the exchange of confidential information and possibility of foreclosure. However, the Commission recognised the clear advantages of such market places and sought to develop a coherent assessment, accepting in many cases that such agreements do not infringe 81(1). It acknowledged the pro-competitive effects of creating more transparency, integrating markets and creating marketing efficiencies by reducing search and information costs²¹⁵, many of which are arguably present in the basic model of Open Innovation.

In the *Covisint* case where the Commission granted a negative clearance letter, it paid particular attention to the fact that the platform was open to all firms on a non-discriminatory basis, that standards were open and that participants were not locked-in by any prohibition to take part in other B2B exchanges.

From an examination of the cases where these markets were considered, a Commission official sets out guidelines for companies intending to set-up an e-marketplace²¹⁶. The creation of the latter is likely to be accepted provided there are:

- efficient data protection and safeguards in order to address the possibility that these marketplaces will be used for improper information exchanges.
- structural separation between the exchange and its parents, to prevent certain participants from getting access to privileged information in their capacity as market owners.

- joint purchasing and joint commercialisation only within the boundaries of the horizontal guidelines²¹⁷.
- no provisions imposing the exclusive use of the exchange by participants.
- open and non-discriminatory access from all buyers and sellers which aims at preventing foreclosure.

These criteria are likely to be extremely useful in the context of common platforms in Open Innovation, since platforms trigger the same concerns as marketplaces. This body of decisions suggests that they will not be an issue, provided comparable requirements are met. If the platforms are set up based on open standards with access available on non-discriminatory terms, the anticompetitive threat will be substantially minimised, and they will not fall foul of Article 81. Absent these conditions, platforms will probably be closely scrutinised by the Commission.

■ Article 81(1) only applies to collusion the object or effect of which is the prevention, restriction or distortion of competition within the common market (in shorthand restriction of competition).

This is one aspect where user innovation will have to be taken into account by competition rules. Manufacturers and service providers may not always have sufficient incentives to innovate. Charles Leadbeater draws attention to the risks of innovating in small, emerging and marginal markets, which usually produce the most disruptive innovations. Companies may not always be prepared to take that risk, particularly when they face limited competition²¹⁸. In this case, user innovation may be the only viable alternative, and acts as a crucial competitive pressure which must be supported.

The implications of this are twofold. When measuring the impact of a concertation in a market, potential competition stemming from user innovation must be included in the analysis, so that the Commission does not have a biased view on the negative effect of an agreement or practice.

Second, when assessing the restrictive effect on competition, the harm done to user innovation will have to be considered.

If competition policy is to support user innovation, which is a necessity, as Leadbeater explains, agreements or concerted practices aimed at curbing the latter or discouraging creative consumers may have to be regarded as hardcore restrictions. This would give an indication of the importance given to user innovation.

In addition, legislation on unfair commercial practices could be a useful way to tackle these issues, and may have to be updated, as abusive practices in this respect come to light.

It is vital that the Commission does not dismiss the protection of this unusual type of competitors under the assumption that consumer welfare is the prevailing object of competition law. There has been some controversy about the objectives of competition law, in particular it has long been deplored that the Commission protects competitors and competition rather than concentrate on allocative efficiency and consumer welfare. Recently Advocate General Kokott stated that one of the aims of competition law was "to protect the structure of market and thus competition as such (as an institution)"²¹⁹. With the recent modernisation of competition law marked by the effort to have a more effects-based approach, consumer welfare takes centre stage. Though user innovation indirectly supports consumer welfare, this discourse must not lead to ignore the user innovation aspect in competition law. The delivery of Advocate General Kokott's opinion after the modernisation measures however suggests the ECJ has not fully adopted consumer welfare as the dominant objective.

■ Article 81(3) potentially plays a critical role in Open Innovation. This paragraph contains the exemption which redeems agreements caught by Article 81(1) when certain conditions are fulfilled. It



enables dynamic efficiencies to be taken into account when this is not permitted under 81(1), provided the agreement:

- contributes to the improvement of production or distribution of goods or promotes technical or economic progress
- allows consumers a fair share of the resulting benefit
- does not impose restrictions which are not indispensable to the attainment of these objectives
- does not afford undertakings the possibility of eliminating competition.

Though networking in Open Innovation shouldn't theoretically be caught by Article 81(1), the fact that dynamic efficiencies are not considered under this provision means that the Commission may not fully take into account the benefits of an agree-

ment. This increases the risk of it being caught by Article 81(1) and enhances the importance of Article 81(3) to exempt it.

It is hoped that lengthy and costly procedures before national courts to consider the application of Article 81(3) would be avoided by an appropriate analysis under Article 81(1). However, the CFI forbid any weighing of pro- and anti-competitive effects under Article 81(1) when it resonantly rejected the existence of a rule of reason²²⁰.

This does not automatically mean that networking agreements in Open Innovation will be prohibited. The Guidelines on the application of Article 81(3) of the Treaty²²¹ contemplate a variety of agreements, which are likely to be common in Open Innovation, in particular the licensing of technology, joint research and development agreements, synergies and cooperation agreements²²². These are cited as agreements yielding the types of efficiencies which make exemption under Article 81(3) very likely, provided the other conditions are met.

In addition the Commission has shown pragmatism in the past, and given credit to the benefits of pooling technical knowledge. For example, in *Ford/Volkswagen*²²³, it held that the creation of a joint venture to develop and produce a multi-purpose vehicle in Portugal would improve the production of goods and promote technical development. The sharing of knowledge was seen as an efficient way of producing a highly innovative product. This approach is encouraging for the promotion of networking in Open Innovation.

Behind the fourth criterion of Article 81(3), namely that the agreement must not afford the parties the possibility of eliminating competition, is the idea that short-term efficiencies should not be outweighed by long-term harm to competition. Particular caution is needed in the application of this proviso in a market characterised by short-term life cycles of products and services. Apart from the difficulty of

assessing long-term harm to competition in this context, the Commission should be careful not to focus excessively on high market shares. It is a well-known feature of new economy markets that competition takes the form of a string of successive monopolies, where rapid innovation enables competitors to dislodge the incumbent firm²²⁴. High market shares are no accurate indication of market power in these circumstances. Instead the concern should be directed at the risk of a temporary monopoly extending into a permanent one by the distortion of the rivalry taking place for the market.

2 Merger control

In EC competition law, the relevant provision for merger control is the European Community Merger Regulation (ECMR)²²⁵ adopted in 2004 as part of the modernisation of competition law. When networking and cooperation between firms takes place in Open Innovation, merger control rules can apply.

The Regulation applies to all concentrations with a community dimension²²⁶. The Community dimension is conceived in terms of turnover.

A concentration is defined broadly, as either a merger of two or more undertakings, or as acquisition of control. Acquisition of control turns on the exercise of *decisive influence*²²⁷. This is interpreted very pragmatically, taking into account the acquisition of property rights and/or assets, and is possible through shareholder agreements or as a result of economic dependence. Both joint and sole control is relevant. It is sufficient that there is the "possibility of exercising decisive influence", provided it is effective²²⁸.

The Merger Regulation also applies to joint ventures, to the extent that these constitute a concentration. For this to be the case, it must perform "on a lasting basis all the functions of an autonomous economic entity"²²⁹.

Joint ventures are given a liberal construction to enable a favourable treatment under the ECMR. Appraisal


under the ECMR presents numerous advantages for firms. Apart from the significant benefit of getting *ex ante* approval of a venture, undertakings also gain from the "one-stop shop", since provided the joint venture is a concentration with a community dimension, only the ECMR applies, under the sole jurisdiction of the Commission, to the exclusion of national law and other competition provisions²³⁰. This means that undertakings do not have to file separate notifications in different countries. Commission decisions are also taken within strict legal deadlines, and the substantive assessment is more favourable, given that the significant impediment to effective competition under the ECMR catches fewer transactions than the 'restriction of competition' test under Article 81²³¹.

However, if the concentration does not have a community dimension, national law applies. This could be problematic if the threshold is lower.

The fact that concentrations require procedural requirements, including notification of the agreement, already means that the process of networking in Open Innovation could be significantly slowed down by merger control. The use of low thresholds makes this problem worse, especially if companies have to notify their project in a number of jurisdictions.

For the substantive appraisal of a merger, the test was modified with the new Merger Regulation in 2004. The 'substantive lessening of competition' test used in the UK and the US was rejected, mainly due to strong opposition from Germany. Instead a compromise solution was found, between the previous dominance test adopted in the 1989 Merger Regulation and substantive lessening of competition. The new Regulation opts for a 'significant impediment to effective competition', in particular through the creation or strengthening of dominance²³². By preserving an aspect of the dominance test, the regulation ensures that previous case-law still applies.

Assessment under this test involves a comparison with a counterfactual which the Commission must establish in order to consider the situation of the mar-



ket had the merger not taken place. The idea is to demonstrate the existence of a causal link between competitive harm and the completed merger.

The Commission must first define the relevant market in order to measure the impact of the merger on competition in that market. For this, the Commission relies on its Notice on the definition of the relevant market²³³ which is relevant for all EC competition rules. It uses the SSNIP test (Small but Significant and Non-Transitory Increase In Price), "postulating a hypothetical small, lasting change in relative prices and evaluating the likely reactions of customers to that increase"²³⁴.

Bishop and Walker draw attention to the possible issues arising in merger analysis in the context of 'new economy' markets. The latter are usually characterised by competition *for* the market rather than in it, based more on innovation than price. The use of the SSNIP test in merger control can be problematic.

According to them, concern about high concentration is likely to be misplaced in markets which tend to "tip" towards a dominant firm, following intense competition for the market. In addition, the focus on price, particularly with the use of the SSNIP test, is wrong when competition is centred on innovation. And finally competition authorities tend to assume that a strong market position with high market shares today reflects in an equally strong position tomorrow. However where new innovations successively dislodge incumbent firms, this may be a poor assumption²³⁵.

Some commentators argue that the Commission's pessimistic view of new economy markets leads to a more stringent application of merger rules, which is not only unjustified but economically unfounded²³⁶. These market features are likely to persist in Open Innovation. Given that in this context, mergers potentially catch a number of different networking situations, it is essential that the issues described be appropriately taken into account by competition authorities.

Open Innovation reignites the debate about the existence of an efficiency defence. Theoretically, such a defence would redeem even mergers which increase concentration and significantly impede effective competition, provided they enable allocative, productive or dynamic efficiencies.

There have been mixed views about the way such efficiencies should be considered in a merger analysis²³⁷. In the US in the 1960s, mergers which created efficiencies were thought to be so damaging that they were prohibited²³⁸. The defence is now accepted in principle, according to the US Merger Guidelines²³⁹, subject to conditions, though it has rarely been admitted in courts. Hovenkamp argues that this is because courts are unable to make the necessary measurements in order to balance the economies achieved against the increase in market power²⁴⁰.

It is unclear whether such a defence is acceptable under the ECMR. Though the test adopted in Article 2 seems to leave little room for any consideration of efficiencies, Article 2(1)(b) does mention that in the substantive appraisal, the Commission takes into account "the development of technical and economic progress provided that it is to consumers' advantage and does not form an obstacle to competition".

The Commission has never applied such a defence. On the contrary, there is evidence of an "efficiency offence", which has led some commentators to take the view that the Commission has a hostile approach to mergers that create efficiencies, and protects competitors rather than competition²⁴¹.

In the 2001 Green Paper on the Review of the 1989 Merger Regulation²⁴², those who participated in the discussion made it clear that the Commission should take into account efficiencies in the analysis of the overall effects of a merger.

This has been dealt with in Recital 29 of the ECMR which states that

"it is possible that the efficiencies brought forward by the concentration counteract the effects on competition, and in particular the potential harm to consu-

mers, that it might otherwise have and that, as a consequence, the concentration would not significantly impede effective competition, in particular as a result of the creation or strengthening of a dominant position". The Horizontal Merger Guidelines also leave scope for efficiencies to be considered in the assessment²⁴³.

These provisions do not clear all concern about Commission decisions, especially in Open Innovation, where several forms of collaboration might fall within the merger control provisions. The Commission still needs to be extremely cautious in its exploratory analysis and not make too many speculative predictions, as it was reproached for doing in the high profile *General Electrics/Honeywell* merger. This controversial case was cleared in the US but prohibited by the Commission, which anticipated leveraging and bundling issues. The decision was severely criticised in the US from all areas of the antitrust community, ranging from legal and economic academics to senior US officials. Commentators were surprised at the Commission's confidence to lead such an analysis, which they considered inherently flawed and reckless²⁴⁴.

Joint ventures have already been briefly mentioned, but it is worth going into more detail about their treatment under EC competition law.

A joint venture is appraised under the ECMR if it is a concentration, i.e. if it is fully functional in a way comparable to an independent economic entity, with a community dimension.

If the joint venture does not have a community dimension, Article 21 indicates that in principle no Community competition law applies, with the exception provided for in Article 21(1). If the joint venture, without a Community dimension, has as its "object or effect the coordination of competitive behaviour of undertakings that remain independent", the Commission is given the power to appraise it under Article 81²⁴⁵.

Even with this coordinative effect, provided the joint venture has a Community dimension, it will be subject to the ECMR.

Joint ventures raise several competition issues. First they risk serving as a means for parent companies to collude through the common links of the venture, even in matters outside of its ambit, which leads to the so-called "spill-over effects". Second, they could reduce competition between parents on the market on which the joint venture is set up. Lastly, they could lead to foreclosing the market²⁴⁶.


With the advent of modern technology, and rapidly developing markets, joint ventures have become increasingly common. They are a highly efficient way of pooling enough resources and expertise to enable breakthrough into new markets, particularly in telecommunications, information technology and the media.

This trend is likely to continue in Open Innovation where joint ventures are but one of the many different forms that collaboration between stakeholders can take.

The assessment of joint ventures under the ECMR helps to support these kinds of structures for reasons previously exposed.

The question arises in relation to partly-functional joint ventures, since they do not benefit from appraisal under the ECMR. It was proposed that they should be subject to the latter in the event that no block exemption applied. They would therefore be examined in a way comparable to full-function joint ventures. However, this proposal was dropped and it remains to be seen whether they will be granted special treatment, even if the Commission has itself admitted that they may involve huge amounts of investment and long-term commitments²⁴⁷.

The consideration of joint ventures under the ECMR prompts the same warnings as for other types of mergers. In relation to Open Innovation, authorities should bear in mind the changing nature of innovation, towards an increasingly open and cooperative model,



and take into account its impact on competition conditions. It also shouldn't be forgotten that one of the major benefits of Open Innovation is to accelerate the innovation process, and make it more effective. It is critical therefore that competition regulations do not counter these efficiencies by excessively slowing down innovation.

In this respect, safe harbours are a useful instrument to give the firms the legal certainty that they need and enable them to draft their agreements to ensure that they are not caught by competition provisions, whether *ex ante* merger control or *ex post* antitrust proceedings. The advantage of this legal certainty possibly outweighs any drawback stemming from rigidity usually associated with the drafting of such exemptions.

Cooperative agreements of this sort are not new to competition law and the Commission has often granted negative clearance in the context of Article 81. The new challenges, which undertakings and their lawyers have to face post-modernisation of competition rules, have already been discussed.

The Commission is also striving to make a more realistic approach to joint ventures since the *European Night Services* judgement²⁴⁸. The CFI showed that the Commission could not rely simply on Article 81(3) as a substitute for analysis under 81(1), as it frequently did. This effort can only be hailed for the benefit of Open Innovation, particularly when the assessment is now done by undertakings themselves.

3 Guidelines on Horizontal Cooperation Agreements and Block Exemptions

There are several block exemptions in EC competition law, and those on R&D and specialisation agreements are potentially relevant to Open Innovation.

Cooperative agreements do not necessarily take the form of joint ventures. In fact a variety of different

arrangements exist, with equally variable levels of complexity. The Commission generally does not have a problem with research and specialisation agreements, and in fact positively encourages them in the framework of research programmes (e.g. currently FP7).

The question here is whether the existing block exemptions are sufficient to enable the advanced level of cooperation required in Open Innovation.

In relation to R&D agreements, the 1985 block exemption²⁴⁹ was little used. According to Alison Jones and Brenda Sufrin²⁵⁰, few agreements complied with the detailed provisions, and it only provided for a limited exemption for a very basic type of R&D agreement, whereas in reality collaborative agreements are highly complex, and could be increasingly so in Open Innovation. They argue that the agreements exempted under this regulation would not have fallen within Article 81(1) in any case, so that the provision served little purpose.

As part of the plan to modernise competition law and adopt a more realistic view of economic situations, the Commission reviewed the assessment of these horizontal cooperation agreements under Article 81. This resulted in a new set of Guidelines on horizontal cooperation agreements²⁵¹ and two new block exemptions on R&D and specialisation agreements. Though the Guidelines deal with a number of agreements, such as R&D, production, commercialisation, standardisation and environmental agreements, they do not cover

"more complex arrangements such as strategic alliances that combine a number of different areas and instruments of cooperation in varying ways"²⁵².

This potentially makes the Guidelines ineffectual in relation to a major part of cooperation in Open Innovation. The attempt to categorise arrangements reduces the chance that unusual cooperation agreements will be automatically exempted.

The Guidelines do have several encouraging features. The Commission recognises the tension between the benefits of cooperation and their potential harm to competition, but begins by giving credit to the tremendous advantages stemming from cooperation. This is particularly true of the R&D agreements exemption.

Several concerns remain though, relating to the effective application of this provision. The assessment is still based on market shares, used as a proxy for market power. Market shares are difficult to use in markets driven by dynamic competition²⁵³, and even more so in the context of R&D agreements.

There is evidence of an effort to adapt this criterion to innovation, for example by stressing the need to take into consideration potential competition in technology markets²⁵⁴ and emphasis on the importance of analysing the effects of an agreement on competition in innovation²⁵⁵. It would be worth generalising such an approach, especially with the expansion of Open Innovation.

However, this may not be enough given the growing importance of these guidelines in Open Innovation, particularly now that it is for firms themselves to assess the validity of such agreements.

The substantive assessment of R&D agreements is governed by thinking which belongs to the previous manufacturer-driven model.

The Commission stresses the specific advantages of cooperation agreements of this sort when firms, especially SMEs, do not have sufficient means to carry out research independently. Where cooperation is a policy, in no way driven by the *need* for cooperation, it is yet unclear to what extent such an agreement will be covered by the exemption.

Also, the Guidelines draw attention to the distance to the market launch of the product or process. The closer it is to commercialisation, the more careful the Commission will be in exempting an agreement.

However, this begs the question of the appraisal of the *concomitant* development of a product with the mar-

ket. One of the ideas behind cooperation in Open Innovation is to reduce the risk of market failure of a product, if the market is involved in the development process. This blurs the clear distinction between the different stages of research and development which exists in the previous innovation model, and on which the Commission bases its approach. How will the R&D agreement exemption apply when customers and end-users are solicited in the R&D procedure? It is suggested that the Commission's concern about a product being on the verge of commercialisation might lead it to frown upon such concurrent development.

3 The Technology Transfer Block Exemption Regulation (TTBER)

The application of the TTBER relates to the application of competition law to intellectual property rights. Though at first there was some controversy about whether the two areas of law conflicted, there is now general consensus that they strive for the same ultimate objective, namely the enhancement of consumer welfare.

This is very relevant to Open Innovation since intellectual property rights are likely to be central to the innovation process, whatever form they take, i.e. even if they are made more flexible in order to promote the sharing of experience and best-practices.

Also the TTBER deals with the exchange of technology and know-how, which is one of the principal elements of networking in an Open Innovation context.

The Commission has evolved in its approach to intellectual property. From a permissive view at first, it took a formalistic approach which considered exclusive licensing agreements to automatically come within the prohibition of Article 81(1). Even if they could be exempted under 81(3), this created a pressing need for a block exemption which resulted in the 1984 Block Exemption²⁵⁶.

Even the latter was thought to be too formalistic and straitjacketing when it was reviewed in 2001. There



is now an effort on the Commission's part to adopt a more economic and effects- based analysis in the new 2004 block exemption²⁵⁷.

The TTBER aims to create a safe-harbour for licensing agreements. It turns the normal analysis on its head, since before being analysed under Article 81(1), an agreement must first be considered in the light of the block exemption to assess whether it falls within its ambit. This is the method which will be followed here.

The TTBER begins with the principles guiding the application of Articles 81 and 82 to intellectual property rights. Even if they grant legal exclusive rights of exploitation, the latter create no immunity from competition provisions²⁵⁸. This must be balanced against the need to preserve the incentives to innovation and the dynamic aspects of technology licensing.

The TTBER applies only to bilateral agreements, and only to technology transfer agreements, defined as patent, know-how or software copyright licensing agreements, or a mixed licensing agreement combining some or all of these²⁵⁹. Though its scope is wider than previously with the addition of licences of computer software and of designs²⁶⁰, it still only covers agreements which *transfer* technology. Therefore situations where the licensee himself carries out research, as opposed to producing goods or services, and technology pools are excluded from the exemption. Technology pools are specifically dealt with in the accompanying Guidelines²⁶¹. This makes the scope too narrow to enable a variety of networking agreements to be exempted in Open Innovation. The exception seems to have been drawn up with a particular model in mind, and though this can have some positive impact on Open Innovation, it is likely to be insufficient to warrant the development of a number of networking situations.

Furthermore, the controversial adoption of market share thresholds means that the benefit of the exemp-

tion is withdrawn where parties have a market share in excess of 20% of the relevant technology and product market, where they are competitors, and above 30% where they are not.

The use of market share thresholds triggered considerable criticism at the time the TTBER was drafted. Although it is in line with the new style of block exemptions, it makes little sense in technological sectors in which the TTBER applies. It is a poor and potentially arbitrary indicator of the real competitive situation in technology markets, and is notoriously difficult to apply to IP licensing agreements due to market definition problems²⁶³.

The adoption of market shares creates significant legal uncertainty. Previously, block exemptions were granted regardless of market shares, subject only to a formal power of withdrawal by the Commission or a national competition authority. The agreement would be unenforceable and unexemptable if it contained a blacklisted provision²⁶⁴.

The TTBER requires not only the calculation of market shares but in practice a continuous assessment since the exemption only applies for as long as these remain below the thresholds. Legal uncertainty is only magnified by the introduction of Regulation 1/2003 and the removal of individual exemptions. Parties can no longer notify their agreements for clearance. Companies are only subject to *ex post* control by the Commission or national competition authorities and immediately face the risk of possible fines and sanctions should they err in their analysis.

Moreover, it has been argued that the list of hardcore restrictions contained in the TTBER are in some respects more severe than the previous blacklisted provisions²⁶⁵, which narrows further the potential reach of the exemption.

These features considerably reduce the role of the TTBER in general, but particularly in Open Innovation. It does little to give enterprises the guarantees they need when they are engaging in risky investments and long term commitments. In Open

Innovation, this could have a severe impact on the freedom of parties to collaborate and exchange technology and ideas, when such arrangements are not safe from the application of Article 81.

In contrast, the Guidelines on the application of Article 81 to technology transfer agreements acquire the utmost importance. As Anderman and Kallaughner point out, not only do they set out a general framework of analysis for applying Article 81 to intellectual property licensing, they also give a useful and detailed explanation of the provisions and application of the TTBER. Finally, they explain the application of Article 81(1) and (3) to agreements falling outside the scope of the TTBER.

The authors draw attention to the greater flexibility which the TTBER and Guidelines now enable in the drafting of licensing agreements. These no longer have to be formulated in such a way so as to fit the corset set out by previous block exemptions. This freedom however comes at the great cost of legal uncertainty²⁶⁶.

If a transfer technology agreement is not bilateral or if it exceeds the given thresholds, there is the possibility that it will fall within a second safe harbour set out by the Guidelines. Paragraph 131 states:

"Article 81 is unlikely to be infringed in the absence of hardcore restrictions where there are four or more independently controlled technologies in addition to the technologies controlled by the parties to the agreement that may be substitutable for the licensed technology at a comparable cost to the users."

It is not really a safe harbour, since it merely creates a negative presumption that in these circumstances the agreement will not be prohibited by Article 81(1).

If an agreement falls outside this second safe harbour, that does not imply that the agreement is automatically an infringement of Article 81(1), in a similar way as this is not implied when an agreement falls short of the TTBER. Instead, it will have to be appraised according to the framework set out in the Guidelines.



In its effort for modernisation, the Commission tries to embrace a more flexible and effects-based approach, which is reflected in the methodology contained in the Guidelines. The assessment relies on the assessment of two different counterfactuals against which the restriction to competition is measured: first the restriction to competition that would have existed in the absence of the *agreement*, and second the harm to competition that would have existed in the absence of the contractual *restraint*.

Underlying this is the Commission's double concern with restriction to competition: inter-technology competition (between different technologies) and intra-technology competition (where undertakings compete using the same technology)²⁶⁷.

The agreement could be exempted under Article 81(3) provided the following onerous conditions are met: efficiency gains will result from the activity envisaged in the agreement, that restrictions are indispensa-

ble for these efficiencies, that consumers receive a fair share of the benefit which outweighs negative impact on competition conditions and that the agreement does not afford the parties the possibility of eliminating competition.

The Guidelines deal specifically with technology pools and cross-licences, highly relevant situations for Open Innovation.

Cross-licences are generally defined as licences mutually granted between two parties in order to use each other's technologies. They are not covered by the TTBER.

The Commission is generally concerned that when they are exclusively granted between parties to the agreement, to the exclusion of third parties, they may lead to the creation of a closed *de facto* standard. Paragraph 167 of the Guidelines indicates that in order to satisfy Article 81(3) requirements, such a technology may have to be licensed to third parties on fair, reasonable and non-discriminatory terms.

Technology pools are generally agreements where participants set up a common coherent collection of technologies, which are then licensed to the contributors and even sometimes to third parties. They can be simple arrangements but also very elaborate, with the creation of a separate entity in charge of the pooled technology²⁶⁸.

The many advantages of such pools must be balanced against possible competition concerns that they may facilitate collusion between contributors and foreclosure by the exclusion of non-participants. The Commission has indicated that it will pay careful attention to technology pools which support *de facto* or *de jure* industry standards. The assessment of these arrangements takes three elements into consideration:

- the stronger the market position of the pool, the greater the anti-competitive risk
- pools with a strong position should be open and non-discriminatory

→ there should be no undue foreclosure of third party technology nor any limitation on the creation of alternative pools²⁶⁹.

If the pool has a dominant position, licensing and royalties should be fair, non-discriminatory and non-exclusive.

This seems like a fair assessment, supportive of Open Innovation in the sense that there is an effort for open structures, without removing too much of the incentive to innovate.

However, the reliance on the dominant position benchmark could be problematic. As will be extensively discussed further on, the way the Commission determines dominance is ill-adapted to high technology and new economy markets. There is therefore the risk that the Commission will improperly require openness where there is in reality no market power..

In contrast, the Guidelines do not deal at all with the case of patent ambushes, i.e. when intellectual property rights are asserted in breach of previous disclosure requirements or of licensing commitments, in a way which could hold up the standardisation process. Competition law provides efficient legal instruments to deal with these sorts of abuses and should rise to the occasion.

Though technology still promises to be central to the future development of services in Open Innovation, it will compete with increasingly intangible values such as knowledge, know-how and competencies. This raises the question of the way the Guidelines will apprehend possible "pools of competencies" where companies and other actors will regroup in order to create a common pool of knowledge. This is not strictly technology, and will not only include elements protected by intellectual property, so that the TTBER will not be the only applicable provision. However, it is important that the Commission takes into account the changing values in the Open Innovation context. It would be prefe-

able to have a holistic approach to these sorts of arrangements, so that contributors do not face the risk that only a part of this arrangement will be subject to Guidelines' framework of analysis, whilst another will be appraised under Article 81.

Moreover, it is regrettable for a more open innovation process that the licensing of know-how is automatically exempted under the TTBER. It gives know-how the aspect of being a proprietary right of the same order as other intellectual property rights, whereas in reality, know-how is usually protected by a liability-based regime. If a contract instates an obligation of confidentiality on the other party, then the "owner" of the know-how must prove a breach of this obligation. Otherwise, under UK law for example, he will have to demonstrate that the information was imparted in confidence, and that this duty of confidentiality was breached.

The Guidelines do go some way to support the dissemination of knowledge and know-how by exempting *licensing* agreements, so that fears that such an agreement may be caught by Article 81 are reduced, and market players are indirectly encouraged to share this information. However, the TTBER only covers bilateral agreements, so that such agreements can have a significant exclusionary effect, harmful to the Open Innovation objective of developing creative commons and pools of knowledge involving as many actors in the innovation process as possible.

This suggests that the Commission might have to review the existing exemptions to address new features of a different innovation paradigm. In order to support further dissemination of know-how and experience, it could be useful to subject such licensing agreements to conditions, as opposed to merely exempting them whatever their terms.

In its approach to technology pools and cross-licensing, the Commission shows partiality to licensing on reasonable and non-discriminatory terms. The sharing of know-how could be better encouraged if

licensing were only exempted provided it was subject to conditions of transparency, reasonableness and non-discrimination. Enterprises should still preserve the freedom not to license if it was necessary though, so that a certain amount of flexibility in commercial choices remains.

Similar remarks can be made about the treatment of non-compete obligations under the Guidelines. The latter are defined as commitments on the part of the licensee not to use third-party technologies which compete with the licensed technology. Such obligations are not thought to be hardcore restrictions and are exempted under the TTBER up to the relevant thresholds. This may require some rethinking in view of the aims of Open Innovation given the potential foreclosing effects of such obligations.

5 Article 82

In relation to cooperation, it is especially the case-law on collective dominance which is relevant. After some debate over the existence of "collective" dominance and the meaning intended by Article 81, the concept was finally recognised in the *Flat Glass* judgement²⁷⁰.

To establish a position of collective dominance: "the undertakings in the group must be linked in such a way that they adopt the same conduct on the market"²⁷¹.

For there to be such a position, the Courts have accepted the existence of structural, contractual or other formal links between companies at issue, but also economic links, as for example when there is a "relationship of interdependence existing between the parties to a tight oligopoly"²⁷².

This implies a two-fold test. First the collective behaviour must be proven, then the dominant position of the combined entities must be established. In particular, attention is given to three factors: the ability for members of a dominant oligopoly to monitor the adop-

tion of the common policy, the sustainability of the latter over time and finally the presence of incentives not to depart from this common position²⁷³.

Once a position of collective dominance has been shown, the conduct is then appraised under Article 82.

The significance of recognising such a position is that dominance creates a "special responsibility" according to the ECJ, which is even more onerous in cases of "super-dominance"²⁷⁵. This should not normally cause concern, except that it has been deplored for some time that Commission practice leads too easily to findings of dominance, and that tools used in doing so are inappropriate, particularly in new economy markets²⁷⁶.

The line between what constitutes "normal competition" and what is abusive is thin. Yet the cost of "false positives" or Type I errors – where conduct is unduly thought to be anticompetitive and condemned as such – is high. Firms found to be in a dominant position will have their commercial strategies considerably restricted, especially as regards rebates and pricing schemes. This is problematic when the method used to assess market power is ill suited to situations of dynamic competition.

These concerns are valid in general but also for Open Innovation. The increased cooperation between actors in this framework makes a correct analysis of the anticompetitive effect of collective behaviour even more necessary.

However, Open Innovation is not without its own competition issues which will need to be monitored.

B. Competition concerns in Open Innovation

The inherent characteristics of Open Innovation mean certain types of conduct, harmful to overall market conditions, are likely to take place and will have to be regulated by competition law.

■ In the context of the development of services in an Open Innovation paradigm, regulating access to platforms will be critical.

The model in mind is of an accessible and coherent set of functional platforms, developed by industry in partnership with the public sector, upon which services providers can build their end-user focused service offerings.

On the market for platform development, there is a risk of a bottleneck effect on the market for the creation and delivery of services. Access to these platforms is a prerequisite to the provision of services on the downstream market. If access to this primary market is restricted, it could be extremely damaging to competition for composing and delivering markets. This raises legitimate gatekeeper concerns. How can competition law make sure such a market structure does not lead to limited competition?

Several tools exist.

Parallels can be drawn with the media industry. To a certain extent, the media industry has a similar market structure, since production and acquisition of content is of crucial importance for operators active in the delivery of content to consumers.

In this sector, such issues have been addressed by merger control provisions and by Article 81²⁷⁷. The Commission and the Courts appear to be aware of access problems and have been demanding of potential "gatekeepers" to ensure competition is not restricted.

Under Article 81, the Commission has required sub-licensing commitments and schemes aimed at counterbalancing potential distortions to competi-

tion and guaranteeing third party access, before exempting agreements under 81(3). This was the case for an agreement notified by the European Broadcasting Union²⁷⁸, which involved the joint acquisition and sharing of television rights. The decision was however subsequently annulled by the CFI on the ground that it did not warrant sufficient third party access, contrary to the Commission's conclusions²⁷⁹.

This goes to show that both the Commission and the Courts are watchful of access restrictions. It is possible to imagine comparable concerns in the case of the joint development of a platform between two or several undertakings.

The modernisation of competition law and particularly the abolishment of the notification system mean that the Commission will not be able to control such agreements to the same extent. In turn, enterprises will not be able to provide commitments to keep their agreements clear from any challenge under Article 81. Instead they will have to rely on their own assessment of the validity of such a scheme. It is unclear how the Commission's policy described above and reiterated in several decisions will continue when the application of the Article 81(3) exemption is within the jurisdiction of national competition authorities and national courts.

Merger control on the other hand is another useful instrument in policing access. The Commission here has the power to continue imposing commitments intended to safeguard access. For example, in the *Newscorp/Telepiù* merger, as well as limiting the duration of exclusive contracts between TV operators and content providers, a pledge to offer third parties access to the platform and technical services was necessary for the merger to be cleared²⁸⁰.

Even though Geradin argues these measures aren't sufficient to address all the difficulties, they are a significant step towards minimising them²⁸¹.

Applying this jurisprudence to services all depends on the way in which the latter develop. Platforms for services delivery in an Open Innovation context

will be developed essentially by industry, with help from the public sector. Several business models are possible in this framework. Industry can make its revenue from selling access to platforms, or it can protect them with intellectual property and authorise access by licensing.

In the first case, agreements between firms operating or developing the platforms are likely to be closely scrutinised given the significant foreclosure effects. Allowing access for a reasonable fee, in relation to incurred costs and applied in a non-discriminatory manner, will probably be the only way to make sure such agreements are not thought to be excessively restrictive of competition. Under merger control the Commission has the power to demand such commitments of operators. It has already set the precedent, to a certain extent, in the *Newscorp/Telepiù* case cited above. This approach has the drawback of being extremely interventionist though, and the Commission will first have to face the challenge of determining an appropriate price.

If platforms are protected by intellectual property rights, then control of licensing terms will be an efficient tool to ensure decent access to third parties. The Commission and Courts have already attached some importance to the licensing on *reasonable* terms in different contexts, for example in the TTBER and R&D agreements block exemption above, but also in several cases including the *Microsoft* case. The benefits of RAND licensing have already been discussed in the first chapter of this report, and they are still relevant here, since it is possible to imagine the requirement of licensing on RAND terms in order to maintain some competition on the downstream market. This was pretty much the position adopted in relation to B2B marketplaces. Such a requirement could apply both in merger control and under Article 81.

In the context of Article 82, the doctrine of essential facilities acquires significant importance in relation of Open Innovation as a way of mandating access.

Though the definition of an essential facility is difficult and controversial, according to Jones and Sufrin, the underlying idea is that it is something owned or controlled by a dominant undertaking, and essential for competitors to be able to provide products and services to customers²⁸².

The doctrine originated in the US where it is now highly contentious and its existence is debated.

It has essentially been applied in EC Competition law to refusals to supply. Four criteria can be distinguished from the hazy case-law. First the refusal must be likely to eliminate all competition on the downstream market, second it must be incapable of objective justification, third access to the facility must be indispensable for carrying out the business of the person requesting access and finally there must be no actual or potential substitute for it²⁸³.

When these requirements are met, the refusal to supply becomes abusive in the eyes of competition law and the Commission can impose an obligation on the incumbent firm to allow access to the facility, under Article 82.

Importantly, this theory has been applied in relation to intellectual property rights, which deserve a discussion. The relation between competition law and intellectual property law has always been ambiguous. Although a legal right to the monopoly on exploitation and the right to exclude others is an inherent part of intellectual property rights, competition law has sometimes restrained the exercise of these due to anticompetitive effects.

With regard to access, intellectual property can be a significant obstacle. Competition law can both regulate the abuse of intellectual property rights as well as control licensing terms.

Early on the ECJ declared that intellectual property gives no immunity from competition provisions, and considered that licensing agreements could even fall within the category of agreements restrictive of competition by *object*, therefore dispensing with

any need for an analysis of the effects²⁸⁴. This seems fairly harsh on intellectual property owners who have invested in the research entitling them to this monopoly. However, high profile cases like *Qualcomm*²⁸⁵ or *Microsoft* also show that the latter can use these rights for abusive reasons, and competition authorities have not hesitated to intervene.

The problem with mandating access to intellectual property rights is that the balance is extremely delicate to strike between dynamic incentives which are reduced when access is granted, and pricing efficiency when firms compete on a common platform.

In intellectual property cases the essential facility doctrine has been adapted²⁸⁶. In *Magill* the Court required four criteria for mandating access:

- the refusal to deal concerned a product indispensable for the exercise of the activity in question
- the refusal prevented the appearance of a new product for which there is potential demand
- the refusal was not justified
- in refusing access, the concerned undertakings on the primary market were reserving themselves a secondary market by excluding all competition on the latter.

In *Microsoft*, the Commission argued that these criteria didn't automatically apply and that *all* circumstances should be taken into account when determining the abusive nature of the refusal. In particular, three circumstances were identified which according to it made the conduct abusive: the information refused was interoperability information which the Community legislature attaches particular importance to²⁸⁷, the extraordinary power on the PC Operating System markets gave the power to eliminate competition in the adjacent work group server OS market and the conduct was disruptive of previous supply.

The CFI retained slightly different conditions to the ones stated in previous case-law. In particular, it notes that the refusal related to a product or service indispensable

for the exercise of a particular activity in a neighbouring market, the refusal was of a kind to exclude *any effective* competition in the neighbouring market and it prevents the appearance of a new product for which there was potential consumer demand.

The criteria have been made very much more flexible. The *IMS Health* decision already stated that it was enough that there was only a hypothetical market for the new product. In addition there seems to be no longer the requirement that competition be *eliminated* since the CFI mentions the *exclusion of effective competition*. It is now uncertain whether any justification could redeem such behaviour. The decision has sparked considerable concern in the industry. The CFI appears to support the Commission's view that all circumstances be considered in the assessment of the abusive conduct, since it states that should one of the previous criteria be missing it would consider the circumstances presented by the Commission. The application of this doctrine is subject to uncertain conditions. In view of its significance in the context of Open Innovation, it is essential that its scope is clarified and the analysis refined. Though mandating access is of utmost importance to support a productive and open environment, it is also important not to lose sight of the incentives to innovation which intellectual property rights play a part in.

The issue of access is even more important in view of the important technological (and now service) convergence which is taking place. Convergence contributes to the development of platforms since the latter strengthen their relevance on the market by expanding the range of services available to end-users. Both technological and service convergence makes it possible for businesses to operate on various markets with a view to satisfying the different needs of users.

A greater concentration of distributive means that the conditions of access acquire a new significance. It is the role of competition authorities to maintain effective

competition between the platforms so that convergence translates into more business opportunities for market players, and does not facilitate collusion and other anticompetitive behaviour.

The Internet provides an interesting example of a successful strategy. The basic architecture was already in place by the time service providers entered the market for Internet products and services in the 1990s and competed for applications on platforms. This reduced the risk that a gatekeeper should decide which application could be provided. In this sense, the openness of the technical architecture invited diversity and was successful in this enterprise. This could be a useful model for the development of services.

■ Closely related to the problem of access is the risk of foreclosure which could arise in Open Innovation, even though the effort towards openness should in theory mitigate this issue.

In dynamically competitive markets, it is the power to exclude which prevails, particularly in the early stages of market development. It is significantly more dangerous than power over price in an environment where competitive advantage is based on innovation.

One of the benefits of Open Innovation is the potential to make the innovation process faster and more effective. This makes the reality of dynamic competition even sharper.

Dynamically competitive markets are characterised by what was described by the economist Joseph Schumpeter as a "perennial gale of creative destruction"²⁸⁸. This captures the idea that competition is not about the producer which can sell a product at the lowest possible price, but about the producer with an innovation which attracts all the consumers of the previous incumbent. Successful innovators inevitably become monopolists, until another firm comes up with a disruptive innovation ena-



bling it to conquer the market and dislodge the existing monopolist. Competition is therefore intensely focused on innovation.

In addition, new economy markets have the uncommon feature of *tipping* towards a company whose products become the standard, once it has successfully competed *for* the market. Demand-side network effects magnify this tendency since the more users adhere to the network, the more valuable it becomes to the network community as a whole, and so to the undertaking who controls it.

These elements shift the rivalry to the early stages of the market, when firms are striving for an innovation which can potentially capture the market. This process of rivalry is likely to become particularly aggressive.

It is this competition *for* the market which competition authorities need to protect to ensure it is not distorted. An incumbent monopolist has every incen-

tive to deter rivalry which will lead to its destruction. The Commission has a key mission to preserve the competition at this stage, and will have to pay attention to new forms of abusive behaviour.

Existing literature on competition in new economy markets highlights the array of new possibilities open to firms which want to make the market tip their way, or prevent the successful emergence of a disruptive innovation.

According to Muysert and Lind, the scope for predation, for example, is dramatically increased, and the economics of predation are significantly altered. They cite the withholding of technical information necessary to a rival as an effective and importantly costless way of predating and efficiently distorting the competition process. This is of a particular concern given the importance of interoperability in the context of Open Innovation.

Furthermore, Andrea Stazi draws attention to different types of anticompetitive behaviour, for example making products incompatible with those of newcomers, or spreading false news in relation to their or others' products. These will be effective means of, not only deterring competition for the market, but also of potentially transforming a position of temporary dominance into a permanent one. Controlling access to networks by actual or potential competitors, or even users, is a powerful weapon to strengthen market power, as Stazi points out. This further enhances the significance of regulating access in Open Innovation, as discussed above.

The question of the anticompetitive effect of vapourware announcements is raised again in this context, since their damaging effects have been proven. It has been shown that such preannouncements slow down standards wars, and can deter entry.

In Open Innovation, it will be critical for competition authorities to apprehend these types of anticompetitive behaviour. The line between legitimate and illegitimate commercial practices is very thin, and it will

be challenging to find a middle whereby innovative firms aren't prevented from following innovative corporate strategies while new types of anticompetitive conducts are sanctioned. There are already existing proposals to adapt competition tools. For example, Muysert and Lind suggest the use of a "non-price test" to define predation. Also, Ahlborn, Evans and Padilla put forward a "contestability" test to measure market power. These proposals can make competition law instruments more accurate and would give authorities' intervention a better foundation.

■ Another element obliquely related to the access problem is territorial restrictions, and the resulting partitioning of the common market. The idea behind promoting Open Innovation in the context of services is to create a European market for services. This ambitious objective is supported by the recent Service Directive²⁹⁵ which in particular aims to ease the freedom of establishment for providers and the freedom of provision of services in the European Union²⁹⁶.

In this respect competition law has a crucial role of making sure that firms do not reinstate barriers which Member States have had to abolish.

As the ECJ stated in *Consten & Grundig*, "an agreement between producer and distributor which might tend to restore the national divisions in trade between member-States could be such as to thwart the most basic objects of the Community. The Treaty, whose preamble and text aim at suppressing the barriers between States and which in several provisions gives evidence of a stern attitude with regard to their reappearance, could not allow undertakings to restore such barriers."²⁹⁷

The Commission and the Courts have been very attentive to the sorts of agreements or conducts which counter this objective. This policy must be pursued, and the Commission must make sure that it is also enforced at a national level now that national competition authorities and courts have the power to apply Article 81(3).

■ A competition concern likely to surface in the context of Open Innovation is leveraging. This is due to an inherent modularity.


Modularity is described as the organisation of complements – products that work with one another – to interoperate through public, non-discriminatory and well-understood interfaces. It can arise as an internal management system, as a self-governing organisation of a market, for example like IBM in the computer industry in the 1980s, or as a result of public policy decisions²⁹⁸.

Computers and the Internet are modularised systems. This combined with an open architecture revolutionised this field by facilitating innovation in an unprecedented way. Independent firms were able to enter markets for components and become highly specialised. Modularity allowed companies to respond to customer needs and introduce innovations in very short time.

To some extent Open Innovation introduces modularity in the whole innovation process, since in an open environment, enterprises and end-users are able to innovate at specific levels, and take part in the overall innovation scheme. That way, particular customer needs can be attended to. The modularity referred to here is as much technical – in the supporting infrastructure – as it is social, since companies, research organisations, universities, public authorities, end-users and end-user communities are involved, and have different functions at various levels of the process.

Open Innovation relies extensively on modular systems, like computers, the Internet and services. This makes it liable to any competition concerns arising therein.

The risk of modular systems is that control of one layer can be leveraged into an adjacent layer. Because components are linked together by interfaces, control in one layer can affect the linked layers and their respective products markets. According to Wielsch,



"in the case of platforms—defined as any standard for an information product that other companies rely on to supply a complementary product—the risk is magnified by the fact that the architecture of a platform is a decisive parameter for the possibilities of an "application", since developers of application software depend heavily on API (Application Programming Interfaces) exposing routines or protocols"²⁹⁹.

In the structure of services described further up, this danger is easily identifiable, since the developers of the underlying service platforms will have control over systems upon which the downstream service providers will be reliant.

In addition, markets for platform technology are likely to evolve around a dominant standard, which puts the owner of the standard in a potentially dominant position. The impact of its strategy on those using the standard will be fundamental.

This risk can be minimised by the adoption of open standards, licensed either on RAND or on royalty-free terms.

In competition law, the remedy is often to mandate access.

In US law, this was developed in *Intel v Intergraph*, where following failing negotiations about a licence for patents, Intel cut off its supply of trade secret information and prototypes to Intergraph. The District Court held that Intel had misused its monopoly power under Section 2 of the Sherman Act and granted a preliminary injunction against Intel requiring it to continue supplying the information. It could charge for this information as long as it did so on a non-discriminatory basis. Though the Federal Court later overturned the decision, it did not contradict the rationale. Wielsch interprets this as reverting to a liability-based regime for the protection of intellectual property rights where they raise serious antitrust issues.

In EC law, authorities are very concerned with leveraging, since a theme which pervades much of the Article 82 jurisprudence is that firms should not

use their position in one market to gain a competitive advantage in another. This has laid the foundation of the Essential facilities doctrine discussed above. It has essentially been applied in cases of refusal to supply, and in some cases to tying, where a firm only accepts to supply a product or service on condition that the customer obtains another product or service.

Sometimes it is unclear whether the Commission and Courts are really applying the essential facilities doctrine or whether leveraging through refusal to supply is becoming an abuse per se. The conditions for applying the doctrine have become extremely blurry, as already seen in the *Microsoft* case. The fact that the withheld information was *interoperability* information, i.e. capable of making the modules work in complementarity, was heralded by the Commission as a reason to mandate access even though the strict conditions of the essential facility doctrine were not met.

The problem with leveraging is that it makes commercial sense to use an advantageous position to forward corporate interests in other markets. The difference between what is tolerated and what is not is extremely delicate.

Competition law faces a difficult choice between intervention at an early stage, which thwarts competition, particularly when it essentially takes place at this early juncture, and intervention at a later stage, when there is a risk that dominance has already been leveraged in a harmful way.

According to Wielsch, an intelligent policy encourages rivalry between standards until it knows there must be competition *within* a standard. However, he highlights the fact that competition law will almost by definition act too late, since it intervenes when there is market power. By this time, victims of the anti-competitive behaviour might already be out of business. For example, judicial intervention against Microsoft in the browser market came too late for Netscape³⁰⁰.

Instead, he advocates the use of intellectual property law as a means of facilitating and mandating access at an earlier stage, particularly by permitting reverse engineering and declining complete protection for interfaces. This presents the advantage of not discouraging innovation in a way that mandating access through competition law may. Sharing requirements remove the incentive to develop a rival standard, and can dissuade from investing in a facility if a company is not assured of reaping the benefits thereof.

The interoperability exception to intellectual property rights described in the first part can play this part. It then becomes fundamental that its scope is clear and that it is efficiently enforced. It is arguable that the current exception, only existing in the Software Directive, is insufficient to fulfil this critical function.

■ Network effects have taken a prominent place in discussions on competition law in the new economy. The classic network externality cited is where a network becomes more valuable to each user as more users connect to it.

Network effects have two sides to them. On the one hand they increase value to the consumer, and bearing in mind that consumer welfare is the prevailing objective of competition law, the latter should not be too concerned with them. On the other hand, network effects can strengthen a position of transient dominance into a permanent one if consumers are locked-in, and if they create barriers to entry to new competitors. They can create conditions for a monopoly.

As they are expressed here, these concerns belong to the traditional manufacturer-driven innovation model. They do not take into account the potential harm to creative user communities. Attention should be drawn to the potential lock-in of user communities, which can be extremely harmful to overall competition conditions, given that the end-users and end-user communities can be important innovators.


In addition, network effects are arguably a worry in competition law, but this should not be overstated. Instead the central place of interoperability and standardisation³⁰¹ should be emphasised, as a means of curbing their harmful effect. If networks are interoperable, consumers cannot be locked in, and the networks become more valuable for consumers of all networks.

■ The crucial role of interoperability in Open Innovation – especially through standardisation – has already been developed. This is one of the critical areas where competition law has a supportive part to play in Open Innovation.

Standardisation organisations help to ensure that there is competition *within* a standard rather than a wasteful standards war. Standardisation turns competition *for* the market into competition *in* the market, which significantly curbs the 'tipping' of the market and minimises its harmful effect.

Insofar as cooperative standardisation might facilitate collusion between independent economic entities and create entry barriers for potential competition, it causes traditional issues in competition law. The Guidelines on horizontal cooperation agreements deal with the different sorts of standardisation agreements³⁰².

If standards are adopted according to non-discriminatory, open and transparent procedures, they are not caught by Article 81(1)³⁰³. However the Commission is cautious where such agreements give the parties joint control over production and/or innovation, since scope should remain for competitors to develop alternative standards or competing products outside the standard. In this case, they are subject to Article 81(1), and in order to benefit from the Article 81(3) exemption, participation in the standard setting should be non-discriminatory, open and transparent, with access to third parties possible on fair, reasonable and non-discriminatory terms³⁰⁴.



It is fair to say that standard-setting organisations do not cause real antitrust concern, provided the terms comply with the requirements in the Guidelines above, and the tendency is more for competition law to support them. In this respect, its place is fundamental for Open Innovation.

Competition law sustains standardisation by enforcing policies of standard-setting organisations and/or by catching any abuse committed by parties to the process as anticompetitive under its provisions.

In the US recent court cases have clarified that actions against the policies of standard-setting organisations are indeed anti-competitive. For example, the Federal Trade Commission took action against Rambus³⁰⁵ when the latter participated in a standard-setting organisation (Joint Electron Device Engineering Council) without revealing its pending or existing patents on technologies relevant to the standards. In its final order, the FTC barred Rambus from making misrepresentations or omissions to any standard setting organisation, and imposed obligations to license and maximum royalty rates³⁰⁶.

In *Broadcom v Qualcomm*, the Appeals court considered that a breach of a RAND commitment was enforceable anti-competitive behaviour under US antitrust laws³⁰⁷. Interestingly, the Court stated that: "This holding follows directly from established principles of anti-trust law and represents the emerging view of enforcement authorities and commentators, alike", where the Court referred extensively to the previous *Rambus* case³⁰⁸.

In EC Competition law, according to the Guidelines on horizontal cooperation agreements cited above, standards are exempted under Article 81(3) of the Treaty provided they are open. In addition, the Guidelines on technology transfer agreements³⁰⁹ show a clear partiality for RAND licensing terms, since these make sure, to some extent, that the standardisation process is free from abuse³¹⁰. Insofar as the cross-licensing agreements or technology pools are fair, non-discriminatory and non-exclusive, they will not be contrary to competition rules³¹¹.

Moreover, the Commission has shown that it will not hesitate to use competition provisions to sanction any abuse committed by undertakings in the context of standardisation.

For instance, it has recently decided to open formal proceedings against Qualcomm, continuing an investigation into its practices following a complaint lodged in 2005 by Ericsson, Nokia, Texas Instruments, Broadcom, NEC and Panasonic. The alleged infringement concerns Qualcomm's licensing terms which are said to violate its FRAND³¹² commitment. This could lead to the finding of an exploitative practice under Article 82 of the Treaty, insofar as Qualcomm is exploiting market power it gained as a result of having a patented technology in the standard³¹³. This jurisprudence becomes all the more important given that no Commission Guidelines deal with the case of patent ambushes.

Even outside the context of a standard-setting organisation, the existence of a de facto standard raises legitimate foreclosure concerns. The Commission has shown particular attention to this issue, especially in the *Microsoft* case, where with the CFI's approval, it required Microsoft to license its standard with "reasonable and non-discriminatory" terms to deal with the abuse under Article 82³¹⁴.

Concerning the terms of a licensing agreement, whether in the context of a standard-setting organisation or not, competition law is neutral as to the business model adopted, so provided the terms are open, transparent, non-discriminatory and reasonable, that they are licensed on a RAND or on a royalty-free basis is immaterial³¹⁵.

With the exception of the European Interoperability Framework which includes royalty-free licensing in the definition of open standards, there is widespread support for RAND licensing terms. The biggest problem with RAND licensing is the definition of a *reasonable* royalty, which is open to a number of different interpretations and is the cause of many disputes, particularly in standard-setting organisations.

In some cases, the latter have tried to tackle the issue by requiring the preliminary determination of royalty fees. In the US, the Department of Justice has taken a positive outlook on the ancillary disclosure of licensing terms, since it considers that such disclosure enables companies to make "better informed decisions"³¹⁶.

The Commission has taken a similar position in its Guidelines on the application of Article 81 to technology transfer agreements where it states:

"in certain circumstances it may be more efficient if the royalties are agreed before the standard is chosen and not after the standard is decided upon, to avoid that the choice of the standard confers a significant degree of market power on one or more essential technologies"³¹⁷.

However, this does not avoid discussions over the royalties in order to find a consensus between the different interests involved. As Tim Simcoe points out, this represents a major antitrust risk since explicit negotiations over royalties can be construed as anticompetitive collusion to fix prices³¹⁸. To some extent the vagueness of a "reasonable" fee avoids this.

Moreover, Välimäki forcefully argues against the precise definition of what constitutes a RAND licensing fee, since it introduces considerable inflexibility and limits the choice of a licensing model. One size does not fit all, and apart from potentially being unfair to a licensor who cannot know in advance the uses and possible users of his technology, a predefined RAND royalty fee will not allow licensing to adapt depending on the circumstances³¹⁹.

Instead, he strongly supports the CFI's position in *Microsoft* where the Court not only refused to define a RAND licensing term, but encouraged Microsoft to adapt its licensing policy to different situations:


"The mere fact that the contested decision requires that the conditions to which any licences are subject be reasonable and non-discriminatory does not mean that Microsoft must impose the same conditions on every undertaking seeking such licences. It is



not precluded that the conditions may be adapted to the specific situation of each of those undertakings and vary, for example, according to the extent of the information to which they seek access or the type of products in which they intend to implement the information"³²⁰.

This policy of using competition law as a safeguard against abuses in the context of standardisation is highly relevant to Open Innovation where interoperability and standardisation acquire a new significance. It is critical that competition authorities in the European Union continue to pursue such a policy.

Interoperability, which can be achieved through means other than standardisation, is also essential to Open Innovation. It curbs the potential harm caused by the



network effects described previously: if networks are interoperable, the fear of dominance of a firm controlling one network is eliminated. This is because the increased adoption of a network does not create a competitive advantage for the vendor alone since its rivals will also benefit from a bigger size of network. Moreover, as has been said before, the efficiency of an open innovation process is simply impossible without interoperability. Its importance is not underestimated in many different areas of Community intervention, which has led some commentators to argue about the existence of a "European interoperability regime"³²¹.

Here again the role of competition law to enforce interoperability is crucial. It is a powerful measure to enforce it, particularly through Article 82.

The fact that the Court uses Article 82 to ensure interoperability in the *Microsoft* case indicates that interoperability is placed within the remit of the Treaty, a provision of the highest order in Community legislature. This emphasises its importance which is explicitly recognised by the Commission in this decision³²². That competition law has the role of a guardian is directly admitted by the Software Directive in Recital 27, which states:

"this directive is without prejudice to the application of competition rules under Articles [81] and [82] of the Treaty if a dominant supplier refuses to make information available which is necessary for interoperability"³²³.

This use of competition law does not go without criticism. It has been argued for instance that the competition interpretation of interoperability goes beyond what was intended by the directive and is too wide. According to Hart, interoperability in the Software Directive only covers the interfaces needed for the functionality of the independently created program. It did not aim for 100% compatibility and, to him, the Commission's position reveals a will to protect competitors rather than competition, to the

detriment of intellectual property owners³²⁴. Also, it has been said that if public policy considerations really undermine the *Microsoft* decision, then they should be dealt with by regulation rather than competition law³²⁵.

This questions the sufficiency of competition law to address interoperability. Though it arguably has the potency to impose a *positive* duty of interoperability in a way unknown to the Software Directive, through the prism of the 'special responsibility' imposed upon dominant firms, it will only intervene above the threshold of dominance, for Article 82, and in the presence of proven collusion for Article 81.

If interoperability is so central to Open Innovation and the future of service in the European Union, this situation might need to be reconsidered.

■ Finally, a competition concern arises in the context of user innovation. Competition law will have to use its existing tools to take this into account. It has previously been suggested that it can do so by assessing user innovation as potential competition when defining the market and considering dominance. Harm to user innovation will also need to be counted. Since, as Leadbeater highlights, user innovation may sometimes be the only viable innovation alternative in certain situations, the Commission will need to make sure market power is not used to deter it. Novel anticompetitive practices are likely to surface in this area. Competition law will have to adapt in order to address emerging issues.

2. Issues with competition law

This final section on competition law deals with existing flaws in the law.

A number of characteristics identified in the context of new economy markets are likely to apply to Open Innovation, and some have already been touched upon in the previous sections. These include:

- the importance of R&D and the central role of intellectual property to protect it since it is intangible assets such as knowledge and ideas which are key to business models. Intellectual property is a tool to capture value from these intangible elements. In Open Innovation, the significance of intellectual property must be coupled with care in their use so as not to harm the intended objective of a more open process.

- high technology markets have significant demand-side network effects which lead to a tendency for markets to "tip" towards a single firm whose products become the standard.
- the extreme complexity of products on offer require compatibility and standards, which means that there will be a great deal more cooperation in the new economy to provide interoperability.
- finally competition is much more dynamic, closer to Schumpeterian rivalry, and focused on innovation.

These features have already raised several competition issues with regard to existing legal framework, or more precisely with the way the existing provisions are applied. A change of policy, rather than a reform of legal instruments, is advocated³²⁶.

To some extent, these issues still exist, and they are highly relevant to Open Innovation. The characteristics of rapid innovation, with intense competition based on product or service development rather than price, and intellectual property as a central asset for competitive success, are true to Open

Innovation. In fact, innovation is intended to be even more accelerated, and the increased value of a product or service on offer is in its ability to fully satisfy a specific customer.

In view of this, the perfect competition model is ill-adapted. The latter relies on five propositions, which are a large number of buyers and sellers with small market shares, a homogeneous product, perfect information between buyers and sellers and no barriers to entry or exit. Arguments made about inappropriateness of such a model in relation to new economy markets are still pertinent.

New issues may also arise. In Open Innovation, particularly in services, we are moving further and further away from the idea that a multitude of independent actors is necessarily a good thing to ensure low prices. Instead interoperability between services takes centre stage and other intangible values such as trust become important.


Prominent issues have been surveyed and will be analysed in turn.

- The correct definition of the market was a dominant theme in new economy criticism of competition law.

Competition law is about markets and market definition is usually preliminary to any competition analysis. It has a different function according to the provisions. In relation to Article 82, the existence of a dominant position is assessed in a given market "which presupposes that such a market has already been defined"³²⁷.

It is also essential to application of the Merger Regulation since the substantive appraisal of a merger evolves around the question of whether it constitutes a significant impediment to effective competition, particularly as a result of the creation or strengthening of dominant position.

In this sense market definition is a preliminary to the substantive assessment, whereas in Article 81, it serves to determine whether there is an effect on com-



petition, so that it is part of the appraisal of an agreement's compatibility with EC competition law.

In its Notice on market definition³²⁸, the Commission defines the relevant product market as:

"all those products and/or services which are regarded as interchangeable or substitutable by the consumer, by reason of the products' characteristics, their prices and their intended use"³²⁹.

The relevant geographical market must also be determined, and supposes that competition conditions are sufficiently homogeneous and distinct from other areas to constitute a separate market.

Defining the relevant market requires the identification of the main competitive constraints, which are demand substitution, supply substitution and potential competition.

In the case of demand substitution, in order to find the products considered as substitutes by the consumers, the Notice advocates the use of the SSNIP test, a Small but Significant and Non-Transitory Increase In Price, which reveals which related products stand to benefit from an increase in the price of the product at issue. If customers react by changing to the related product, then the latter is comprised in the relevant market.

The introduction of the Notice in 1997 was part of an effort to take a more economic approach to competition law. However, in practice it is unclear how much the Commission and the Courts apply it, since they still very much focus on characteristics and intended use.³³⁰ For example in *Michelin*, the Commission held that the market for new replacement tyres for lorries and buses was separate from that of retreads, without applying the SSNIP test. Instead it took into account "the analysis of their specific characteristics and their uses by final consumers"³³¹. A very qualitative analysis was also used in subsequent cases, including *Wanadoo*³³² and

*Microsoft*³³³. The Notice is not legally binding on the institutions, however if so little attention is paid to such guidelines, the very aim of modernising competition law is frustrated

In relation to the content of the Notice itself, paragraph 13 declares that:

"demand substitution constitutes the most immediate and effective disciplinary force on the suppliers of a given product, in particular in relation to their pricing decisions".

To some extent this warrants the Commission practice of

"[looking] to substitutability mainly on the demand side and only in the short term"³³⁴. However, as Ahlborn, Padilla and Evans point out, this preference for demand substitution in the short term indicates a failure to take into account the fact that in new economy markets competition shifts from price to innovation. The main competitive constraint faced by incumbent firms comes from new, superior and highly innovative products whose time of introduction is uncertain. Competitive pressures stemming from potential competition are therefore significant and yet largely ignored in Commission practice. This is likely to lead to the definition of excessively narrow markets and unjustified findings of dominance³³⁵.

Moreover, in Open Innovation, competitive pressure from potential competition acquires another dimension if competition law is to take into account user innovation. Leadbeater has already highlighted the competitive function of user innovation and the need to support it in competition policy³³⁶. One way which competition law can consider this aspect is by including user innovation in its analysis of potential competition in the market definition.

The Notice promotes the use of the SSNIP test to identify competitive constraints. By relying exclusively on price competition, the SSNIP test is ill-designed for

dynamically competitive markets where the focus is on innovation. Price increases will not deter customers from a major player in the market as much as the introduction of a drastic innovation by a subsequent firm. The use of the SSNIP test in this setting can only lead to inappropriately narrow markets. Conceptual difficulties with it do not help. The well-known 'cellophane fallacy', named after a famous case in the US, describes the problem that arises from the fact that the SSNIP test cannot identify whether the current price is already a monopoly price resulting from the exercise of market power. Though the Commission Notice recognises the problem it makes no suggestions for dealing with it. This aggravates the risk of defining narrow markets and dominance which may not reflect the reality of a situation where a firm faces increasing pressure from innovators.

Furthermore, the SSNIP test is utterly unsuited to Open Innovation, since it fails to reflect values which are specifically important to this paradigm, such as trust and trust building functionalities, the additional benefits of network effects, perceived value from the customer's perspective of a product or service, i.e. its ability to be extensively personalised and adapted to a customer's specific need, in a context where user centricity is the priority. These are all features which are very relevant to consumers and likely to influence what they consider to be a market, and who they see as competitors.

Market definition creates new issues in the context of emerging markets. In *Wanadoo*³³⁷ the Commission refused to adapt its policy to fragile and immature markets, and rejected the argument that it was inappropriate to intervene in a market at a nascent stage.

And yet, when its tools are arguably not adapted to a world of rapidly changing products and technology, market definition is a complex exercise which requires caution on the Commission's behalf in order to avoid excessive intervention. An important question which triggered controversy in a number of mer-


ger cases is whether the offer of an innovative service by bringing together complementary assets can be regarded as creating a new relevant market. For example in the *Vodafone Airtouch/Mannesmann*³³⁸ decision the Commission found a highly debatable new separate market for advanced pan-European mobile services in which it argued the merged entity would hold an initial position of dominance³³⁹.

According to Veljanovski, in this case the Commission slid close to finding a position of dominance on a market which did not exist while failing to show a dominant position in an existing one. He considers this to be a dangerous precedent, considering the theory underpinning the Commission's approach lacks predictive content, and evidence about future developments it totally lacking³⁴⁰.

The Framework Directive in the context of the Telecoms package presents the advantage of addressing this question. It precludes *ex ante* regulation until maturity in order to avoid unduly influencing competition conditions taking place in a new and emerging market.

However, the independence between regulatory (*ex ante*) and competition law (*ex post*) assessments of market power create a double jeopardy which may fail to protecting developing markets³⁴¹. Dobbs and Richard demonstrate how difficulties in applying the Hypothetical Market Test – which the SSNIP test puts into effect – to emerging markets translates directly into a higher likelihood of false findings of significant market power³⁴².

Open Innovation will create a constantly evolving technological environment, where service composition is likely to change rapidly and continuously over time and contexts. The use of information and communication technologies will transform the nature of services, their creation and composition³⁴³. Also the presence of a range of operators and different products or services will further complicate the market structure.



Against such a background, market definition will be extremely difficult. It is clear that the static approach used at present will do a lot to thwart the analysis of highly dynamic competitive markets.

An additional issue in Open Innovation is that to some extent, the model allows the concurrent development of a service with a market, to ensure a smooth and successful "market launch" of the final product³⁴⁴. It is arguable that the finding of a separate market for each new service launched is inappropriate, and will lead to too narrow a market definition. The Commission's tendency to identify distinct markets for new services on offer in merger cases³⁴⁵ however suggests that it may not avoid this problem. In this context, service providers are exposed to the risk of continually being found to be in a dominant position. This is particularly worrying in Open Innovation where one of the aims is to reduce the failure rate in the service sector, notably by promoting collaboration between industry and end-users in the innovation process. Findings of dominance could severely hinder such an objective and be a substantial obstacle to Open Innovation.

By drawing parallels with the media industry, it is possible to suggest probable market definitions in Open Innovation services. It is predictable that potentially narrow markets will be found, and an analysis of past Commission decisions confirms this assumption.

In the media industry the Commission identifies an upstream market for the production or acquisition of content, and at a downstream level a market for the delivery of content to end-users³⁴⁶. In the latter, it distinguishes between different modes of delivery.

In our vision of services, it is likely that it will find an upstream market for platform developers – platforms here understood as building blocks supporting the composition of services – and a downstream market for service providers.

The tendency of the Commission to segment markets will be an issue in Open Innovation. In the model for services, the idea is that the end-user himself will ultimately compose the service depending on his needs, and service providers will only provide him with tools and functionalities to do so. How then will the markets on which service providers operate be defined? In the media industry, the Commission identifies markets with similar content. If by analogy, a market is defined for each functionality offered by service providers, then markets will be dangerously narrow.

Similarly the Commission subdivides media markets depending on the mode of delivery. Thus the market for pay-TV is distinct from the free-to-air TV one. Services can be delivered or composed by electronic and/or mobile means. If this sort of segmentation is applied in this context, there is the threat that the Commission will distinguish mobile from electronic services, when service providers will most probably be providing their services by all means, and fundamentally be in competition with one another. Also, it would arguably be contrary to the principle of technological neutrality highly emphasised in the Regulatory Framework for electronic communications.

This leads to a related issue specific to services in Open Innovation. End-users will be able to compose their services either directly or through configuration agents, these being either cyber or real. Technically such agents will be competing, and competition can significantly spur innovation in this sense. However the tendency to define narrow markets will inevitably lead to distinguish them, which could slow down the innovation process.

Finally, it has been seen that the market is traditionally defined in terms of product and geographic scope. It is worth trying to give credit to the effort at multidisciplinary which Open Innovation makes, combining people and communities with businesses and technology. It has already been seen that in

some areas of competition law (particularly the TTBER and the Guidelines on Horizontal Cooperation Agreements), market definition also requires the identification of a technology market.

In Open Innovation the human dimension plays an important part and should be taken into account in market definition. Apart from considering user innovation as potential competition, identifiable end-user communities working in partnership with industries should be regarded when delimiting the relevant market.

In theory, the definition of narrow markets should not be an issue provided market power is correctly assessed. This is another point which was considerably debated in the new economy literature.

■ In both the case-law and the different guidelines issued by the Commission³⁴⁷, market power is equated with market shares.

In *Hoffmann-La Roche*, the ECJ set out that a very large market share is in itself indicative of dominance unless there are "exceptional circumstances". The test was refined in *AKZO*³⁴⁹ where the ECJ interpreted "a very large market share" as 50% of the market. This means that a market share in excess of 50% triggers a presumption of dominance. The Discussion Paper on Article 82, published in 2005 in an effort to review the only competition provision which had so far escaped the modernisation effort, upholds this presumption³⁵⁰.

In practice firms are frequently declared dominant when they supply nearer 40-45% of the market.

The problem is that where competition is *for* the market and where they tend to tip in favour of a single firm which temporarily dominates, market share is a poor indicator of true market power.

And yet market shares are used in a number of different measures, and have potentially very serious implications for those involved. For example the assessment of an appreciable effect on competition and on trade in the context of Article 81 is measured in


terms of market share³⁵¹. Post-modernisation block exemptions such as the TTBER and Block Exemption for R&D Agreements³⁵², only apply to the extent that the market shares do not exceed the set thresholds.

Easy findings of dominance can be very harmful to competition and innovation. The *Vodafone Airtouch/Mannesmann* merger provides a good example of this. Though the Commission recognised that the entity's leadership advantage would be short-lived, it went on to impose a number of detailed conditions for a period of three years before the merger was cleared.

Bearing in mind that within three months of the merger, the UK's Orange joined forces with France Telecom to compete against the new entity, these conditions effectively amounted to regulated access to Vodafone/Mannesmann's network, according to Cristina Caffarra. Though the significance of access in Open Innovation has been extensively discussed previously, this does not warrant intervention to guarantee access where it is directly detrimental to the incentive to innovate.

As Caffarra notes, with the speed of imitation by competitors, who are possibly even more spurred to catch up with the innovator, this is a worrying precedent which discourages innovation and investment. The Commission recognised itself that the leadership advantage gained through the merger was likely to be temporary, and where there is no real concern of long-run dominance, such a stance is unjustified and potentially damaging³⁵³.

Insofar as dominance imposes a "special responsibility" on an undertaking and can lead to such commitments as the ones described above, it is all the more important that market power be correctly appraised. To give credit to the fact that competition is mainly based on innovation rather than prices, Alhborn, Padilla and Evans have proposed to assess market power in terms of contestability. If a market is contestable, potential entry causes a sufficient competi-



ve constraint to prevent a company from acting independently of its competitors³⁵⁴ and thus should not be considered to enjoy a position of dominance³⁵⁵. Though this criterion might need refining in that it is unclear when a market would not be contestable, included in the analysis it would significantly improve the accuracy of current practice.

■ It has already been mentioned that network effects are a double-edged sword with potential benefits to consumers as well as antitrust concerns. Network effects can change a position of transient dominance into a permanent one.

As much as concerns are justified, they do not warrant a hostile approach to network effects which the Commission seems to have adopted. Mario Monti has declared that, the corollary of networks becoming more valuable to users the more users join, is that: "the more important the network becomes, the greater the risk that competition problems will emerge"³⁵⁶. Such a position overstates the risks inherent in network effects. It has been argued that such a negative approach is not only ill-founded, it is also potentially harmful, since the repercussions of intervention are sorely felt.

The anticompetitive effect of network externalities is not automatic. As Veljanovski points out, the snowballing effect, i.e. the tipping of a market, only occurs when networks are incompatible with each other so that the customer has to make an all-or-nothing choice. Only then are the networks effects internalised by the owner of the network. In addition, compatibility between different networks makes them advantageous for all consumers of all networks³⁵⁷. This again brings us back to the utmost importance of interoperability. Provided it is assured, network effects will be beneficial to the consumer.

This reignites the debate about the objectives of competition law. If consumer welfare is really the ultimate objective, prevailing over considerations for competitors, then not only does the Commission's

approach to network effects have to change, but it also needs to measure the impact of its intervention. The remedy in competition law will consist of breaking up the network to avoid any concentration of market power, in a way which brings the market structure closer to the 'perfect competition' model. However this strikes at the very heart of what makes a network valuable to a consumer.

As Ahlborn, Padilla and Evans emphasise, the conflict between the different goals which competition law pursues is greater in the new economy, due to the inherent structure of the markets. This makes the clear identification of competition objectives all the more crucial³⁵⁸.

■ The use of price-reliant tools causes concern in areas of competition law other than market definition. In the analysis of predatory behaviour, the ECJ confirmed the adoption of a (variant of) the Areeda-Turner test. According to the Court, pricing below an average variable cost, coupled with an intention to eliminate competition, constitutes predatory pricing. However in the race for the market, even though these criteria are present, intervention from competition authorities is likely to be more detrimental to innovation than not. Low pricing might be the only way to tap into a market where network effects make entry difficult, and it is an effective means of achieving critical mass.

This focus on costs and pricing draws the Commission's attention away from other forms of predation, extremely damaging to Open Innovation. For example it has already been mentioned that the costless withholding of entry and interoperability information can be a form of predation, as can predatory vapourware announcements³⁵⁹.

In new economy markets and Open Innovation alike, exclusionary power is the worry. In Open Innovation, it will further be necessary to assess this power in the light of new relations between industry and users. The creativity and potential innovation input from

user communities can make them a target for such behaviour, for instance, from firms not profiting from this input. Also, it is likely that enterprises will be competing with each other with regard to different end-user communities. It is essential that competition law refines its tools and is able to prohibit conduct or agreements which harm this dimension of Open Innovation.

Lind and Muysert have proposed an interesting criterion to assess predation. They advocate the use of a non-price test. The latter defines predation as a situation where a firm either incurs costs or undertakes actions, which may be cost free or cost reducing, which it would not have done had it not been for the anti-competitive benefits it was seeking. In practice this criterion is likely to be difficult to apply, but it presents the advantage of being appropriate in an Open Innovation environment.

Generally speaking, the sometimes very formalistic approach of the Commission can be very damaging in markets driven by dynamic competition. Ill-adapted tools are prone to error, and might lead the failure of apprehending new types of anticompetitive behaviour.

With this in mind, Ahlborn, Padilla and Evans call for a flexible application of competition rules, and a move towards an effects-based policy, which would assess anticompetitive behaviour in terms of their impact on the market rather than on their form.

They recommend that in doing this, two important elements are kept in mind: first that "one size does not fit all" so that each case should be tailored to. Second, the ultimate goal of competition law should be consumer welfare, and should truly be followed. In the kind of competition that takes place in new economy markets and in Open Innovation, rivalry is extremely aggressive and victories very clear cut. Complaints from competitors in this respect cannot be seriously taken into account³⁶⁰.

In the same line of thinking, Lind and Muysert suggest a flexible and cautious approach in competition law. Caution implies the careful assessment of the pros and cons of intervention, weighed against the real harm of the alleged anticompetitive behaviour. By flexible, they mean the abolishment of the use per se rules and rigid structures. Even if EC competition authorities have strived to eliminate these in statutes, they are still used to some extent in practice.

They advocate the adoption of a "first principles" approach which focuses directly on the conduct and on an examination of its competitive effects³⁶¹.

In its effort for an effects-based analysis, the Commission should keep in mind the careful balancing act between competition and innovation, which is important to Open Innovation.

However, it must go further in order to provide an adequate supportive environment for Open Innovation. To do so, it should integrate the Open Innovation mindset in its analytical framework, and include the fundamental element of the paradigm in its assessment of the impact of behaviour on competition. This would lead it to consider the effect of a conduct on the innovation ecosystem, in particular when it affects the exchange of ideas and experience, user innovation and finally the possibility of providing fully functional integrated and interoperable service platforms.

This may not require as much of a change as it would seem. Adjustments may prove to be enough, it is more a change in competition policy which is necessary.

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IV. Other legal issues in Open Innovation

Open Innovation prompts significant structural changes, which create a number of other legal issues. Time only makes it possible to briefly survey some here.

1. Data protection and privacy issues

Open Innovation triggers generic problems, which have already been discussed in the context of computers and the Internet, as well as new issues which will be examined further on.

1 Generic issues

As a result of important technological developments, especially the spectacular growth of automatic data processing enabled by the computer revolution, major privacy concerns emerged. These were aggravated by the development of telecommunications networks facilitating cross-border flows of data, and fuelled discussions about the appropriate protection of privacy in this setting.

These changes created a pressing need for legislation. In the EU, two directives were adopted. The first set out the general principles for the safe processing of personal data³⁶² while the second adapted these to the context of electronic communications³⁶³. Several areas still remain problematic and deserve careful and thorough consideration.


■ The first relates to ubiquitous computing. Ubiquitous computing can be defined in the following way:

"As opposed to the desktop paradigm, in which a single user consciously engages a single device for a specialized purpose, someone "using" ubiquitous computing engages many computational devices and systems simultaneously, in the course of ordinary activities, and may not necessarily even be aware that they are doing so."³⁶⁴



The issue with ubiquitous computing is that it brings computer networks into the most intimate spheres of life, without the user necessarily realising this. As Olli Pitkänen notes, "future computing and communication devices are not only capable of accessing people's private information but many useful services are highly dependent on it"³⁶⁵.

A parallel can easily be drawn with the development of services in the Open Innovation setting. The fundamentals are mobility and context-awareness, in order to provide an extensively personalised service. These are also guiding principles in ubiquitous computing. The focus on user-centricity inevitably requires reliance on personal data,



location data and other private information. These have the potential to improve and significantly add value to the offered service.

However they also raise considerable privacy problems. The intrusion of computing and services in the private sphere, and the use of personal data to optimise service solutions, beg the central question of how these offerings respect a person's privacy.

The EU directives, which apply in this case, deal with the problem. In particular, Article 6(3) of the ePrivacy Directive provides: "for the purpose of (...) the provision of value added services, the provider of a publicly available electronic communications service may process the [traffic data] to the extent and for the duration necessary for such services or marketing, if the subscriber or user to whom the data relate *has given his/her consent*. Users or subscribers shall be given the possibility to withdraw their consent for the processing of traffic data at any time." (Emphasis added).

The same applies for location data, enabling the user to be positioned geographically, since Article 9(1) requires that such data either be processed anonymously or with the consent of the user.

The problem is that for most ambient intelligence technologies, such a requirement is simply not feasible. As Pitkänen remarks, "in an ambient intelligent environment, where a number of services and service providers exist, it is difficult to get the consent from the user to process location data for each service". It is even more difficult to comply with the requirement that the user be able to withdraw his consent if he so chooses.³⁶⁷

In practice this will make the service unusable. When privacy is such a relative concept, depending on a great many factors including different generational perceptions, social factors and political contexts, such an outcome is very unsatisfactory. Privacy may not always be the prevailing priority of users, who may well prefer to have a perfectly adapted

and context-sensitive service. The law has a challenging task of finding an appropriate balance but, in this case in point, where the development of highly personalised services is potentially hindered by the protection of an objective standard of privacy, it arguably fails to do so.

In fact, Pitkänen goes on to demonstrate that in many cases, data protection law is violated and yet infringements are not prosecuted. That such violations generate so little worry makes impediment to the development of personalised services all the more unjustified, and calls for a reconsideration of the existing framework applied in this context.

■ The second difficulty relates to behavioural advertising. Behavioural advertising is currently the subject of intense scrutiny in both the US and the EU³⁶⁸, and can be defined as "the tracking of a consumer's activities online in order to deliver advertising targeted to the individual consumer's interests"³⁶⁹. This question is often related to the regulation of social networking sites, since the latter generate most of their income from advertising revenue, and therefore provide advertising companies with data on their users in order to do so.

It is not always entirely clear how the EU regime applies to various tracking tools or commercial arrangements made between the Internet advertising companies and the social networking sites or Internet service providers.

For instance, the Internet service provider may be regarded as a "data controller" under the Data Protection Directive³⁷⁰, where it has access to the user's information, but where it merely collects an individual's personal data as a third party facilitator, it would be regarded as a "data processor"³⁷¹ under the Directive. This has important implications for the service provider since Article 6 imposes onerous duties on the data controller which the data processor is not subject to.

In addition, depending on the nature of the data relied upon, the Directive may or may not apply. For example, Wong and Garrie tackle the issue of whether "clickstream data"³⁷² qualifies as "personal data" under the Directive or not. If it does, not only does the Directive apply, but it potentially does so to companies based outside the EU who use "equipment" within the meaning of Article 4(1)(c) to collect the data.

They highlight the potential difficulties arising if under US law, the Wiretap act were construed to apply to clickstream data since this would have a significant disruptive effect on both the business world and government functions.³⁷³

The privacy issues are obvious. There is a clear difference between receiving targeted spam or seeing targeted advertisement when consulting a webpage, and understanding the process underpinning this personalisation. The unease is only likely to be increased in this context when it is clear social networking sites and other Internet companies are making significant amounts of revenue from effectively selling this data to third parties.

Even if such schemes are not an issue in data protection, there are still underlying privacy issues. In the UK, the digital technology company Phorm argued that its arrangements with Internet service providers, aimed at targeting advertising, complied with data protection regulations. However, as Ann Bevitt points out, the sphere of privacy extends beyond the limit of data protection.³⁷⁴

Caution should nonetheless be exercised when addressing this issue. Online advertising supports the business models of many Internet services companies. What is more, as the Federal Trade Commission itself recognised, in today's environment the personalisation of content is a major driver of Internet activity and commerce. So before changing the law, Laurence Kaye argues that two fundamental questions need to be asked: first do users understand how

their data is being used, and second do they care³⁷⁵. Consumers may approach the trade-off between optimised service solutions and privacy in a different way, and the law should allow for certain flexibility in this choice.

■ Finally, social networking sites, and the Web 2.0, generate other issues, and the former are being monitored more closely both in the EU and the US. Social networking sites can be described as the building blocks of the interactive web and online social networks, bringing together communities of people sharing interests or activities, or interested in doing as such.

The perceived sense of intimacy encourages disclosure of data which is sometimes worrying, particularly when it relates to the use of cookies to collect information, as for behavioural advertising studied above.

Though these sites do provide online privacy tools to control the disclosure and collection of personal information, they are criticised for insufficiently informing consumers about these possibilities. The FTC and ENISA (European Network and Information Security Agency) consider that social networking sites do not clearly reveal the risks of making available such information. For example, Facebook's default settings are very permissive in terms of consenting to data collection. Both organisations are pushing for information to be made available to users on more consumer-friendly terms rather than being buried in intimidating terms and conditions.³⁷⁶

Furthermore, the interactive nature of Web 2.0 creates new data protection and privacy issues. For example, as Pitkänen illustrates, the *Bodil Lindqvist* jurisprudence can have serious inhibiting consequences on users. The ECJ ruled that the act of referring, on an Internet page, to a person by their name or other means, such as giving information about their hobbies or working conditions, consti-



tuted the processing of personal data within the meaning of Article 3(1) of the Data Protection Directive, not susceptible of being covered by the exceptions in Article 3(2).³⁷⁷ Therefore any personal homepage or blogs that include pictures or names or other information about identifiable individuals, without their specific consent, are illegal. This is likely to catch a number of existing situations and begs once more the question of the appropriateness of current law in this situation.

At the heart of all these concerns is the problem of public confidence. Particularly in the context of developing services in Open Innovation, trust and user confidence are likely to be fundamental values for the system to work. Safeguards are needed to ensure that users are not deterred from using personalised services or mobile devices.

Lack of such confidence has been an issue in the history of web services. Security issues were con-

sidered to be the most important factor holding back the adoption of Web Services in a 2001 survey.³⁷⁸

And yet, as Dr. Endeshaw points out, security issues are paramount to the success of Web Services because the potential problems of misuse will rise.

"The very design of an open, federated network, with the possibility of a single sign-on identity solution for every participant (business or individual) multiplies the risks of misuse".³⁷⁹

These problems can only be enhanced in Open Innovation. It is imperative that they are dealt with, but at the same time the law must not become over-restrictive as it sometimes is.

A trade-off between privacy and personalised services was mentioned above. And yet, it isn't necessary for users to be confronted with such a trade-off. In an ideal world, they would be given the choice of extensively personalised services with the guarantee that their data and privacy are protected.

The law is far from such an ideal solution. It is suggested here that one way of getting closer to the ideal is to place the emphasis on raising awareness among users and consumers, as to the possible use of their data. Once the latter are fully informed of the implications of their privacy settings, they should be given a possibility to opt-out. That way, for those who do not value privacy as much as obtaining an optimal and fully personalised service, their freedom of choice is preserved, and service providers will not automatically be infringing existing laws by catering to these needs.

Privacy authorities both in Europe and in the US are focusing increasingly on awareness campaigns. For example the US House of Representatives passed a bill on January 28th 2009 creating a "National Data Privacy Day" in this purpose. This is a positive step in the right direction.

These combined measures seem a valid way to progress in order not to jeopardise the objectives of Open Innovation.

2 Specific issues

The driving vision behind Open Innovation in services is that of accessible functional platforms, developed by the industry with the support of the public sector, upon which service providers can build their end-user focused services. Ultimately, service providers will be making building blocks available to end-users or end-user communities in order for the latter to compose their own services.

Market players will be participating at two levels: for the development of the platforms and for the provision of services and content.

The impact of this structure on business-to-business relations creates an important new problem. When service providers build their services on the available platforms, it is likely that they will be making some valuable information – probably intended to stay confidential – available to the platform developers. In the same way as Internet service providers can have access to a significant quantity of information, notably through clickstream data, platform developers will be able to gain an insight into a company's commercial intentions and strategies, and piece together crucial information which they can use to their own benefit.

This is an issue which can seriously undermine service providers' confidence in an Open Innovation environment, as well as potentially hinder the development of services in this context.

Data protection laws only protect the personal data of natural persons³⁸⁰, so they would do little to protect such confidential information. In addition, they do not make access to such information illegal, but protect the subsequent use of it. Such laws by definition intervene when the information is already obtained, which in this setting is too late.

The Guidelines on the compatibility of B2B marketplaces with competition rules provide a useful model. Joachim Lücking summarises them from existing case-law in the following way:

→ Credible data protection and safeguards against the exchange of information are necessary to address the concern regarding the exchange of sensitive information and its anticompetitive risk. Such marketplaces are a worrying way to discover and exchange information on prices and quantities. Lücking however notes that marketplace operators are aware of such risks and set up 'firewalls' or use other technical means to ensure that data flows can be controlled.

Adapting this to our aim to protect confidential information, it becomes clear that technological and other means of creating safeguards already exist in this context to prevent the exchange of sensitive information.

→ A structural separation between the exchange and its parents notably through "Chinese Walls" specifically addresses the concern that a few market participants may have privileged access to certain information in their capacity as marketplace owners. In particular in the Volbroker.com case³⁸¹, the owners of the exchange committed to create "Chinese Walls" between the exchange and parents companies in order to protect access to confidential information by the latter.

→ The other requirements are specific to competition law and include the careful supervision of joint purchasing or joint commercialisation, the prohibition of exclusive clauses and open and non-discriminatory access.³⁸²

These Guidelines do a lot to help solve this specific issue and furnish an interesting model for our purposes. It is possible to envisage a situation where platform operators would be required to commit to such undertakings when they develop the platforms, and by "Chinese Walls" and safeguards, service providers would be assured of some protection.

Furthermore, it has already been stated that trust and consumer confidence are driving values in the Open Innovation model. If a service provider successfully develops services adapted or adaptable to consu-



mer needs and gains a significant reputation in this capacity, the ability of another firm to compete with it by relying on the usurpation of its confidential information would be restricted. The community effect is already relatively powerful on existing platforms such as social networking sites. For example Facebook was forced to back down on its new privacy terms following intense opposition from its users³⁸³. Endeshaw highlights the shift in power to the consumer, in relation to self-regulatory codes of conduct, and considers that "the fear of customer retaliation is a factor that no business engaging in online transactions can ignore"³⁸⁴.

It can have a similar regulatory and curbing effect in the context of Open Innovation. However, alone it will not be sufficient, and the Guidelines above would be a valuable addition.

2. Other legal issues

A number of other legal problems are likely to arise. These can only be briefly mentioned here, to highlight an important need for further research in these areas.

Cross-border issues and private international law foreseeable challenges and potentially create obstacles to the full blooming of Open Innovation. Private international law – or conflict of laws – can be defined as the area of law which establishes the rules for dealing with cases involving a foreign element (e.g. a contract concluded with a foreign national, governed by a foreign law).³⁸⁵ Globalisation has substantially enhanced the relevance of this area of law.

The Internet triggers significant difficulties in the process of determination of the applicable laws, and of the court with jurisdiction to apply them. The possibility of access to a virtual site from anywhere in the world makes the localisation of, say, the conclusion of a contract or the place of its performance a complex procedure. By blurring geographic boundaries, the Internet undermines the legitimacy of laws based on physical territories.

Even if it is frequent for standard contracts concluded online to include provisions on the applicable law and choice of jurisdiction, private international law also contains a public policy element which potentially disapplies a foreign law in contradiction with its "ordre public". This further complicates matters given the variety of legal systems.

The absence of a level playing field and difference in applicable laws will be sorely felt in Open Innovation. The diversity of consumer protection laws provides a good example of a difficulty which service providers are likely to confront. It is unclear how, with the aim of offering a worldwide service, they can comply with the variable requirements in different states. This is further worsened by the

fact that many consumer protection laws supersede other laws, as a consequence of public policy concerns. This trumps any attempt by service providers to resolve these issues by contract law.

Outside private international law, the absence of a level playing field is also cause for concern among open innovators. Gehan Gunasekara highlights the problem of personal information being increasingly sent to jurisdictions where little or no protection of data exists³⁸⁶. This creates legitimate worries for those accustomed to a high standard of privacy protection.

A case in point is the divergent conceptions of privacy in the EU and the US. Christian Laux attempts to differentiate the perceptions.

According to him, the EU regime rests on notice and consent requirements. In the US, access to the data and its use are possible to the extent that the use is not forbidden. This may be the case if the user expressly restricts access, for example by agreeing to use for a specific purpose, if the company does not comply with requirements set by statutes and lastly if access to the data was unlawful³⁸⁷. This makes the regime remarkably more permissive.

How then can service providers working on global platforms comply with divergent regulations?

Johnson and Post's article about a system of rules in cyberspace³⁸⁸ more than a decade ago prompted intense debate about the need for a unique legal order on the Internet. Though it would significantly simplify problems arising as a consequence of diverse legal systems, it was vigorously opposed by some³⁸⁹, and presents the risk of disregarding differences in legal culture which may need to be accounted for. As Olli Pitkänen highlights, people's needs vary according to culture, political systems³⁹⁰, but also economic contexts and the time frames.

The establishment of guiding principles at an international level with some leeway for implementation at a national level might be an appropriate way of dealing with these problems.

Consumer protection laws have already been mentioned above in relation to the private international law problems they create. With the object of protecting individuals against unfair trade and credit practices in order to support consumer confidence, they may fundamentally need to be reassessed in the context of Open Innovation. Consumers will face new challenges when for example composing their own personalised services. They may also be exposed to new threats which the laws will need to apprehend.

Finally, Open Innovation raises new issues in contract law. Hugenholtz claims that:

"The structure of the Internet facilitates the establishment of a multitude of contractual relationships between information producers and end users, either directly or through intermediaries. (...) Both its "textual" environment and its interactive nature are ideal conditions for contractual culture to grow and flourish". Contract law would thus "fill the legal vacuum of the Internet"³⁹¹.

This does not prevent an array of difficulties arising from the use of the Internet and the structure of web services, all relevant to Open Innovation.

Though existing statutes and case-law deal with interpretation issues in traditional contracts, this is not the case for contracts in electronic form. The particular risks associated with electronic formats makes companies wary of using them, even if by improving technologies, they may be made more secure than conventional contracts. One such risk is the uncertainty of the probative force of an electronic contract.³⁹²

Moreover the increasing use of wireless technologies, which multiply the access points for users through many kinds of wireless devices, makes the identification of the user with whom the contract is concluded extremely challenging. Though there may be existing technological solutions, companies must be prepared to use them.³⁹³



Dr. Endeshaw defends the idea of "network contracts" to tackle the issue of intensive interlinking of various parties from diverse networks to provide goods or services to another party. The interdependence between the functions offered at different layers of the Internet mean that any defect occurring at the base or infrastructure will be felt by activities built upon these. This easily translates in terms of platforms or building blocks upon which service providers construct their service offerings to end-users, in Open Innovation. To address the resulting complexity in contractual relations, he advocates the full recognition of "network contracts" in law. A network contract can be defined as a contract forming part of a set of contracts, with a series of characteristics including the existing of a principal contract setting the overall objective which other contracts strive to attain.³⁹⁵

In addition, though standard form contracts have been common, especially in B2C transactions, they may prove ill-adapted to Open Innovation where personalisation of services will be the driving force. In this case, the terms will have to be adapted to each situation, and the challenge will be in finding a system enabling a series of contracts to be concluded rapidly without foregoing a need to tailor them to each case. Endeshaw foresees flexibility as the way forward and as a means for companies to win over customers and gain consumer confidence.

The interlinking referred to above also blurs the identification of the party bearing responsibility for any shortfall. In any event, tort law will step in where there is no recourse to contract law. It will have an important function in relation to the protection of data and privacy, the prevention of unauthorised access and the use of a safe infrastructure³⁹⁶. Here again the complex structure of web services and by analogy services in Open Innovation increases the number of jurisdictions and remedies the parties can resort to and multiplies the types of claims and the number of potential claimants.³⁹⁷

Conclusion

The increasingly widespread adoption of Open Innovation, and the growing body of literature discussing its benefits and implications, emphasise its significance, and suggest it is rapidly becoming the new mainstream method of innovating.

Open Innovation is perfectly fitted to the idea of free movement of knowledge. Given that the latter is now high on the EU agenda, with talk of the creation of a Fifth Fundamental Freedom at the European Council in March 2008, there is little doubt that Open Innovation promises to be the innovation model of the 21st century.

And yet, legal issues stand in the way of its full development. Open Innovation presents considerable challenges to existing laws, and its catalysing effect on both technology and society - which is eagerly embracing these changes - mean that these problems are not likely to decrease. On the contrary, more legal problems will surface, and continue to do so as long as technology (and society) evolves.

This creates a pressing need for action at both a policy and regulatory level, in order to make the legal framework *positively* supportive of Open Innovation.

Competition law and data protection are branches of law which are constantly being questioned, and they show an awareness of the need to adapt so as to address emerging issues. In both areas, adjustments are nonetheless necessary, and competition law, in particular, requires a certain change of policy.

Something more of an “intellectual climate change”³⁹⁸ is needed in intellectual property. The system was designed in a past era, to support an expired industrial standard. Rather than hindering the full emergence of a new paradigm, intellectual property has a crucial part to play as a fundamental element of a supportive environment, in order to allow the model to flourish. When some of these concerns are voiced at EU policy level, reform becomes even more of an absolute necessity.

The irreversible cultural and technological changes of the past decade signal that the laws will inevitably have to be reformed at some point, and the step should be taken sooner rather than later. Law is inherently reactive, and can only be altered after the changes have taken place. However, as it is frequently said in the current economic context, as much as crises are extremely challenging times, they also open up unprecedented opportunities, particularly for reform. There is no better reason - and no better time - to amend a system that when it has broken down.

This calls for urgent action, as much in intellectual property as in the other areas of law which impede the development of Open Innovation.

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OISPG Open Innovation Strategy and Policy Group

Increasing speed and success with open, participative innovation. Join new mainstream!

Open Innovation Strategy and Policy Group

The Directorate General of Information Society and Media (ICT addressing societal challenges) has established an industrial group supporting innovation policy development for open innovation in services.

The group sees open innovation being crucial for the competitiveness of the European service sector, both for service providers and the related supporting industry.



OISPG Open Innovation Strategy and Policy Group

Increasing speed and success with open, participative innovation. Join new mainstream!

Open Innovation: driver for new innovation

- In the Knowledge economy, *multidisciplinary* is more important
- System products, *scalability*
- New value propositions, business models
- *Value creation* by collaboration
- Societal innovation with *technology innovation*
- Open Innovation Environments (Living Labs)
- Creative Commons to build added value on

The changes in pervasive connectivity and computing are creating a new dichotomy towards open philosophy and values. The movement from top-down and central functions to much more **participative and collaborative culture** is increasingly seen among leading innovators.

This, together with the multidisciplinary required in true innovation suggest that this **connectivity and openness** need to be better captured in the innovation processes.

Open innovation is technologically very much based on new web technologies and open platforms for collaboration, enabling massive user involvement in the service innovation. This should also lead to the establishment of new collaborative culture among the innovation actors, in a strongly parallel way. The modern innovation process is strongly based on **creating the right framework for parallel multidisciplinary interactions.**



Users' roles are rapidly changing. When we take the potential of users as innovators we have not only better hit rate on service innovation, but we can create new competitive, personalized, and scalable services, directly deployable in real world settings. **Many of the companies participating in the OISPG group have concrete experience about the successful new approach to innovation.**



OISPG Objectives

- Recognition of the new innovation paradigm: open user-centric innovation as part of the European Policies
- Recognition of "Service Science" as research area
- Use of the EAR methodology (Experimentation and Application Research) in European research
 - User-centric application research
 - Creation of environments for service innovation
- Putting the right elements together to foster the establishment and development of a European-based Service Industry
 - Open (functional) platforms
 - Reference architecture for services
 - Linking international actors around projects for service innovation
 - Support lead market initiatives in service sectors

The OISPG group can easily be contacted via the European Commission:
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Further information can be found on the OISPG wiki:
<http://oispg.pbwiki.com/>

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