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PhD thesis summary : Innovation and competition law

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Summary : *Innovation and Competition Law offers a substantive analysis of the relationship between competition law and innovation. On the one hand, innovation is a unique process for competition law. The classical view that competition is a contest involving market shares and prices has been turned on its head. In innovative sectors, competition also concerns the new technologies used, the characteristics of new products and therefore innovation, its fruits and the processes that ensue. Yet competition law lacks the tools to understand these phenomena. Assessing the market power of a firm or characterising a restriction to competition then become challenging exercises. The insufficient treatment of innovation in competition law may even lead to it being considered a factor restricting competition, whereas it is a new form of dynamic competition in innovative markets. Competition laws may therefore constitute a barrier to innovation. On the other hand, however, innovation, while unique, is no less fundamental and European competition law must evolve accordingly by adopting a proactive and dynamic approach. First, a proactive approach is required to establish the objective of promoting innovation in addition to the role of "market watchdog". This poses a challenge to the contradiction between competition law and industrial policy. Second, a dynamic approach can be adopted by re-examining its implementing criteria, for example that of consumer welfare, in favour of the scope of consumer choice or even total welfare. A better balance should also be ensured between incentives for innovation and the flow of innovation. Hence the two key points of this study: the singularity of innovation in the eyes of competition law, and the possibility of conceiving competition law as a tool to promote innovation.*

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INTRODUCTION

The paradox of innovation. Petronius recounted the story of a craftsman who one day was granted an audience with the Roman Emperor Tiberius. The man dropped onto the paving below his feet a vase made of a material unknown to the emperor. The object did not shatter but lost its shape slightly. The craftsman picked up the vase and, with the use of a hammer, knocked it back into shape. The emperor then asked him: "Is there another man who knows your material? Think about it." "Nobody!" replied the craftsman, proudly.[1] The emperor then had him decapitated, as "Once this thing becomes known, gold and sand will have the same price for us".[2]

Two lessons can be drawn from this legend.

On the one hand, humankind is averse to innovation. Tiberius seemed to fear losing what he had gained. If a new material could be substituted for gold, and if it spread throughout the city, then gold would lose all its value. Moreover, this new material would make traditional vases more resilient. This aversion to innovation expressed by Tiberius can still be observed today. The role of innovation is a source of concern, for example, where its effects relate to the environment or bioethical issues.

On the other hand, however, our society is characterised by an imperative to innovate. In the economic sphere, this innovation society is reinforced by globalisation, which makes it necessary for humankind to "always do better".[3] This innovation imperative has spread to almost all fields of activity, and the share of innovation-related activities within firms continues to rise.[4]

Competition law is not immune to this contradictory relationship with innovation. The intersection between innovation and competition law has spawned widespread debate. There are three main elements to the discussion. First, innovation is seen both as a determinant and the result of a competitive market. Second, innovation is a source of disruption for competition law. Third, the European Union has made innovation one of its key objectives.

Purpose of the study. This article, and the thesis from which it derives, aims to address the legal tools of competition law – understood as European law on cartels, abuses of dominant position, market concentration and state aid – in the light of this objective of the authorities, with a view to offering a legal, reasoned and nuanced examination of this subject.

The definition of innovation. Innovation is a systemic phenomenon that takes place within an economic environment in which the law has a full role to play. However, it does not yet have a generally accepted legal definition. We therefore adopt the OECD's definition, as laid out in the Oslo Manual: "An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations".

1 Pétrone, *Satyricon*, chap. LI., tr. L. De Langles, *Libretto,* 2017, p. 223.

2 A. Duboin, "Les Romains ont-ils connu l'aluminium ?", *La Revue Scientifique*, no 24, 13 Dec. 1902, p. 752.

3 J. Mestre and L. Merland, Preface, J. Mestre and L. Merland, (eds.), *Droit et innovation,* PUAM, 2013, p. 7.

4 D. Guellec, *Économie de l'innovation*, La Découverte, Repères, 2009, p. 9.

This suggests that there are two key elements that characterise an innovation: a market outcome and a market process.

A market outcome. First, innovation materialises to varying degrees in a product, a process, or a marketing or organisational method. In this sense, innovation is a market outcome. It is polymorphous, determined by the purpose of the result of the innovation. The distinction between product, process, marketing and organisational innovations is based on the purpose of the result of the innovation. A product innovation consists in "the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses".[5] Smartphones and tablets, for example, are product innovations. Process innovations, meanwhile, are "the implementation of a new or significantly improved production or delivery method". Intermediation platforms, which involve the use of a new method to provide a pre-existing service, constitute a process innovation. Marketing innovations introduce a new feature relating to product pricing.[6] Zero- or low-cost pricing is one example of a marketing innovation. Organisational innovations, finally, result from "the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations." This type of innovation mainly concerns staff and workplace organisation. Examples include open-plan office spaces and teleworking.

The distinction between radical innovations and incremental innovations is defined by the intensity of the novelty they provide. While the improvement must be at least significant, the degree of its significance may vary. An innovation is radical when it concerns the emergence of a product or process that did not previously exist and has a significant impact on the market. It is completely novel. This is the case, for example, of the internet (process) or the computer (product). Incremental innovation, meanwhile, consists in an improvement to something pre-existing. It is partially novel. This is the case, for example, of successive improvements to a software program that is already on the market.

A market process. Second, innovation results from the implementation of multiple actions by various actors before it is introduced to the market. In this sense, innovation is a market process. Seen in this light, innovation is an ephemeral, elusive object for a jurist. Digitalisation and the development of networks have considerably amplified these difficulties. Innovation now results from multiple actions and reactions between different stages of production and between different actors. However, the question of what *determines* this process remains to be answered. Considered initially as a force exogenous to the market, for Joseph Schumpeter innovation was the fruit of the "heroic entrepreneur". Evolutionary theory then gave rise to the concept of a "national innovation system". Economists have subsequently looked at the flow, assimilation and combination of knowledge as the building blocks of innovation. Innovation is therefore analysed as a systemic phenomenon that takes place within an economic environment in which the law has a full role to play. In this respect, the law serves several functions: it enables innovation, protects innovation, controls innovation and promotes – or promises – innovation.

[5] OECD, Oslo Manual, 3rd. ed. *op. cit.*, p. 56.

[6] *Ibid.*, p. 58.

The promotion of innovation and European competition law. The study is concerned with the question of the latter function – the promotion of innovation. Such an approach is possible because competition law positions itself *for* a project. Since the Treaty of Rome, competition rules have been seen as a means to serve the purposes of the European Community. Competition law fits within a broader policy of market integration, with a view to creating a single European market. This instrumental role of competition law is modern. Hence European law can be viewed as constructivist: its purpose is not only to sanction restrictions to competition but also to *improve* the functioning of markets. It must therefore be viewed as an active tool in the pursuit of political and economic objectives.

To this end, the methodology is to pursue a "substantive analysis" of economic law, defined by Gerard Farjat as an analysis, description or critique of institutions, legal concepts or facts based on the assumptions made by the law.[7] In practical terms, the objective is to "compare the formal legal categories alongside the facts to test their compatibility and coherence".[8] This substantive analysis encourages the jurist to re-examine the law and confront it with innovation, incorporating both economic and legal concepts on their own terms and merits.

An in-depth study of the relationship between competition law and the promotion of innovation poses numerous challenges. A first challenge is the singularity of innovation for competition law. Because it is a dynamic process, the result of which is unpredictable, innovation can break the preconceptions of competition law. Innovation is therefore a singularity for competition law (part one). But while it is unique, innovation is no less fundamental for European competition law. However, it will belong within the paradigm of competition only if competition law itself innovates and evolves by adopting a proactive and dynamic approach to promote it (part two).

I. INNOVATION: A UNIQUE OBJECT FOR COMPETITION LAW

1. The singularity of innovation in the assessment of market power

The characterisation of the relevant market is first step in any analysis of competition. It is in reference to this relevant market that a firm's market shares will be attributed and calculated, determining the extent of its market power. Yet innovation is alien to the notion of market, which presupposes the existence of a product and an intersection between supply and demand for this product.

The notion of substitutability thus fails to provide a satisfactory lens through which to consider and understand innovation. Its definition fails to capture the specificities associated with new products and the diversity of situations. Static analysis, which is based on a point-in-time snapshot of the market, offers no place for innovation, which is a process and not a stationary state. This shortcoming is all the more significant as the methods for assessing this substitutability are subject to caution. While a use-based analysis may seem the most appropriate, it

[7] G. Farjat, "L'importance d'une analyse substantielle en droit économique", *RIDE*, 1986, no 0, p. 9.

[8] J.-B. Racine and F. Siiriainen, "Retour sur l'analyse substantielle en droit économique", *RIDE*, 2007/3, t. XXI, no 3, p. 263.

avoids a number of issues that are related more to the functioning of the market than the characteristics of the products or services sold in it.

The particularities of multi-sided markets. These limitations are particularly acute when the definition of the relevant market involves multi-sided markets. Their characteristics wreak havoc with the use of a relevant market, as they require a redefinition of its delineation. Broadly speaking, applying the SSNIP test ("small but significant and non-transitory increase in price") to multi-sided markets would lead to major errors by overestimating or underestimating the size of the market.[9] Developments proposed in the study make it possible to draw an outline of the general principles that should be applied to the platform economy: for example, the analysis should examine how feedback effects play out between demand on one side of the market that affects competition on the other side. Overlooking these effects would constitute a fundamental mistake.

The myth of the innovation market. But beyond the specific case of the platform economy, part of the North American doctrine suggests reference to an "innovation market". But because innovation is a non-linear and evolving process, it would be illusory to want to delineate a market for it. In our opinion, this is an overly artificial notion based on an excessively hypothetical analysis. Moreover, the European Commission has not validated the American approach. It has adopted a cautious approach, carefully avoiding the use of the term "innovation market". Given the importance of the relevant market in positive law, such an assessment is justified but will not be sufficient. Indeed, the impossibility of grasping the characteristics of innovation at the relevant market definition stage may seriously limit the ability of competition law to address concerns related to innovation.

Typology of innovative markets. It therefore makes sense to opt for a typology of "innovative" markets, which, to varying degrees, share common characteristics. This proposed typology, which draws on positive law, depends not only on the nature of the product in question, but also on the nature of the activity of the firm in question. The law must then delineate several relevant markets. The first is the market for existing products. The second is the market for technologies. The third is the market for research and development, which will make it possible to identify – where the data allows – the market for future innovative products.

First, this will make it possible to assess a firm's market power by taking into account not only the products and services that it sells, but also its imminent entry to a market. Ultimately, potential competition from other innovative firms will be better integrated into the analysis. Second, market power will be measured with an eye to the technologies being developed. This analysis could be performed in the pharmaceutical sector, for example. Given the time required for research and regulation, it would be possible to identify upstream the drugs that will be marketed in the near future.

The difficulty in assessing market power. Assessing market power poses new challenges. The first challenge lies in the lack

[9] For example D.S. Evans and M.D. Noel, "The Analysis of Mergers that Involve Multi-Sided Platform Businesses", *J. of Competition Law & Economics,* 2008 vol. 4, iss. 3, p. 670. The same observations are confirmed by D.S. Evans and R. Schmalensee, "The Antitrust Analysis of Multi-Sided Platform Businesses", *Coase-Sandor Institute for Law & Economics,* Working Paper no 623, *University of Chicago*, 2012.

of consensus in the economic literature regarding the actual harm produced by market power. The two historical theories, represented on either side by Schumpeter and Kenneth Arrow, contradict each other in many respects. The broad-brush economic conclusions are as follows: for Schumpeter, the links between market power and innovation are positive, due to access to finance and the presence of a creative destruction process. Here, market power is seen as a reward that stimulates innovation and should be subject to relatively lax oversight by the authorities. For Arrow, meanwhile, replacement effect theory suggests that competition "disciplines" firms in the innovation process by exerting a competitive pressure that incentivises innovation. But these two theories can lead an overly rigid application of competition law, either too lax or too harsh. The same criticism does not apply to new industrial economics, which adopts a very measured approach to the bonds between competition and innovation through the inverted-U hypothesis.

But it is not exempt from criticism. Instead, the ideological opposition of economists has been superseded by an extreme complexity for the jurists tasked with applying competition law. To be sure, this merely reflects the complex reality to which the jurist must be able to adapt. But the assessment of market power in innovative markets must not be made impossible.

And here there are many questions, because the cross-cutting criteria that enable market power to be measured – market shares and turnover thresholds – are beset by several limitations where innovation is concerned.

The insufficient criterion of market shares and market contestability. First, market shares can be highly volatile, so any fixed analysis can quickly become obsolete. Second, the market power enjoyed by a firm can become non-contestable in innovative markets. In light of this, we suggest distinguishing two types of market power: super-dominance and hyper-dominance.

Under a first scenario, a firm enjoys high market power in a market. It is then in a situation of *super*-dominance. Here, the addition of the prefix *super* refers to a quantitative superiority. For example, Microsoft, which holds a 90% share of the market for operating systems, is in a situation of *super*-dominance. Regarding the *Post Denmark* ruling in the context of incumbent monopolies, it was this variable degree of a firm's market power to which the judge referred.[10] The Court considered that the correlation between the degree of dominance and the classification of abuse should be "taken into account".[11]

Under a second scenario, a firm's dominant position is not in one market alone but results from its integration – vertical or horizontal – which classifies the firm as "hegemonic". Here one can speak of *hyper*-dominance, the prefix *hyper* describing a superiority that is both quantitative and across several markets or industries. For example, Google, which is *super*-dominant in the online search market, also enjoys market power in online advertising and is expanding its economic influence to other sectors such as operating systems, web applications and robotics. In this case, it is also *hyper*-dominant. This specific scenario concerns in particular

[10] CJEU, 27 March 2012, C-209/10, *Post Danmark*.

[11] Ibid. pt 23.

markets dominated by the GAFAM tech giants (Google, Amazon, Facebook, Apple, Microsoft). This proposal would allow analyses to factor in the contestability or non-contestability of a dominant position. In doing so, it refers to the general theoretical framework of contestable markets.

The study proposes awarding a greater role to "contestable market theory", which introduces whether a market can be entered and exited into the assessment of market power. Market shares are then no longer the sole parameter of market power. The difficulties faced by current or potential competitors in penetrating the market must be added to the discussion. Such difficulties can be a sign of market power. Conversely, market power may be less problematic, despite a high market share, in the case of low entry costs for a potential competitor. The assessment of market contestability must therefore take into account firms that are not yet present in the market in question, but which could enter this market in the medium term.

The insufficient criterion of turnover thresholds and transaction values. Turnover thresholds prove to be problematic when it comes the control of mergers. A merger is subject to approval in particular when the individual firms in question exceed a certain turnover threshold. This turnover threshold places the acquisition of small innovative firms by firms with substantial market power outside the scope of competition law. However, such an acquisition may *de facto* exclude a potential competitor or prevent the deployment of innovations in the market. For example, Facebook's acquisition of WhatsApp did not breach the thresholds in force, although at €17.5 billion, the value of the transaction did attract attention. This study therefore proposes supplementing the analysis of turnover thresholds with thresholds based on transaction value. This possibility, already permitted under North American law and German law, would make it possible to control mergers that could result in the exclusion of an innovative competitor.

2. The singularity of innovation in the assessment of restriction to competition

The distinction between standards and rules. Beyond the conditions determining market power, in order to be sanctioned it must give rise to anticompetitive effects. On this point, the singularity of innovation is once again evident. To understand restriction in the context of competition law, it has been proposed to go beyond the strict delineation according to types of practice. The distinction between standards and rules is based more on the content of the rule and its normative specification. It makes it possible to address competition law with a relative unity. It is mainly according to their formulation that these standards are distinguished, and not according to the practice they target. First, there are broad standards of application, or what is referred to as the *standard-based approach*. This subjective formulation of rules of conduct coexists with a more precise set of standards that form the economic approach to competition law (or *rule-based approach*). For example, the concept of competition on the merits constitutes a standard. The as-efficient competitor test, meanwhile, is a rule. In some cases, the standard also serves to support the formulation of a rule which may be deployed in an economic test.

The choice between rule and standard can have consequences for the understanding of innovation. Standards, which are soft and malleable, also have a broad and subjective substance that can lead to uncertainty. Faced with these difficulties, these standards of application have gradually creeped towards a formal approach that is not suitable if the aim is to fully understand the behaviour of operators in innovative markets.

The example of competition on the merits, an ambiguous standard. In addition to the different standards for analysing the relationship between intellectual property rights and competition law, that of competition on the merits is ambiguous. First, the very wording of the notion can refer directly to innovation. Competing on the merits also amounts to competing via innovation and intellectual property rights. The acquisition of an intellectual property right is the deserved reward for an innovative activity. Second, the lack of a precise definition of this legal concept gives it a certain malleability, making it quite capable of receiving the issues related to innovative markets. For example, competition on the merits implies, first, recognition of the legality of powers of exclusion. Article 102 TFEU does not prohibit a firm from acquiring market power on its own merits, and the recognition of the existence of such power does not in itself constitute a reproach of the firm in question.[12] The Commission itself has reiterated this case law by reminding in the guidelines on exclusionary practices that it is not illegal in itself for a firm to occupy a dominant position and that this dominant firm is able to compete on its merits. Competition on the merits therefore corresponds to neither pure and perfect competition nor the protection of competitors, and it allows competition law to fully comprehend the Schumpeterian dimension of innovation: creative destruction.

In some cases, however, this legal notion is more ambiguous than it seems. While it makes it possible to go beyond a structural analysis of competition, its subjectivity may have led the European Commission to sanction practices according to overly formal criteria that do not allow all the specificities of innovative markets to be taken into account. For example, practices that tend to raise barriers in a market can be difficult to identify and are hard to distinguish from competitive behaviour that, while vigorous, does not fall within the scope of anticompetitive practice. Thus, the "object-based" approach of intellectual property rights agreements is, in our view, excessive. It is not certain that this classification is relevant for pay-for-delay agreements. Rather than a case of market sharing, is this not a "negotiated impediment to market entry" by enforcing an intellectual property right that, in essence, excludes competitors? It is not appropriate, however, to assume that they are, in themselves, pro-competition, but it does appear to us to be questionable, or even contradictory with the conclusions of the Commission's report, to assimilate an intellectual property right agreement to a restriction by object. Regardless of the "apparent" anticompetitive potential of such an agreement, an in-depth analysis is called for.

The economic test approach and the complexity of innovation. On the other hand, however, when the effects-based

[12] CJEC, 17 Feb. 2011, case C-52/09, *TeliaSonera Sverige AB,* pt 24; CJEU, 16 Mar. 2000, C-395/96 P and C-396/96, *Compagnie maritime belge transports,* pt 37; CJEU, 9 Nov. 1983, *Nederlandsche Banden-Industrie-Michelin c/ Comm,* case 322/81.

approach is applied, economic tests prove to have shortcomings. Here, competition law is confronted not with its own rigidity, but with the complexity of the analysis of innovative markets. Thus, anticompetitive conduct may be conditional on the demonstration of a profit-seeking strategy based on the exclusion of competitors. This would amount to sanctioning behaviours that result in a short-term loss of profit for the firm that implements them. *A priori*, there would therefore be no reason for a firm not to maximise its profits. However, it may be in a firm's interest to bear losses temporarily with a view to future profits, regardless of the exclusion of a competitor.

This is the case, for example, of investments in research and development for innovations that are likely to eventually be protected by an intellectual property right.

The example of data-driven price discrimination. This is also the case of economic models that are based not on short-term profit but on users' data. This "zero price" economy may entail a monetary price equal to zero, but it does not entail the absence of a counterparty. The price of the service offered to customers present on one side of the market is in fact charged to customers present on the other side of the market. One such notable example is online advertising. The firm provides a free service to an end-user but generates income in the advertising market that targets that user. Here, the business models of multi-sided markets and so-called "freemium" models have been the subject of in-depth analysis based on a case study. These cases have brought to light new forms of discrimination. For example, regarding price discrimination, the price adjustment variable may be based on users' data. This is, for example, Google's business model for online advertising. Google's algorithm enables it to anticipate in advance the probability that a particular advertisement will generate a click. The aim of Google – whose remuneration is based on the number of clicks – is to make sure that the most relevant advertisements (those with higher click rates) earn a higher placement in search results. Google has set up a specific system for this purpose in the AdWords platform. It allows companies to place an advertisement that links to their own website when a user performs the corresponding search. The price of this place in the search results is determined by the combination of two factors: first, an auction system and, second, the *quality score* of the firm in question. But the amount that Google charges for ad links is calculated on the basis of an auction, in addition to which Google carries out an adjustment to the placement based on the quality score that results directly from the relevance search algorithm (PageRank). Advertisers with lower quality scores are required to pay a higher price per click to gain higher positions than advertisers with higher quality scores. Because advertisers pay Google only if a user clicks on the advertisement displayed, Google always wins.

The ambiguous effects of price discrimination. Data has therefore become a medium for price discrimination.[13] However, as the French and German competition authorities have reported, the effects of this discrimination can be ambiguous. On the one hand, it can lead some consumers to pay a higher price for a given good or service than they would have paid in the absence of discrimination. Also,

[13] *Autorité de la concurrence* and *Bundeskartellamt*, Droit de la concurrence et données, 10 May 2016, p. 23. See also N. Newman, "The Costs of Lost Privacy: Consumer Harm and Rising Economic Inequality in the Age of Google", William Mitchell L. Rev., vol. 40. iss. 2, 2014, pp. 850-889.

some observers consider that any situation in which a group of consumers unknowingly pays a different price for the same product is a clear sign of market failure that calls for intervention. On the other hand, however, other consumers enjoy more attractive prices. Digital data-based price discrimination can therefore improve total welfare– the sum of producer and consumer surpluses – by increasing the number of transactions. For example, the OECD reports that where price discrimination increases profits, it can also create an incentive for firms to engage in activities that will help them retain the ability to make those profits. This may improve dynamic efficiency by encouraging competition in investment in innovation and by reducing costs. This possibility inevitably points to the need to take dynamic competition into account.

In addition to price discrimination, the thesis also examines non-price discrimination, drawing on the case of Google Shopping, which, at the time of writing, had not yet been made public. It was, however, able to highlight the exclusionary effect of the contentious behaviour and offered an analysis of it.

The impossible defence based on innovation. But competition law remains, in some respects, too confined to a static approach to competition. The primary example of this is the impossibility of mounting a legal defence on the basis of dynamic efficiency gains. From a theoretical viewpoint, it is certainly possible to invoke them. But their reception in legal disputes remains marginal. The degree to which they materialise in markets is subject to too much uncertainty, and the standard of proof is still too demanding to take into account gains whose very nature makes their existence probable but never certain. However, there are potential avenues for action. The first is to offer firms the possibility of providing arguments (and not proof), which would make it possible to insert dynamic efficiency gains more effectively within competition law. The second avenue, longer term, would reinforce the Commission's scientific arsenal in this area thanks to *ex post* audits.

Conclusion of part one. Competition rules do not allow for the positive effects of certain innovative business models to be taken into account. Also, innovation is an undeniably unique phenomenon for competition law. But the demonstration of such imperfections should not cast doubt on whether competition law should intervene in such innovate markets. For competition law to fully comprehend innovation, it must evolve. And because competition law is teleological, its objectives must also evolve.

II. COMPETITION LAW: A TOOL TO PROMOTE INNOVATION

1. The necessary recognition of dynamic competition

The objective to promote innovation is insufficiently integrated into European law. It was necessary to assess the possibility of lifting innovation to the status of an objective of European competition law and to propose avenues for discussion to enable the law to operate in the context of innovative markets. The reconciliation of competition law and innovation seems possible. Competition law can become a proactive tool by becoming part of innovation policy. But first, it was necessary to clearly distinguish the notions of competition policy, industrial policy and regulation. Here, economic analysis has long viewed competition law as a tool to neutralise public intervention in the economy. And, at the European level, innovation policy, just like other industrial policies, is described as a "free rider",[14] because it is not a European Union objective in its own right.[15] However, in the context of the Europe 2020 Strategy, the EU has set clear objectives in terms of innovation. It wants "smart, sustainable and inclusive growth".[16] While innovation has become a priority and long-range objective within the EU, it appears only indirectly in the provisions of the Treaties, and in particular in the context of the competitiveness of industry (Article 173 TFEU). As for the implementation of competition law, the study shows that from the perspective of industrial policy, it is not taken into consideration by the European Commission.

Article 101 TFEU and the strict interpretation of paragraph 3. Initially, the Commission's decision-making practice showed that it could incorporate into its decisions exemptions from considerations beyond the strict control of the competitive process. As such, agreements meeting the conditions of Article 101(1) could be exempted on the basis of environmental effects,[17] safeguarding employment,[18] or preserving media pluralism.[19] But after the elimination of the notification procedure, the influence of the Commission's decision-making practice declined. It is therefore mainly in the guidelines on the assessment of Article 101(3) that elements of industrial policy are found. And here the European Commission adopts a "conservative" interpretation. Indeed, the guidelines state that paragraph 3 applies to all agreements that meet the four conditions set out in paragraph 1. The same guidelines also require a quantification of the economic benefits – proof which seems very difficult to provide when the agreement is justified on industrial policy grounds. It then seems impossible to exempt an anticompetitive agreement on the grounds that it would meet the objectives of an industrial policy. This is especially the case as we know that exceptions are interpreted strictly.[20] Thus, industrial policy, which includes innovation policy, is not in itself sufficient to exempt an agreement.

Article 102 TFEU, or the lack of flexibility regarding large European firms. At first sight, Article 102 TFEU is not a tool for industrial policy either. Some believe that it is the "particular responsibility" imposed on firms in a dominant position, whether they are foreign or European, that may appear to run counter to industrial policies. Dominant firms may be regarded as national or European champions. In this sense, the Commission could display flexibility towards European firms in a dominant position on the basis of efficiency gains. In practice, however, the European Commission does not seem to be more

[14] See in particular G. Decocq, "Free rider ou le passager clandestin", *RLC,* 2011, no 66, pp. 56-57; B. Coriat, "Entre politique de la concurrence et politique commerciale : Quelle politique industrielle pour l'Union européenne ?" in J-H Lorenzi and E. Cohen*, Politiques industrielles pour l'Europe*, CAE report, La Documentation française, Paris, 2000*,* p. 309.

[15] N. Rubio, "Innovation et Union européenne, les prémisses d'une politique intelligente", in J. Mestre and L. Merland, (eds.), *Droit et innovation,* PUAM, 2013, p. 31.

[16] C. Prieto, "L'Union européenne de l'innovation", *RTD eur.* 2011, p. 513.

[17] Comm. CE, 8 Dec. 1983, IV/29.955, *Carbon Gas technologie*.

[18] CJEC, 11 Jul. 1985, C-42/84, *Remia v Commission.*

[19] CJEC, 17 Jan. 1984*,* C- 43/82 and 63/82, *VBBB/VBVB.*

[20] Notably TPICE, 1 Jul. 2008, *Compagnie maritime belge SA v Commission*, T276-04, pt 48.

flexible regarding "European" champions. Since 2004, the main operators sanctioned have been the major operators in network industries, which are not far from corresponding to the notion of incumbent operators and therefore the notion of national or European champions.

The control of mergers and the dismissal of industrial policy concerns. The 1989 regulation on mergers contained no reference to industrial policy. However, its preamble did state that the Commission should place its appraisal within the general framework of achieving the fundamental objectives referred to in Article 2 of the Treaty, including the strengthening of the economic and social cohesion of the community, referred to in Article 130A of the Treaty.[21] Mergers are therefore to be welcomed "to the extent that they are in line with the requirements of dynamic competition and capable of increasing the competitiveness of European industry". But the Court refused to place a normative value on the recitals in the preamble,[22] which confirmed the impossibility of marrying industrial policy with the application of merger control. Furthermore, the Council has refused to include the notion of public interest in the regulations. The 2004 guidelines may have given the impression of progress in this area with the introduction of the "efficiency defence". But the effects in terms of industrial policy have been scaled down. The only possibility for an anticompetitive merger to be permitted relies on gains that produce pro-competitive effects, provided they are passed on to consumers, even though consumers are seldom targeted directly within the framework of innovation policy objectives. The emphasis is, moreover, very clear on the need for there to be no barrier to competition, since the efficiency gains generated by the merger must be able to increase "the ability and incentive of the merged entity to act pro-competitively for the benefit of consumers, thereby counteracting the adverse effects on competition which the merger might otherwise have".[23]

A desirable reconciliation. Yet the evolution of both competition law and industrial policies shows that a convergence of the two paradigms is both possible and necessary. The general theoretical framework of this study no longer assumes the existence of a blatant contradiction between these two forms of public intervention. The renewal of innovation policies – the new avatar of industrial policy – has led to horizontal competitiveness policies, far from the image of a French-style Colbertist industrial policy. Indeed, the two paradigms are converging, mainly thanks to economic research on market failure. It can now be considered that competition policy and innovation policy are complementary in the effects that each produces. The solution therefore lies in reconciling the two approaches, which contain numerous similarities, ultimately with a view to a "dynamic reconfiguration of the different policies".[24]

A more dynamic and less static notion of competition. Assigning an active innovation promotion role to European

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[21] Reg. EC of 21 December 1989 on the control of concentrations between undertakings, *OJ* L 257/90 P 13, pt 13.
[22] CJEC, 31 March 1998, C-68/94 and C-30/95, *French Republic and Société Commerciale des Potasses et de l'Azote and Entreprise Minière et Chimique versus the Commission*, pts 176 and 177.
[23] Comm. EC, Guidelines on the application of Article 81(3) of the Treaty, *OJ* C 101, 27 Apr. 2004, pt 77.
[24] B. Coriat, "Entre politique de la concurrence et politique commerciale : quelle politique industrielle pour l'Union européenne ?" in J-H Lorenzi and E. Cohen, op. cit., p. 318.

competition law would require the competition authorities to adopt in their analyses a longer-term and more dynamic view of competition. This is necessary, because the simultaneous search for static and dynamic efficiencies can be conflicting. It is not always possible to achieve all types of efficiency gains at the same time and, faced with this "dilemma", competition law may be forced to arbitrate. The reason is relatively intuitive: to support their costly innovation efforts – and therefore dynamic efficiency – firms need the prospect of significant profits and hope to achieve prices that are higher than the equilibrium price. There is therefore a period of "incumbency"[25] during which consumers will have to pay a higher price. Supporting innovation efforts may therefore amount to supporting *supra*-competitive pricing.[26] Similarly, if a merger creates market power in innovation-driven sectors, it may allow firms involved in the merger to gather complementary skills and assets and avoid overlapping R&D investments, which, in the long term, will give rise to innovative products.

***Ex ante* and *ex post* competition**. Dynamic competition must factor in the entire innovation process, including *ex ante* and *ex post* competition. The feedback loops of the innovation process lead to a constant back-and-forth between pre-innovation competition and post-innovation competition. Herein lies a paradox: increased competition *ex post* may reduce incentives *ex ante*. Schematically, increased competition after the commercialisation of an innovation – made possible by its diffusion – can prevent firms from commencing their own innovative activities. For example, one of the functions of intellectual property rights is to reduce competition *ex post* in order to create *ex ante* incentives for firms to invest in innovative projects. In order to incorporate these two timeframes into the analysis, competition law must adopt a dynamic approach to competition. On this topic, a study of state aid rules has been undertaken. The promotion of innovation is indeed stated as an objective, and the exemption allows for a subtle incentive game centred on innovation-specific market failure.

A limitation has nevertheless been identified. State aid exemptions for R&D and innovation adhere to the principle that the more "integrated" and closer to the market the research, the less state aid will be permitted. The legislation defines three categories of aid: fundamental research, industrial research and experimental research. The different stages of research are complementary and interdependent. Because in order for innovations to enter the market and be disseminated via the economic channel, investment in experimental and industrial research must be equivalent. Thus, the legislation on state aid for R&D must treat the different stages of research equally without favouring precompetitive fundamental research. This may constitute a "real limit to the development of European innovation"[27] and contribute to prolonging the "European innovation paradox".

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[25] A. Tepperman and M. Sanderson, "Innovation and Dynamic Efficiencies in Merger Review", *Canada Competition Bureau*, 2007, p. 6; Dr I. Lianos and R.C. Dreyfuss, "New Challenges in the Intersection of Intellectual Property Rights with Competition Law", *Centre for Law, Economics and Society CLES*, UCL, Working Paper Series 4/2013, Apr. 2013, p. 34.

[26] J.D. Wright, "Antitrust, Multi-Dimensional Competition, and Innovation: Do We Have an Antitrust-Relevant Theory of Competition Now ?", in *Regulating Innovation: Competition Policy and Patent Law under Uncertainty*, 2009, Geoffrey A. Manne and Joshua D. Wright, eds., George Mason University Law and Economics, pp. 9-44.

[27] J.-H. Lorenzi and E. Cohen, *Politiques industrielles pour l'Europe*, CAE report, La Documentation française, Paris, 2000, pp. 137-138.

Discussion on the notion of "consumer welfare". Consumer welfare must also be redefined. The European Commission analyses the effects of a practice on a market in the light of this criterion. A practice is anticompetitive when it drives up prices and therefore prejudices the consumer. However, such a criterion is imperfect because it is based on an overly static notion of competition.

On this issue, the North American doctrine acknowledges that competition law should be reoriented towards an "overall welfare" objective that takes into account the interests of consumers and producers. But this criterion is vague and overly controversial. The Court of Justice having explicitly ruled it out, a more conciliatory criterion had to be found. The "consumer choice" criterion, which takes into account the diversity of products offered, seems more appropriate in this respect. It is more in keeping with stimulating innovation, because it incorporates factors other than mere price competition. It factors into the analysis the degree of freedom available to consumers to approach one or more suppliers or partners other than the firm in question. For example, refusal to contract with a firm may lead to a competitor being excluded from the market, which may prevent the emergence of innovative products and therefore reduce consumers' freedom of choice. It offers a way around static competition. In this sense, it should be acknowledged that while the consumer choice criterion is not perfectly dynamic, it is "less static".

Examples of dynamic implementation: interoperability and the "innovation commons". The fact remains that competition law must still be able to implement this new objective of stimulating innovation. This approach arises, sparsely, when it is confronted with very specific issues. For example, competition law seems to offer a balanced response to interoperability requirements in innovative markets and to standard-setting agreements and technology pooling agreements, which lead to the shared use of technologies.

Regarding interoperability, competition law has taken stock of this imperative. The notorious Microsoft case is one example among others. The circumstantial application of the doctrine of essential facilities for interoperability seems appropriate. In this case, competition law adapts to certain imperatives of the innovation economy, such as the network economy and cumulative innovation. We believe this possibility is consistent if competition law intends to play an active role within the framework of dynamic competition. In such a case, the violation of intellectual property rights and of the incentive to innovate – which raises the majority of objections – is measured.

Regarding cooperation agreements, the study discusses the phenomenon of "innovation commons" and "anti-commons". Innovative markets, for instance, face the phenomenon of technology fragmentation. For example, a smartphone consists of a mobile system, comprising the materials (case, screen), operating hardware (card, semiconductors), operating software, application software (slide-to-unlock technology, the ability to view emails without submitting a server request, autocomplete typing when drafting text messages and the gamut of features not directly visible to the user), a network and standards. These system goods require the combination of a very broad range of technologies, protected by intellectual property rights whose owners are often different – and possibly competing –

firms and may even belong to several different industries. To meet this challenge, economic operators have set up innovation commons, sometimes at the behest of the authorities, the most traditional of which – standard-setting agreements and technology pooling agreements – are subject to specific treatment under competition law. Competition law has been able to welcome this type of agreement and a detailed analysis of the existing rules shows that the balance between the incentive to innovate and the diffusion of innovation, in the context of standard-setting, is ensured.

The example of standard-setting and FRAND licences. But limitations reappear when economic operators take advantage of the standard-setting process. First, patent holders assert their intellectual property rights by asking judges to grant injunctions to prevent the sale of competing products even though they had agreed to a FRAND commitment. Second, competitors defend themselves with counterclaims (as in the case of Apple in response to Samsung's lawsuit) or file claims of abuse of dominant position with the competition authorities. Against this backdrop, it was imperative that competition law grasp the notion of FRAND commitments. After the Motorola and Samsung cases, the Huawei case clarified the conditions for such abuse of a dominant position. In this case, the Court of Justice achieved a good balance between the incentive to innovate and the diffusion of innovation by granting innovative companies a sphere of competitive immunity.

Exploitation of standard-setting and patent ambush. But the treatment by competition law of this type of commitment is not without limits. For example, there are ambiguities in the legal grounds for this practice. Can Article 101 TFEU be invoked when the heart of the dispute resides in the lack of mutual agreement? As for Article 102 TFEU, its application requires the upstream classification of a dominant position. Yet it is well known that ownership of a standard-essential patent, even if it is part of a standard, does not in itself presuppose market power. Moreover, if the rights-holder hides its intellectual property rights during standard-setting so that its technologies are inserted in the standard, it is precisely because it is not in a dominant position. It is not in a position to "behave to an appreciable extent independently of its competitors, of its customers and ultimately of its consumers", according to the classic formula, at least at the time when it intends to conceal its rights. This is the contradiction that the Commission failed to avoid in the *Rambus*[28] case, acknowledging the dominant position of the firm Rambus in the first instance and then basing its argument on the existence of numerous alternative technologies and concluding that users would probably have rejected *Rambus*' technology had they been aware of the firm's rights. There were therefore, necessarily, alternative technologies of the same quality, eliminating the possibility of a dominant position. So is it not the *acquisition* of the dominant position that is abusive and not its mere *exploitation*?

However, the scenario of sanctioning an abusive acquisition of a dominant position, applicable to standard-essential patents and standard-setting and more generally to the *innovation commons* paradigm, would not be able to be applied without a precise delineation of its scope. It should not distort "competition for the standard", which is also an incentive for innovation. Further,

[28] Comm. EU, 9 Dec. 2009, COMP/38.636, *Rambus*.

this scenario could also rest on the combination of several criteria and on the negative effects of acquiring such a dominant position, thanks to the addition of a more subjective criterion, namely bad faith, as was observed in the *Huawei* case.[29] We could, for example, propose the following three cumulative criteria: 1) the acquisition of a dominant position in the market for the standard; 2) making it possible to influence the royalty negotiation process or to impose a price; 3) in the presence of bad faith on the part of the potential licensee.

2. The renewal of competition law

A substantive and methodological renewal. Despite these limitations, this dynamic approach to standard-setting agreements and interoperability is welcome. But some problems are stubborn, and promoting innovation through competition law requires a renewal of competition rules. Two types of renewal can be considered: substantive renewal and methodological renewal.

Substantive renewal: the proposed use of baseball arbitration. By forcing access to innovation or by imposing so-called FRAND licences, the licence royalty negotiation process can be prevented. However, the amount of such royalties is vital to the incentive to innovate, since it constitutes the reward sought in return for the risk and investment made by a firm. In this respect, in the study we proposed not to set prices – as this is not the role of the competition authorities – but to use, where strictly necessary, a price-setting *methodology*. As stated above, dynamic competition involves seeking a balance between two factors that stimulate innovation: access to innovation and the incentive to innovate. By confining itself to the sharing of innovation, the intervention of competition law can be unbalanced because it then ignores the remuneration of innovation. This may reduce the incentive to innovate. The thesis justifies, for example, the use of "baseball arbitration" ("final offer arbitration", also known as "pendulum arbitration"*)*. This term refers to an arbitration between two final and non-revocable offers submitted to an arbitrator, which has to choose the most appropriate offer without being able to modify its content. According to game theory, both prices should tend towards the most reasonable price. This method may avoid an excessive number of disputes as well as the difficult task of determining the amount of a reasonable royalty. But this proposal is not intended to replace private negotiation between firms. Rather, it is a subsidiary methodology in the event of failure to negotiate royalties.

Substantive renewal: the restriction *to innovate*. The creation of specific tests to assess restrictions to innovation would allow competition law to grasp its objective of promoting innovation. The first test proposed is attractive due to its malleability. It could constitute a general test applicable to all competition law. It would open the door to sharing the burden of proof between the Commission and the firms. The second test is more complex, but also more comprehensive. It offers more information on the different factors stimulating innovation and permits a highly detailed approach. To be sure, collecting the data needed to implement it may prove costly, but it is a necessary condition to broaden the scope of competition law to this area.

[29] CJEU, 16 Jul. 2015, C-170/13, *Huawei Technologies Co. Ltd / ZTE Corp., ZTE Deutschland GmbH.*

From this viewpoint, the competitive analysis of a practice in an innovative market will have to include three elements: the different types of innovation; the greater or lesser importance of cumulative innovation; and, last, the competitive characteristics of the market. Each element of this analysis will shed more light on the determinants of innovation in the market in question and facilitate a detailed analysis of the barriers to market entry. This test will make it possible to sanction behaviours that harm not competition but rather innovation and, ultimately, consumer choice.

A double methodological renewal. However, the implementation costs and complexity of the analysis of restriction to innovation are unavoidable. Also, to alleviate the challenges related to a substantive renewal of competition law, it has been shown that competition law has succeeded in renewing its methods of application. The law now intervenes increasingly *a priori*, not to *sanction* restrictions to innovation but to *prevent* them, either indirectly, through exemption regulations or, more directly, through the commitment procedure set out in Article 9 of Regulation 1/2003.

Methodological renewal: commitments. The first solution consists in adopting a negotiated approach with firms. The commitments procedure, by which firms offer commitments to the Commission to ensure the compatibility of the proposed merger or the legality of a practice, is revealing. The balance between the incentive to innovate and the flow of innovation is then reached in agreement with firms. The commitment procedure allows competition law to negotiate behavioural or structural commitments with firms that enable balanced solutions to be reached, from the viewpoint of both the European Commission and the undersigning firms. These commitments offer the advantage of malleability and lend themselves to competitive situations related to innovative markets, such as the presence of short innovation cycles and barriers to entry, exit or expansion in the market (intellectual property rights, standard-essential patents, investments in R&D, etc.). This makes it possible to circumvent a number of difficulties specific to this type of market.

Methodological renewal: soft law and the publication of external acts. On methods, the study also initiated discussion on the renewal of the sources of competition law. The increased presence of informal publications by the Commission and *soft law* reflect this willingness to intervene upstream to prevent restrictions to innovation. Competition law promotes innovation when the law exercises a role that is more incentivising than punitive. In this light, the European Commission exerts an undeniable influence when it publishes non-binding acts, in which case it "regulates by publication".

The European Commission faces two main constraints in innovative sectors: first, it has limited administrative resources to deal with the complexity of the analyses it must undertake to detect (and sanction) practices that are harmful to innovation. Second, it is required to remedy competition restrictions within a limited timeframe. This need is increased by the fact that innovative markets are constantly evolving. *Soft law* instruments and external acts offer firms general indications in a short timeframe. They encourage firms to voluntarily comply with the competition rules, ultimately reducing the number of disputes while ensuring compliance with the rules. Indeed, such acts are designed to accurately reflect the

Commission's practice and legal interpretations, providing an overview of the decision-making process and the content of its appraisals.

However, this application of competition law should also be kept in perspective, as it may also be harmful to competition. This is because competition law is exposed to the risk of going beyond its role as market watchdog, which could amount to regulating firms. In this respect, the danger of *overfixing* remains, since the European Court does not subject this procedure to the principle of effective proportionality.

Also, the Court's guidelines following the principles of proportionality and legal certainty must be effective.

CONCLUSION AND LESSONS

As early as the introduction, we emphasised the need for European competition law to promote innovation. But its ability to meet this objective and the terms of its implementation were not established. Several lessons can be gleaned from the final analysis.

The first lesson concerns the diversity of the innovation phenomenon that competition law must incorporate, which requires an economic and circumstantial approach. The characteristics of innovative markets, the plurality of the sectors concerned and the lack of consensus in the economic literature on the intersections between competition and innovation bear witness to this. They shake the very foundations on which competition law is built. This is why a very circumstantial approach is necessary.

The second lesson is that this circumstantial approach is not yet enshrined among the fundamental tools of competition law, which sometimes takes a rigid approach when it comes to both delineating the market in question and assessing market power. However, this approach has its limitations. Market power cannot be based on an evaluation of market shares based on an uncertain delineation of a relevant market. These factors undoubtedly constitute obstacles to the reception of innovation by competition law.

The third lesson is that while it is in a difficult position, competition law is not powerless. First, the treatment of recent cases shows that competition law is open to the flexibility required by the specificities of innovative markets. The competition authorities appear to have become aware of the complexity of the analysis and of the role that they have to play. The possibility of delineating markets specific to innovation and supplementing the methods for assessing market power are positive signs in the direction of the dynamic approach that the innovation economy requires.

While the singularity of innovation is an insurmountable barrier preventing competition law from fully promoting innovation, some renewal is required. In essence, the difficulties lie in overly static analyses of competitive behaviour in innovative markets. The promotion of innovation entails a trade-off between static competition and dynamic competition. This requires recognition of the innovation promotion objective in order to connect competition law with European innovation policy. In this regard, there has been some, albeit limited, convergence between these two policies: competition policy has moved towards the promotion of innovation, and innovation policy now factors in competition concerns. Competition law can therefore play an active role in promoting innovation. This is particularly the case when it intervenes in reference to the flow of innovation. But the desired harmony is particularly difficult to achieve, and competition law does not yet have the tools to enable it to fully pursue the objectives assigned to it.

A final lesson is that the role of competition law with regard to innovation should not be overestimated. For example, it is not up to the competition authorities to address the imperfections of intellectual property rights or to rule on their validity. Such concerns also apply to innovation policies, which did not fall within the scope of the thesis. This reveals that the areas concerned are vast. Competition law can be only one element - among others - of innovation policy.

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