Consultation on the draft Union Framework for State aid for Research, Development and Innovation

Individual contribution

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EU State Aid Policy: A Model to Assess Intellectual Property Rights and Knowledge Dissemination in R&D Cooperation

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Introduction

The cooperation between research organizations (ROs) and industrial organizations facilitates the flow and use of scientific and technological knowledge. Competitiveness of the industry and the rise in the welfare of societies is increasingly connected to the incorporation of innovative technology in products and services.¹ An important objective of the European Union (EU) innovation system is to convert knowledge into technology, to link technological and scientific knowledge generators with users and to generate social and economic benefits from the public investment in Research & Development (R&D). Research organizations² play a fundamental role in this process as most of the public investments in R&D are directed to these institutions and, in most cases, the transfer of technology that was created with the use of public funds takes place through them. Increasing demand is directed to research institutions on the need to disseminate and put in use publicly funded research results to convert them into new products and services.³ In addition to guaranteeing the financial resources needed to increase the cooperation between research institutions and the industry, the EU has the responsibility to

² The term research organization is used herein with the same meaning as the term PRO. The definition of undertaking within the meaning of Article 107 TFEU is independent from the public or private nature of a research entity.
³ Improving knowledge transfer between research institutions and industry across Europe, Communication from the Commission, European Communities, 2007.
develop a legal framework that assures efficiency in collaborative research.  

While a good management of intellectual property rights (IPRs), knowledge protection and other intellectual property (IP) related issues are frequently indicated as a key aspect in the relationship between research organizations and industry, the legal framework that regulates the subject is still under development. The active engagement of ROs in IP management and knowledge transfer is essential in order to generate the expected socio-economic benefits of public investment in R&D activities. Because of this, the EU has taken initiatives to facilitate knowledge transfer at national and community level. Nevertheless, discrepancies between national frameworks, policies and practices in the industry can still be observed. Inconsistent practices in the management of IPRs within research organizations prevent the effective utilization of public resources and State aid measures in generating benefits from the resulted technology and their transfer to the industry and users.

The aim of State aid law is to protect the EU market from distortions caused by aid measures implemented by State members. Specific provisions on State aid for R&D activities further have the


5 Latest efforts in defining a harmonized set of rules on the management of IPRs and technology transfer in European universities are limited to not binding guidelines such as Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organizations, C(2008)1329, 2008.

6 Id.

7 M. Cisneros, The Role of EU State Aid Law in Promoting a Pro-Innovation Policy — A Review from the Perspective of Public-Private R&D Cooperation —. Intersentia (UK), 2014.
intention to enhance economic efficiency and thereby to contribute to sustainable economic growth and the creation of jobs. In this paper, a description of the economic foundations of State aid law for R&D activities, with special focus on the relevant elements to assess the benefits and disadvantages of State aid measures and IPRs issues in the context of R&D cooperating agreements is explored. In doing this, a fundamental question to be addressed is how IPRs resulting from State aided R&D cooperation activities can affect trade between member States and distort competition in the internal market.

The detailed assessment of State aid measures for R&D projects is currently limited to cases where aid is above EUR 7.5 million per project per company in the case of experimental development projects, EUR 10 million in the case of industrial research and EUR 20 million for fundamental research projects. The European Commission (the Commission) applies a detailed assessment using an economic approach to evaluate the State aid measure and the balancing test developed for R&D aid measures. The current Framework for State aid for R&D is almost silent on how contractual agreements and the definition of IPRs issues between cooperating parties should be evaluated. While it provides a description of the basic elements that should be considered in assessing State aid measures, there is no specific description on how clauses on IPRs concern that assessment. This paper intends to fill that gap, by providing elements to evaluate how IPRs ownership allocation, knowledge disclosure, confidentiality issues and licenses may be interpreted from the

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8 Commission Regulation (EC) No 800/2008 of 6 August 2008 declaring certain categories of aid compatible with the common market in application of Article 87 and 88 of the Treaty (General block exemption Regulation), Art. 6.
perspective of the objectives of State aid law, including Article 107 TFEU and the related frameworks. A second objective of this paper is to explore the different available IPRs ownership, disclosure and use schemes and to show how they may affect competition in the internal market under the State aid compatibility assessment elements. In this regard, an analysis of the way IPRs schemes lead to a distortion of the market, particularly a distortion of competition or reduction in efficiency, is provided. More specifically, the alternative schemes of exclusive vs. non-exclusive use of the resulting technology, free publication vs. secrecy, public vs. private ownership and intermediate IPRs options is reviewed from the perspective of State aid law and its economic foundations. Ultimately, the study intends to provide inputs to the new revision of the Framework for State aid for R&D&I in the context of the State Aid Modernization initiative.

The paper is structured in the following way. Firstly, dynamic efficiency and economic theories on distortion of competition are discussed. Secondly, different IPRs ownership choices, including shared ownership, property allocated to the research organization or property allocated to the industrial partner, are evaluated in the perspective of the likelihood to distort competition, including public goods associated failures, the generation of market power, the distortion of dynamic incentives and the maintenance of inefficient market structures. A further analysis of the concept of selective advantage and the allocation of IPRs ownership is also provided. Thirdly, alternatives for the rules on knowledge dissemination are evaluated from the perspective of the benefits generated by knowledge spillovers, the problem of asymmetric

12 The term IPRs scheme is used herein to refer to the chosen allocation of ownership of intellectual property rights, including patents and other available protection mechanisms, know-how, disclosure, trade secrets, use, exploitation and licenses related to the technology generated in the course of an R&D cooperation project.
information and coordination and network failures. Fourthly, and last, the alternative rules to define how parties can make use of the resulting knowledge and technology are evaluated, focusing on potential effects of the market by limiting dynamic incentives and distorting of competition through the enforcement of IPRs.

1 Dynamic Efficiency and Systemic Failures

The European Commission (EC) paradigm of market functioning establishes that economic processes should remain free. However, it also considers that a legal framework is necessary to protect such freedom not only from governmental interference but also against private economic power.\textsuperscript{13} The approach encompasses several theoretical insights, among the most relevant, the Freiburg School of Economics and many of the original German competition law rules, where limitations of business freedom are held as virtual restrictions of competition.\textsuperscript{14} Despite this view, State aid has not been seen as a tool of industrial policy but as a second best solution to solve failures where the free and rational decision of commercial firms should prevail.\textsuperscript{15} Under this perspective, market intervention in connection to R&D&I has been only deemed as necessary if certain conditions are found: (1) the identification of areas of the economy where the output of innovation activities is unsatisfactory, (2) the identification of a defect in market forces that produces a constrain in the

quantity or quality of innovation and (3) the intervention produces a benefit that is higher than the cost of it.\textsuperscript{16}

The idea that market forces produce results superior to government intervention has always relied on the assumption that rational choice theory explains the behaviour of economic actors, suggesting that markets self-correct and that rational behaviour of undertakings produces the most desirable outcomes in terms of efficiency. In the United States, the Chicago and post-Chicago Schools of thought have placed price theory at the heart of substantive competition policy.\textsuperscript{17} Contrary to this view, the so called \textit{Harvard School} of thought had until that time rejected the application of price theory and developed the idea that the performance of specific industries is dependent on the conduct of firms and the market structure of the industry under investigation.\textsuperscript{18} Contrary to the liberalization paradigm of the Chicago School, the Harvard School proposed that the government has an important role to play in order to actively stabilize economy processes.\textsuperscript{19} Both schools have long maintained a fundamental economic debate. EU competition law has not followed the US move in the implementation of Chicago school thoughts. Instead, many of the Harvard School paradigms can be found in EU competition law, though the recent emphasis for a more economic approach in the design and

\begin{itemize}
\item \textsuperscript{17} Posner R., “The Chicago School of Antitrust Analysis”, 127 U. PA. L. REV. 925, 1979.
\end{itemize}
implementation of competition rules may be changing this tradition to a pure efficiency standard.\textsuperscript{20}

Static competition models, as the ones described above, are not adequate to illustrate competition where the range of products available and the methods of producing them are variable and defined by R&D actions carried out by market participants. Instead, a dynamic conception of competition where market players compete not only in prices but also on innovation becomes necessary as a theoretical model to evaluate the impact of State aid measures in a free market. In many of these dynamic markets, players compete by innovating to generate new products and not only in the market for the existing products, which requires to take into account the impact of aid measures before a market for such product still exists.\textsuperscript{21} For example, under a dynamic conception of competition, monopoly power generated by the commercialization of an innovative product may represent a positive and necessary element in the market structure, to ensure that consumers can benefit from firms investing in innovative activities. Thus, the possibility that market players are able to appropriate for a certain time the benefits of investment in R&D activities is necessary to be included in the competition models to contemplate the generation of benefits from the investment in R&D activities.\textsuperscript{22}

Thus, a more evolutionary perspective of innovation could be incorporated into the new Framework by taking into account the dynamic nature of the economic system in terms of ongoing variation and selection, the association and dependency of actions in the R&D process, the

heterogeneity of actors in the system and their interactions. By taking into account this theoretical approach the Framework would be benefited by broadening the scope of the concept of market failure, incorporating the notion of infrastructural failures, institutional failures, actors interaction failures, structural inertia and earning capability failures. Taking into account these other dimensions in explaining a sub-optimal output of innovation activities, and defining industrial policy as a deliberate action by the State to shift the structure of the economy away from its static comparative advantage to a structure offering more dynamic potential, State intervention acquires new relevance.

The market failure theory, as used in the current Framework and derived from the static competition models, could better integrate dynamic competition by combining the functioning problems assigned to the public nature of R&D results with failures assigned to the system where the innovation takes place. Under this perspective, justifications for public intervention could be complemented by an evolutionary and organizational notion of innovation by focusing on systemic failures.

Under this approach, the innovation system concept, companies do not innovate alone. On the contrary, they are part of a network of institutions that interconnects with the aim to innovate. This network is formed by companies, research institutions, universities, governmental


agencies and other social actors. By having the possibility to interact, these entities intentionally use the external resources and collaborate to reach technological or scientific objectives. In this systemic approach much emphasis is given to the learning capacity of R&D actors and to the barriers they may face to cooperate. Thus, IPRs and knowledge dissemination rules agreed by the cooperating parties should be seen as a key factor defining the relationship between the actors, shaping the functioning of many aspects in an innovation system, particularly on the difficulty of access to learning capabilities and R&D resources.

The current R&D&I Framework does not clarify which competition model is used as the theoretical background to sustain the proposed rules, but follows the mainstream reasoning in explaining the justifications for the State aid intervention in the R&D&I field. Thus, under the mainstream thought, market failures in the area of R&D are mostly related to externalities, public goods problems and uncertainty due to lack of information. These failures are all assigned to the characteristics of the generated goods, i.e., the created scientific and technological knowledge. Policy actions departing from this perspective target the results of R&D activities, for example by creating property rights on the abovementioned intangibles. Besides, under this model, technological development creates the same marginal value no matter where the knowledge is created or by whom. No special factors as locations and actors are valued and, once created, it is assumed that the technology will be transferred and immediately used by the entity that can create most value out of it. In most cases, this view may not be adequate to model reality.

In the next section, the role of IPRs in R&D cooperation and the impact that certain agreements may have on dynamic efficiency and other relevant policy determinants is discussed.

26 Id.
2 Ownership of Intellectual Property Rights

IPRs ownership in the context of R&D cooperation refers to the manner in which parties decide on the protection and allocation of rights over the knowledge resulting from a cooperation project. Such knowledge, in most of cases related to scientific and technological information, can be protected by different means, depending on the chosen strategy and the nature of the knowledge. In most of cases, knowledge related to inventions is protected through patents, while other knowledge may be protected by secrecy, copyrights, know-how or any means that assures rights or control over the related technology. In many cases, either because the knowledge is not relevant for the interests of the parties or because there is no available protection scheme, parties decide to make the information available as public knowledge. The selected scheme to protect the results of the project and the allocation of ownership depends on the negotiation between the different parties, its negotiation power, objectives and interests.

The allocation of IPRs can lead to an aid measure to fall under the definition of State aid. Within the meaning of Article 107(1) TFEU, indirect State aid to undertakings through publicly funded research organizations does not exists if ownership of IPRs is fully allocated to the research organization.\textsuperscript{27} When a research organization enters into a contract for collaborative research with an industrial undertaking, the Commission, without a notification requirement, considers that no indirect State aid is granted to the industrial partner through the research organization if the

\textsuperscript{27} Ch. 3.2.2., the Framework. “[A]ny intellectual property rights to the R&D&I results which result from the activity of the research organisation are fully allocated to the research organisation.” “‘Full allocation’ means that the research organization enjoys the full economic benefit of those rights by retaining full disposal of them, notably the right of ownership and the right to license” fn. 28.
conditions set out in the Framework are fulfilled. In case that the results which do not give rise to intellectual property rights may be widely disseminated and any IPRs resulting from the activity of the research organization are owned by the research organization, the Commission considers that no indirect State aid is granted to the industrial partner through the research organization. Besides, allocation of IPRs in the contractual agreement between cooperating parties may lead to the conclusion that no State aid exists if any IPRs to the R&D results are allocated to the different partners of the collaboration adequately reflecting their respective interests, work packages, financial and other contributions to the project.

Ownership of IPRs may also operate as a variable for the assessment of compatibility of State Aid with Article 107 TFEU. While no explicit reference is made in the current Framework on how ownership of IPRs should be used to evaluate distortions in trade or competition, other provisions provide the basis under which the Commission could assess aid proposals. By considering these elements, the mechanism through which IPRs ownership schemes selected by the parties can distort competition and affect trade between Member States can be asserted.

2.1 The Leipzig Halle Case

The European Court of Justice (ECJ) has recently confirmed the longstanding Commission’s approach on State aid measures for the construction of infrastructure. While the case is not directly related to R&D, some of the rulings developed by the Court together with the original decision of the Commission may be extrapolated to the questions discussed here.

\[\text{Id.}, \text{ Ch. 3.2.1 and 3.2.2.}\]
\[\text{Id.}\]
\[\text{Ch. 3.2.2., para. 6, the Framework.}\]
\[\text{Commission Decision C48/06 (ex N 227/06), 2008/948/EC.}\]
In 2006 the German authorities notified the Commission on the establishment of the European hub of DHL Group at Leipzig-Halle Airport with a capital contribution of about 350 million EUR to the Leipzig Airport for the financing of the construction of a new southern runway and the signature of a framework agreement between the Airport and DHL which grants continuous access of the runway facilities to the company and a series of guarantees in the case that DHL will not longer able to operate at the airport. In 2008, the Commission declared the capital injection to be compatible with the internal market. Even though the Commission declared the aid to be compatible, the airport and the German Länder Sachsen and Sachsen-Anhalt are contesting the Commission's finding that the measure constituted State aid. In their view, the construction of infrastructure is not economically viable and cannot therefore be regarded as an economic activity in the meaning of EU State aid rules. At the same time, the Commission decided that the Framework agreement signed by the Airport and DHL constituted State aid, and that aid was found incompatible with the internal market.

In 2011 the ECJ confirmed that the construction of airport infrastructure is part of the economic activity of operating an airport, and that public funding of infrastructure necessary for the operation of the airport alleviates the costs that the airport operator would normally have to bear and therefore constitutes State aid.32 The Commission indicated that if an agreement grants a selective advantage this is liable to distort competition and trade between Member States. To the extent that such economic advantage is not financially repaid by the signing counterpart there is unlawful State aid.

Providing access to an infrastructure constitutes as such an economic activity the public funding of which constitutes state aid.33

33 Id.
Consequently, charging infrastructure costs to private users seems insufficient to avoid considering providing access to an infrastructure as an economic activity. The question arises whether IPR licensing is subject to the same uncertainty, *i.e.*, if licensing IPRs by a RO can be considered an economic activity even when it charges market prices to avoid that State aid is passed on to the enterprise.

The signature of an agreement where benefits are granted to a third party, which would had not be possible except for the use of public funding, may constitute State aid. The same ground may arise from RO-industry collaboration: the usual signature of a confidentiality agreement, providing the industrial partner the guarantee that no information will be disclosed by the RO and the consequent benefit for an exclusive exploitation of the technology by the industrial partner. Could the granting of a selective benefit by a license, secrecy or technology transfer contract signed in the context of public-private R&D cooperation constitutes unlawful State aid?

### 2.2 Distortion of competition and IPRs ownership

Ownership of IPRs can distort competition in different ways. IPRs, particularly patents, are in essence anti-competitive as they grant the owner the possibility to exclude third parties from using the protected technology or an equivalent one.\(^3^4\) Despite this, the overall balance of establishing a patent system may lead to the development of technologies that otherwise would not be generated, even when taking into account the allocative inefficiencies that providing a temporary monopoly to an

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\(^{34}\) While the European Patent Convention (EPC) represents a unified application and examination system, there is no unified patent system at EU level. Nevertheless, patent law from Member States usually establishes the same patent rights, as the right to exclude third parties from producing, offering, putting into circulation or using a product or process constituting the subject matter of the patent. See, Mulder 2011.
inventor can produce. The patent system relies on the concept that by providing a limited monopoly on an invention to reward the inventor for solving a technical problem the public goods problems associated to technological knowledge and intangible assets can be removed and an incentive to invest in the development of new technical inventions can be generated. In a certain way, the patent system and State aid measures are tools that pursue the same aim. The creation of patent rights represents an intention to solve market failures associated with public goods. In this way, the objectives of State aid measures for R&D and patent law are similar in their motivations. Both, patent law and public financing serve to generate an incentive to invest in technological developments that otherwise would not be pursued.

In the following section, a description of how IPRs may lead to distortions in the market, which would be contrary in essence to the objectives of compatible State aid measures and against Article 107(1) TFEU, is provided.


36 Id.

37 An important difference between the two systems, besides that one provides the possibility to reward the incentive *ex ante* and the other reward the inventor *ex post*, is that while patent law target technological innovations with industrial applicability, State aid measures can also target the development of basic scientific knowledge without a direct industrial use.

38 A counterargument to the established anti-competitive nature of the patent system indicates that by granting a limited monopoly on inventions, the State is incentivizing competition in innovation between market players by providing the tool to recover investments to develop alternative technologies.
2.2.1 Generation of Market power and IPRs ownership

IPRs confer the possibility to control, with certain limitations, the commercialization and use of the protected technology. By the enforcement of such rights, depending on the characteristics of the market and the nature of the technology, the IPR owner can exclude competitors and maintain control over a certain market. Such control, in case that the technology has no substitutes, can lead to the exercise of market power. Given the fact that State aid measures are assessed before the start of the project, and in many cases, even before having a preliminary notion about the potential results that can be generated by the R&D activities, it seems difficult to consider that the Commission or the grantor State is able to evaluate in detail a potential problem associated to the allocation of ownership rights. Besides, in many cases there is no market for the technology involved in the project, and no definite assessment can be made on how IPRs will influence the, yet inexistent, market. Other areas of EU competition law, namely the rules related to Article 101 TFEU, appear more useful in evaluating the effects caused on the market by IPRs ownership generated in R&D cooperation.

Patent owners have the right to exclude third parties from making use of the technology and to profit from the exclusive exploitation of it. Even when third parties may be interested to pay for the use of the patented technology, the right owner may trace its own business strategy and decide not to license or transfer the rights. While the industrial partner is expected to make such strategic use of IPRs over competitors, IPRs ownership by the research institution would in principle not lead to the creation of market power in the product market. Universities and research institutions do not usually compete in product markets, but they compete in innovation markets. By definition, allocation of IPRs in

39 In these cases, focus on competition in innovation and the distortion of dynamic innovation incentives should prevail.
universities and research institutions may lead to the creation of market power in innovation markets.

### 2.2.2 Distortion of dynamic incentives and IPRs ownership

Allocation of IPRs may distort dynamic incentives on further innovation and technological development. In particular, in case that cooperating parties agree on clauses that assign ownership of future improvements, the possibility to further develop improvements or alternative solutions, alone or in cooperation with third parties, may be limited. These kinds of limitations may generate negative consequences for future competition in innovation, as the future investments would only take place in case the benefits generated can be at least partially appropriated by the innovator. Parties may decide that ownership of any future development on the foreground technology\(^{40}\) will be allocated to one of the parties. An agreement of this kind will probably produce a disincentive to invest in future developments to the party that will not be able to appropriate the IPRs generated, which would be contrary to the incentive requirement established for State aid measures.

In this way, the potential benefit of having two alternative parties working on improvements of the existing technology will be lost. Of course, the benefits and disadvantages based on improvements of dynamic incentives are mostly speculative and the impact of this kind of agreements seems difficult to assess and regulatory intervention on the

\(^{40}\) Foreground technology is defined as “the results, including information, whether or not they can be protected, which are generated by the indirect action concerned. Such results include rights related to copyright; design rights; patent rights; plant variety rights; or similar forms of protection”, Council Regulation (Euratom) No 1908/2006 of 19 December 2006 laying down the rules for the participation of undertakings, research centres and universities in action under the Seventh Framework Programme of the European Atomic Energy Community and for the dissemination of research results (2007 to 2011).
freedom to agree on IPRs ownership does not seem appropriate. Nevertheless, State aid law does not require certainty on market distortions to consider an aid measure as incompatible, but only the possibility that the measure may cause any threat in the distortion of competition. In this perspective, State aid law may declare certain practices as explicitly prohibited under the course of R&D cooperation, in the same way some clauses related to IPRs are prohibited under other areas of competition law.

2.2.3 Maintaining inefficient market structures and allocation of IPRs

In an idealized market where an efficient allocation of resources is achieved, cooperating parties would have access to full information in order to make the most efficient allocation of IPRs. Even in case that the initial allocation of IPRs ownership does not lead to the best outcome in terms of efficiency, after some time IPRs would be transferred and allocated to the market player that can extract the most value from them. Nevertheless, parties usually negotiate IPRs ownership in an scenario of uncertainty and limited information, without certainty on the value of the generated technology and the capacity by each party to generate profits from it. Under those circumstances, ownership of IPRs is determined by factors that may lead to inefficient allocation of IPRs and, as a consequence, to the generation of inefficient market structures. For example, improvement of technology that is still at an embryonic stage may be much better controlled by a research organization instead of by the industrial partner, as it is expected that further development at a level

41 Aid that generates a distortion or that threatens to distort competition.
43 Id.
of basic research needs to be performed before the technology is ready to be industrialized and commercialized in the market. In such case, granting ownership of related IPRs to the research organization may facilitate a more efficient development of the technology until market commercialization is ready. On the other hand, technologies that are fully developed and ready to be implemented in market products could be most efficiently allocated to the industrial partner, who is more knowledgeable on the most efficient strategy at this stage. In real circumstances, allocation of IPRs is defined by the individual interest and negotiation power of each party instead of by market efficiency considerations.

Inefficient market structures are an example of distorted competition and may affect trade between Member States. As such, State aid for R&D projects that lead to inefficient and distortive allocation of IPRs among cooperating parties can be found incompatible with the internal market and, as such, prohibited. Nevertheless, intervention on this point would be only reasonable in case that the regulatory authority holds better information on the most efficient allocation of IPRs ownership and the resulting market structure. State aid measures being a tool to correct market imperfections, a better addressing of public investment should consider the possibility to directly allocate IPRs to the most efficient scheme in cases where there is a clear social interest for the related technology.

2.3 Selective advantage and IPRs ownership

To be considered State aid a measure must be specific or selective and favour only certain undertakings or the production of certain goods.
The advantage must result from State resources. How close this link needs to be is a question that has not yet been fully clarified. There is no identity in the meaning of a matching symmetry between the advantage and the resources employed in case of indirect aid.

The transfer of IPRs from a public research organization to an industrial cooperating partner during the course of a collaborating R&D project may represent a transfer of resources. IPRs can benefit the right holder by providing the capacity to exclude competition from making use of the protected technology. Such exclusion grants the IPR holder the possibility to fix prices and to define outputs according to its own interest for profit maximization. In economic literature this is referred as the monopolistic maximizing profit, by setting marginal return equal to marginal cost, which result in lower quantities being offered on the market against a higher price. The IPR owner can thus be clearly benefited through a transfer from the RO. Nevertheless, even when the industrial partner can be benefited by the transfer this is not sufficient to define it as a selective advantage. The Commission and Community Courts have given an extremely wide interpretation to the requirement of selectivity although the ECJ has ruled that a measure to be classified as selective has to be designed in accordance with a certain regulatory technique. Thus, except when the State aid measure includes a requirement that IPRs need to be transferred to the industrial partner under certain predefined conditions, the selective advantage could not be proved to the extent to make the measure incompatible with the internal

44 Joined cases C-399/10 P and C-401/10, Bouygues and Bouygues Télécom v Commission and Others, Judgment of the Court (Grand Chamber), 2013.
market. In any case, the transfer of IPRs would still be an element to consider in evaluating the direct or indirect transfer of resources from the State to an undertaking.

2.4 Adverse effects on trade and allocation of IPRs

The incompatibility prerequisite that the State aid measure affects trade between member states has the objective to define a limit between the scope of national and EU law. State aid measures for collaborative R&D must observe EU law requirements only if the measure produces an effect outside the granting State. In this context, it is particularly important to determine whether the agreements on IPRs ownership allocation between collaborating parties can constitute a real or potential, direct or indirect threat, to the intra community trade.\(^{47}\)

In principle, any IPRs to the resulted technology will limit access to third parties in other member states. For technologies where substitutes exist, limitation to access improved processes may represent an increase in the relative manufacturing costs and a diminished relative competitiveness. For the cases were no substitute exists, protection of the resulted technology would totally exclude competing undertakings from the possibility to commercialize or make use of the protected knowledge, product or processes at EU level. Any of these situations will visibly affect trade between member states in the case that the competing undertakings are located in different Member States. Nevertheless, the limitations in trade associated with the existing IPRs owned by the aided undertaking may still be counterbalanced by the benefits of the existence of the new technology in terms of improvements of productivity and availability of new and better products and processes, facts that should be accordingly weighted.

\(^{47}\) C-22/78, Hugin Kassaregister AB and Hugin Cash Registers Ltd v Commission, ECR 01869, 1979.
The assessment of any negative effect in trade as a consequence of a particular scheme used by the parties in the allocation of IPRs ownership seems to a certain extent speculative. While State aid law has interpreted the requirement rather broadly and the effect on trade does not need to be real but merely potential, the implementation of special requirements on IPRs ownership based on potential negative effects on trade does not seem to be reasonable. Besides, as State aid measures can rarely have the explicit aim to distort competition, it is not the objective but the effects that should be evaluated.48

In assessing distortion of competition in agreements between undertakings, the ECJ has proposed the use of a counter-factual test by comparing the distortion produced in competition compared to the level of competition without the existence of the agreement under evaluation.49 In applying the test, it is necessary to consider that cooperating parties are not obliged by receiving State aid to implement IPRs allocation that distorts competition. Nevertheless, taking into account the common practices between research organizations and industrial undertakings, the implementation of State aid measures without defining accompanying rules restricting these practices, may be considered as indirectly responsible for not adopting the property measures that impede market

48 In connection to the assessment of anti-competitive practices between undertakings, the ECJ has indicated that “In the absence of an anticompetitive object, an agreement may be objected to only on the grounds of its effects. In that case, any anticompetitive effects must be assessed with regard to competition within the actual context in which it would occur in the absence of the agreement in dispute”. C-7/95, John Deere Ltd v Commission of the ECR I-03111, 1998. From an economic perspective, focusing on restrictions targeted to the object rather than to the effect can be inefficient. See, Bishop S. and Walker M., The Economics of EC Competition Law: Concepts, Application and Measurement, Sweet & Maxwell, 2010 and Van den Bergh R.J. and Camesasca P.D., European Competition Law and Economics: A Comparative Perspective, Sweet & Maxwell, London, 2006.

distortions. It has to be considered that R&D projects often entail substantial investment and dynamic competition may be reduced if parties are not allowed to assign ownership of IPRs in a manner beneficial for them.\textsuperscript{50} Nevertheless, provided that the aid measure already guarantees the incentives to enter into the R&D project, other incentives related to the possibility of specific allocation of IPRs are not as relevant as in cases where the project is fully supported by means of private funds.

3 Knowledge Dissemination

Knowledge dissemination represents one of the main arguments for the justification of State aid for R&D activities, particularly R&D cooperation.\textsuperscript{51} By providing aid for the accomplishment of R&D, States can generate positive externalities to other economic activities by the generation and dissemination of technological knowledge. That technological knowledge, incorporated into products and processes, can be used to develop further knowledge and to improve the competitiveness of the industry, which generates benefits for the society and the economy. Under the economic foundations of the EC Framework for State aid for R&D, aid measures are justified only in cases of market failures while information asymmetry and limitations for knowledge dissemination are identified as two of the main target problems responsible for productivity and competitive limitations of technology industries.

Restrictions on the possibility to disclose knowledge generated from R&D projects are of primary concern for Universities and research

\textsuperscript{50} C-258/78, L.C. Nungesser KG and Kurt Eisele v Commission, ECR [02015], 1982.

\textsuperscript{51} For example, State aid N 667/2007 (Germany, Land Mecklenburg-Vorpommern). R&D&I-scheme 'Guidelines for R&D&I- Promotion'. “By granting this type of aid, the German authorities hope to remedy market failures in the form of insufficient dissemination of information”, para 51.
organizations. One of the primary goals of these institutions is to conduct fundamental research, industrial research or experimental development and to disseminate the results by way of teaching, publication or technology transfer. At the same time, scientists are evaluated by measuring quantity and quality of publications, while the reputation of research institutions is also weighted on the presence of their scientists in conferences, seminars and scientific journals. All these referred activities involving in one or another way disclosure of information resulting from R&D activities, including disclosure in the context of R&D cooperation with the industry. Nevertheless, a recent survey has indicated that no more than 25% of researchers in the EU make data generated from R&D projects available for everyone.\textsuperscript{52} Around 40% of researchers base their decision on potential legal problems generated as a consequence of the dissemination of those data. Several EU Governments have recently recognized the importance of the dissemination of research results generated from public funds.\textsuperscript{53} They believe that research results from publicly funded projects should be made available as widely as possible with no barriers to access and that improving access to the results benefits the economy and facilitates more effective knowledge exchange. This has raised awareness about the need for actions to increase access to the publications arising from R&D activities.\textsuperscript{54} At the same time, industrial partners are usually interested in protecting the results of R&D activities to avoid third parties free riding on those results. The use of secrecy over technological developments or scientific knowledge is one of the strategies followed by the industry in order to appropriate the benefits of investments in R&D activities. By avoiding the disclosure of valuable

\textsuperscript{52} Van der Hoeven J., “Insight into digital preservation of research output in Europe”, PARSE.Insight, June 2010.

\textsuperscript{53} For example, see the letter to Dame Janet Finch on the Government Response to the Finch Group Report: “Accessibility, sustainability, excellence: how to expand access to research publications”, July 2012

\textsuperscript{54} Media Release, “Universities UK welcomes Dame Janet Finch report on open access”, June 2012.
information, industrial undertakings can avoid competing companies to access the technology and the benefits generated by the use of knowledge.\textsuperscript{55}

Theory indicates that non-collaborative R&D levels decrease with higher spillovers, while investment in cooperative projects tend to increase with spillovers, and thus imperfect appropriability of knowledge increases the benefits from collaborative agreements.\textsuperscript{56} As expected, the presence of spillovers increases the incentive for R&D collaboration through the internalization of the positive externality, \textit{i.e.} the knowledge acquired during the collaboration. But, imperfect appropriability of the generated knowledge also encourages third parties to free ride on the generated R&D results.\textsuperscript{57} Unfortunately, most of the theoretical models only consider horizontal R&D co-operation. Despite the fact that this theoretical approach has been of key importance in the development of competition policy in the field of horizontal agreements, the interest of State aid law is to assess vertical cooperation, \textit{i.e.} cooperation between industry and universities or ROs.

\subsection{Existence of State aid as a consequence of limitations to knowledge dissemination}

The Community Framework for State Aid for R&D&I requires the dissemination of results as a condition for the Commission to consider that no indirect State aid is granted to the industrial partner through the

\textsuperscript{55} Confidentiality or trade secret protection can only be implemented where the information is not disclosed by the mere commercialization or use of the product that embodies the technology. Typical examples of knowledge that can be protected by secrecy practices are technologies related to manufacturing processes.


\textsuperscript{57} \textit{Id.}
research organization. Where the results of an R&D project are widely disseminated through technical and scientific conferences or published in scientific or technical journals or in open access repositories, a bonus in the ceiling thresholds to R&D projects is used to consider a State aid measure compatible with the internal market within the meaning of Article 107(3)(c) TFEU. Despite knowledge spillovers represented by the level of information dissemination foreseen in a R&D project are regarded as a positive effect of State aid measures, the Framework provides limited information on the mechanisms through which such spillovers take place, and no information on how disclosure mechanisms and incentives for disclosure should be assessed.

Besides in the definition of the existence of indirect State aid, results dissemination prerequisites are also used to decide on the maximum amounts under which a State aid measure does not affect trading conditions to an extent contrary to the common interest. Thus, in establishing the rules for the calculation of the amount to determine compatibility of aid with Article 107(3)(c) TFEU, a bonus can be granted in the case that results are widely disseminated “through technical and scientific conferences or published in scientific or technical journals”. The provision implicitly accepts the fact that dissemination of R&D results can affect trading conditions and a competitive market.

From these elements it can be proposed that dissemination of results as an assessment variable for the existence of indirect State aid finds its legal justification either in its effect on the selective advantage

58 Ch. 3.3.2 (2), the Framework. The requirement is limited to knowledge that do not give rise to IPRs.
59 Ch. 5.1.3 (b) (iii), the Framework.
60 Id.
61 Id. In many cases, the access to scientific publications and conferences is limited by fee payments by private publishers or conference organizers, which in practice reduce the possibility of third parties to access the related knowledge.
requirement, due to the favourable conditions of the collaboration, or in the distortion or the threat to distort trade and competition.

3.2 Distortion of competition as a result of limitations in knowledge dissemination

Knowledge spillovers can take place by several means. The most classic examples refer to scientific and technical publications, lectures, seminars, and presentations in specialized conferences. Other means of knowledge spillovers take place via the mobility of scientists, the licensing and commercialization of products and technology and the publication of patents. Knowledge dissemination is extensively referred to as a positive spillover in the creation of new technological knowledge, the increase of productivity and the commercialization of new products and services. Disclosure and dissemination being a necessary step in the process, effective knowledge transfer defined as the capacity of third parties to integrate such knowledge into processes and products, translates such spillovers into positive effects. Knowledge dissemination has to be understood as an intermediate step between knowledge generation and knowledge absorption. If it is assumed that knowledge dissemination requires not only the willingness to disclose but also the resources to make such disclosure effective by publications in recognized journals or conferences presentations, it is reasonable to consider that parties will not make the resulting knowledge public or, at least, will not spend resources in making third parties aware


of the knowledge except when they have an incentive to do it. In this perspective, it is clear that the generation of knowledge is not a sufficient condition to have positive externalities from dissemination and that State aid does not guarantee knowledge spillovers to take place. Studies show that researchers in the EU consider that up to 50% of additional effort, compared to the resources invested in production and analysis, is necessary to preserve R&D data and results in a re-usable form. Under this perspective, State aid measures that explicitly request disclosure of research results in an usable manner would assure more knowledge dissemination.

As described, in projects carried out jointly by undertakings and research organizations, the Commission considers that no indirect State aid is granted to the industrial partner through the research organization, due to the favourable conditions of the collaboration, if the results which do not give rise to intellectual property rights may be widely disseminated. It should be noticed that the provision does not require that the results are widely disseminated but just that they may be disseminated. The condition implicitly assumes that market distortions are less likely to occur if results are open to be disclosed as a consequence of less favourable conditions granted to the industrial partner. Under this perspective, the opposite reasoning assumes that if dissemination of results is not possible, market distortion generated by knowledge access restriction may exist. Following the reasoning, cooperation agreements with restrictions on result disclosure can potentially generate a distortion in competition markets, which makes the State aid measure to be incompatible under Article 107(1) TFEU. In the same way, from the perspective of the incentive effect requirement, State aid measures should be focused not only on the generation of more R&D results but also on the

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65 Holzner A. et al, “First results from PARSE. Insight The HEP survey on data preservation, re-use and (open) access”, First Workshop on Data Preservation and Long Term Analysis in HEPv, 2009.
66 Other conditions apply.
generation of knowledge spillovers as a way to make State expenditure more efficient by producing more positive externalities. The essence of this view is shared by the ECJ, which agrees that confidentiality agreements between undertakings may occasionally prevent, restrict or distort competition.\(^{67}\)

To be compatible with the internal market, State aid measures should modify the behaviour of the beneficiaries and generate an incentive to encourage more and better R&D. In a scenario where a reduction in the restrictions for use, open access and free publication policies are promoted,\(^{68}\) more effective State aid measures would imply a greater generation of positive externalities by the dissemination of R&D results. The EC has recently recognized the importance to improve access to scientific information produced in the EU to allow researchers and businesses to build on the findings of public funded research.\(^{69}\) While open access to scientific publications will be a general principle in the Horizon 2020 Program\(^{70}\), the EU’s Research & Innovation funding plan for 2014-2020, the Commission has also recommended Member States to take a similar approach for the results of R&D funded under their own programs.\(^{71}\)

Restrictions on knowledge dissemination may create positive or negative incentives. In any case, the assessment of such practice should take place in the context of the R&D project and the aim of the aid measure. When knowledge spillovers want to be favoured, no

\(^{67}\) C-7/95, John Deere Ltd v Commission, ERC I-03111, 1998.

\(^{68}\) “Accessibility, sustainability, excellence: how to expand access to research publications”, Letter to Dame Janet Finch on the Government Response to the Finch Group Report, July 2012.

\(^{69}\) EC Press Release, Scientific data: open access to research results will boost Europe’s innovation capacity, July 2012.

\(^{70}\) Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe’s global competitiveness, running from 2014 to 2020 with an €80 billion budget.

\(^{71}\) *Id.*
dissemination restrictions should be allowed. In cases where a comparative competitive advantage of the aided undertaking is the objective, the use of tools that favour the appropriation of R&D results, including secrecy, should be promoted. While an obligation to disclose and effectively transfer the generated knowledge may in some cases deter the participation of industrial partners in R&D cooperation projects, disclosure limitations in collaboration projects should be allowed only under certain circumstances. The assessment of such limitations should be explicitly promoted by State aid law.

3.3 The grant of an advantage and knowledge dissemination restrictions

Advantage requirements refer to a specific and selective State aid benefit granted to one or several undertakings. According to Article 107(1) TFEU, an advantage can be granted “in any form whatsoever”. A direct transfer of IPRs from a research organization to the industry is the obvious example of a transfer of intangible resources from a State controlled institution to an industrial undertaking. Another less obvious resource transfer can be represented by the transfer of knowledge, generated either during the execution of the collaborative project, the foreground technology, or in possession of the research organization before the start of the project. Confidentiality requirements, restrictions for open dissemination and the limitations for the research undertaking to make technological knowledge available by disclosures to third parties is a less obvious element to evaluate in assessing the transfer of resources under State aid law.

Industrial partners in R&D cooperation are usually interested to limit the disclosure of information in order to avoid third parties to free ride on the project results. Firms with higher incoming spillovers and

72 Id.
better appropriation mechanisms have a higher probability to cooperate in R&D.\textsuperscript{73} At the same time, consortia organize to avoid spillovers, and therefore do not achieve the cross-pollination of know-how that State aid partially wants to achieve.\textsuperscript{74} The interests of the industrial partner and the research organization on this subject are usually contradictory. While the industrial undertaking can be benefited from limited dissemination of research results, the research organization usually pursues the objective of publication and the possibility to use the results for teaching purposes. The divergence on the standpoint of both parties depends on factors like the nature of the technology, the characteristics of the research project and the objectives and internal policies of the cooperating parties. In case that a legal protection scheme, other than secrecy, is available, the parties usually agree on the proper timing to firstly apply for such protection and then, depending on the required procedures, to proceed with the publication by the research partner.\textsuperscript{75} Nevertheless, in case that no alternative protection scheme is available, a common situation in projects dealing with basic research and the generation of knowledge without direct industrial applicability, secrecy may be the only protection at hand.\textsuperscript{76} In cases where protection by other means is not available, the industrial partner may request partial or total confidentiality over the resulted knowledge or a refusal right for any publication related to the project that is proposed by the research organization or the involved researchers. The possibility to maintain the results of R&D activities resulting from a State aided cooperation project secret may represent a

\textsuperscript{73} Cassiman & Veugelers 2001.


\textsuperscript{75} Responsible Partnering Initiative 2009. For example, to permit the filing of patent application without loosing the novel character of the invention.

\textsuperscript{76} Patent law requires the invention to be plausible of industrial applicability to be patentable. Discoveries and general scientific theories are usually not patentable.
benefit for the industrial partner. Such benefit, activated by the limitation of the RO to publish, represents a transfer of resources from the research institution to the industrial partner and an advantage under Article 107(1) TFEU.

4 Use and licensing of IPRs

The term exploitation of IPRs refers to the utilization of intangible assets in internal processes and the production of products or the licensing out of the technology for use by third parties. Traditional exploitation of IPRs by research organizations is limited to activities of research and teaching. Recently, more sophisticated approaches for IPRs use and exploitation have included licensing out strategies and the creation of spin-off companies. In the context of cooperation projects, the agreement between the parties on the use and exploitation of IPRs related foreground and background technology is of key relevance. The agreement will define the circumstances and conditions under which each party is allowed to exploit the resulted technology. Such agreements usually also determine how background IPRs are used for the execution and after


78 Background technology means “information which is held by participants prior to their accession to the grant agreement, as well as copyrights or other intellectual property rights pertaining to such information, the application for which has been filed before their accession to the grant agreement, and which is needed for carrying out the indirect action or for using the results of the indirect action”, Council Regulation (Euratom) No 1908/2006 of 19 December 2006 laying down the rules for the participation of undertakings, research centres and universities in action under the Seventh Framework Programme of the European Atomic Energy Community and for the dissemination of research results (2007 to 2011).
completion of the cooperation project.\textsuperscript{79} Regarding the foreground technology, crucial points to decide are the use and scope of licensing practices and its scope by the participants for exclusive or non-exclusive, commercial or non-commercial use, limitation in time and territory or the allowed industrial field for commercial application and use.\textsuperscript{80}

Use rights can be granted by the owner of the related IPRs or the proprietor of a related licensing right. For example, a RO may provide certain knowledge that needs to be used during the R&D cooperation project. In granting a license or a use right to the industrial partner the research organization may decide the conditions under which that knowledge can be used, for example, that the authorization is limited to the cooperation project and that the industrial partner is forbidden from using the background technology with other purposes after the termination of the cooperation contract. Such kind of agreements may limit future development of the resulted technology by the industrial partner. In the same way, the industrial partner may decide that the foreground technology can not be used by the research organization for research or teaching purposes out of the cooperation project, which may limit the freedom of the research organization to use in the future the results of the cooperation. Thus, parties agree on access rights for the project, access rights for further research and access rights for future scientific or commercial development of the results and the previously owned knowledge.\textsuperscript{81} These agreements, while producing a market impact, can be object of assessment under compatibility rules of State aid law.

In evaluating licensing agreements between undertakings, the Commission has issued a block exception and guidelines to interpret how

\textsuperscript{79} “Intellectual Property (IP) Management in International Research Collaboration Agreements between European and Non-European Partners”, Knowledge Transfer Working Group of the European Research Area Committee, June 2012.

\textsuperscript{80} Id.

\textsuperscript{81} Id.
technology transfer practices can distort competition.\textsuperscript{82} While the referred framework is limited to assess transfer and licensing of IPRs in the context of Article 101 TFEU, the underlying reasoning may be extrapolated to other areas of competition law, like State aid law.\textsuperscript{83} In this context, the Commission has indicated that “In order not to reduce dynamic competition and to maintain the incentive to innovate, the innovator must not be unduly restricted in the exploitation of intellectual property rights that turn out to be valuable. For these reasons the innovator should normally be free to seek compensation for successful projects that is sufficient to maintain investment incentives (...)”. While this guideline indicates that distorting agreements between undertakings on the licensing of IPRs may still generate incentives to innovate, it is also true that in the case of State aid measures such incentives are produced by the grant of State benefits to the participating undertakings. Thus, the threshold under which IPRs exploitation agreements are evaluated from the perspective of State aid law should be much higher than the threshold used in the case of agreements between undertakings involving IPRs generated with private funds. Otherwise, a double cost on tax payers would be imposed: the cost of expenditure in State aid measures and the dead weight loss associated to the enforcement of IPRs.


\textsuperscript{83} Article 101 TFEU rules “The following shall be prohibited as incompatible with the internal market: 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 internal market”. While Article 101 target agreements between undertakings, Article 107 rules on measures taken by Member States, both articles belongs to the Chapter 1 of the TFEU, “Rules on Competition”, which is intended to avoid competition distortions in the internal market.
Certain characteristics of collaborative projects may lead to the transfer of IPRs at reduced price. ROs are becoming more interested during the last years in putting to use the technology developed by researchers. This objective, still not as important as publication but gaining relevance with the development of technology transfer activities, constitutes a pressure to the RO to agree on lower transfer prices. Either for a license or the transfer of ownership the RO usually considers that placing the technology in use is preferable than to recover R&D costs or to generate an income to the institution. Usually, there is no more than one company interested in the technology and a public tender becomes impracticable, though a competitive procedure is not enough to eliminate State aid.\(^4\) Usually, the RO will include certain conditions in the contract, as to limit the license to the business field of the licensee or a clause establishing the termination of the contract in case the licensee does not commercialize the technology after a certain amount of time. Imposing conditions on the licensee will not automatically eliminate State aid in the transaction, and it is still the evaluation of the conditions under the perspective of a rational market player that counts. In case the State, in trying to speed up transfer of technology to the industry, encourages ROs to an undervaluation of intangible assets in order to sign more licensing contracts, those transactions are clearly under the scope of Article 107. From the perspective of case law, the requirement to a RO to behave as a market player trying to maximize income from a license agreement to eliminate State aid is still in place.\(^5\)


4.1 Limitations of dynamic incentives and IPRs use

Limitations on the use of background and foreground technology in future R&D projects may affect the development of improvements and constrain further cooperation with third parties. A wide authorization to use background and foreground knowledge and IPRs would, in principle, prevent competition restrictions.

A distinction should be made between background and foreground, and the different possible uses assigned to the technology. In the first case, it is a normal assumption that both parties are free to independently assign use rights over related IPRs and protected knowledge. Usual agreements grant crossed rights over background technology that needs to be used during the execution of the cooperation project.86 The conflict may arise in connection to the use of background technology for purposes out of those related to the cooperation project, which are rarely granted by the cooperating parties. From the perspective of dynamic incentives for further development of the technology, either for improvements or as a result of the need to use the background as a platform to enter in an R&D project in other technological field, it is of interest that use rights are granted by the parties. In principle, this would avoid further negotiation on the terms of use of such technology, simplifying the process and reducing transaction costs.

In the second case, where foreground technology is the result of the joint effort between the research organization and the industrial partner, the same concepts concerning the possibility to further develop on the resulted technology apply. Barriers in the possibility to use the resulted knowledge to further develop an improvement would mutually block parties from the possibility to further invest in improvements. The effect

86 A detailed analysis of the alternative use schemes proposed by industrial and research organizations is provided in M. Cisneros, “The Role of EU State Aid Law in Promoting a Pro-Innovation Policy — A Review from the Perspective of Public-Private R&D Cooperation —”. Intersentia (UK), 2014.
could be more relevant in case that the resulted knowledge represents a platform technology or scientific concepts that can be used in a variety of industrial and academic fields. While blocking future use of foreground and background technology would protect the industrial partner from the possibility that competitors free ride over their proprietary technology, dynamic incentives to further invest in R&D activities to improve the related technology will be diminished.

The Commission has a clear position on the anticompetitive nature of agreements where the use of background technology is not allowed to one of the cooperating parties. Provided other competition provisions pursue the same objective of avoiding a distortion in the competing forces between undertakings, the analysis of some of those rules may provide an indication on how the Commission would assess agreements under the perspective of State aid law. Under this view, the Commission has indicated that to effectively protect competition “the research and development agreement must stipulate that each party must be granted access to any pre-existing know-how of the other parties, if this know-how is indispensable for the purposes of its exploitation of the results.” 87 Regarding foreground technology, the Commission has indicated that “the research and development agreement must stipulate that all the parties have full access to the final results of the joint research and development (…), including any resulting intellectual property rights and know-how, for the purposes of further research and development and exploitation”. 88 While these rules are applicable to any agreement under the scope of Article 101 TFEU, it is arguable that in cases where State funds are involved the restrictions to avoid for anticompetitive behavior between the parties should be strengthened. In this scenario, the view of

88 Id., para 2.
this paper is that State aid measures should incorporate more clear rules on the allowed agreements for the use and exploitation of background and foreground technology.

4.2 Selective advantage and the use of IPRs

By granting the industrial partner the right to use IPRs and knowledge with other objectives than performing the R&D tasks contemplated in the cooperation project or using the generated technology in the commercialization of product or services, the research organization may transfer rights that are in most of cases not appropriately valued in the amount of remuneration agreed by the parties. One reason for this is that research institutions cannot always clearly identify the background information. Several times such information is in possession of individual researchers but not recorded as an institutional asset. Besides, part of the information is not protected by any means, either because the information relates to non-patentable knowledge, as discoveries or basic scientific knowledge without industrial application or simply because the organization has not implemented the necessary steps to formally protect the asset. In other cases, protection is not possible as a consequence of publication of the results by the researchers or the research organization, which in most jurisdictions impedes later patenting of the invention. These limitations make difficult the possibility to grant a license to the industrial partner on background technology. The knowledge transfer is in these cases not documented or contemplated in the calculation of the resources involved in the cooperation project. Thus, no monetary retribution can be requested from the industrial partner. This fact may constitute both, a hidden transfer of resources from the research organization to the industrial undertaking and the grant of a selective advantage. Despite the differences between protected and non-protected intellectual assets, know-how should account in the assessment to
calculate aggregated benefits transferred to the industrial partner. In referring to the exploitation of research results, the Commission accounts for both, intellectual property rights and the know-how required for the manufacture or application of the technology.\textsuperscript{89} The only requirement for the know-how to be accounted as such is that needs to be secret, substantial and identified.\textsuperscript{90} In case that no clear identification can be made of the transferred assets, the aid cannot be considered as transparent, and block exemptions on the aid measure would not apply.\textsuperscript{91}

Selective advantage can also be defined by the conditions, namely price and exclusivity, of the transfer of IPRs generated during a collaborative R\&D project. If several industrial partners are involved in the collaborative project, transference conditions should be maintained equal to all of them to avoid favouring certain parties. Thus, price for the technology, either for a license or for the transfer of ownership of IPRs, should be kept equal for all partners. Even more, if no partner decides to acquire the IPRs and the RO determines to offer the technology to third parties not involved in the cooperation project, such transaction should also keep the same price as offered to the cooperating parties. This element may be taken into account by the EC to assess indirect State aid measures. For example, in an aid measure granted to the Ludwig Boltzmann Institut für Krebsforschung (LBG), the EC considered aid as compatible with the internal market because the contractual conditions for the cooperation established that if the cooperating parties accept the offer to take ownership or a license on the technology the RO can put up for

\textsuperscript{89} Id., Article 1, (g).
\textsuperscript{90} Id., (i). “Secret” means that the know-how is not generally known or easily accessible; “substantial” means that the know-how is significant and useful for the manufacture of the contract products or the application of the contract technologies; “identified” means that the know-how is described in a sufficiently comprehensive manner so as to make it possible to verify that it fulfils the criteria of secrecy and substantiality.
\textsuperscript{91} See General Block Exemption Regulation, Reg. (EC) No 800/2008.
sale the IPR “at a price not inferior, and conditions not more favourable than those offered to the cooperating parties”.

### 4.3 Distortion of competition by limiting the use of IPRs to third parties

Limitations in the use of background and foreground technology can also limit competition in innovation and technology markets. The most clear example is the limitation for third parties to make use of the resulted knowledge in further R&D activities out of the scope of the cooperation project. The agreement between parties in an R&D project forbidding the grant of licenses to third parties may limit the further development of the related technology. IPRs allocation may determine the further development of the technology that is the object of the cooperation project. In principle, there is no non-commercial and experimental use exemption for patented technology under the European Patent Convention. Rules on enforcement of patented developments are exclusivity national law of member states. While some countries have implemented exclusions on patent rights in the benefit of science by granting exceptions for non-commercial use of patented technology, there is no general criterion that can be extrapolated at EU level. Those EU countries where research activities are exempted from patent rights would not produce distortions in competition for innovation intended to improve the technology. Nevertheless, in Member States where such exemption is not implemented, an agreement between the cooperating parties to limit the possibility to allow third parties to further develop the related technology would deter dynamic incentives. Under this perspective, Universities and research institutions should assure that further

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92 State aid NN 65/2007 Austria, Ludwig Boltzmann Institut für Krebsforschung.  
93 Implementing Article 27(b) of the Community Patent Convention (CPC).
development and non-commercial use of the IPRs generated as result of the collaboration can still be used for research and teaching purposes. Allocation of IPRs on the industrial partner may in some cases lead to a disincentive to continue with research projects and collaboration with other parties. Any future improvements of State aid law and particularly the Framework should consider these factors not only as direct and indirect State aid measures assessment, but also as an economic perspective to improve the efficiency of public expenditures.

4.4 Distortion of competition by the enforcement of IPRs

Recent behaviour of non-practicing entities, also known as patent trolls, generates concerns about IPRs allocation and about the potential distortion of innovation and product markets. In theory research institutions and industrial partners may act as patent trolls in trying to stop third parties from making use of the developed technology exclusively with the purpose of making profits of such rights, even when the enforcing party is not interested to commercialize or produce the related product. In practice, due to the nature of public research institutions, acting as non-practicing IPR would be strange. IPRs ownership with the industrial partner would in principle have a greater likelihood that an IPR generated as a consequence of the use of State aid ends in the hands of a patent troll. State aid law should assure that R&D results generated from public funds are not used with these purposes.

5 Conclusions

Diverse arrays of the available IPRs ownership, disclosure and use schemes have been described. It was also shown how they may affect market competition under State aid measures compatibility assessment.
This paper has provided an overview of contractual IPR provisions defined in collaborative R&D contracts and has discussed how these elements may determine the compatibility of State aid measures with the internal market. Generation of market power, distortion of dynamic incentives to innovation and the maintenance of inefficient market structures have been identified as potential consequences generated by certain IPRs ownership models used in collaborative R&D contracts. A poor design of an aid measure, and the absence of IPRs requirements in EU State aid law facilitates the possibility that parties organize in a way that the market can be distorted, either by distorting competition by some of the mentioned mechanisms or by the generation of adverse effects in the internal market. It was also shown that the IPRs ownership models used by cooperating partners may be decisive in the assessment of selective advantage as defined by EU State aid law.

The alternative schemes of exclusive vs. non-exclusive use of the resulting technology, free publication vs. secrecy, public vs. private ownership and intermediate IPRs options have shown not to be neutral in assessing the effects of State aid measures on the market. One of the critical justifications for State intervention, the positive spillovers generated by R&D cooperation between ROs and industry, is highly affected by restrictions on knowledge dissemination. Moreover, the dissemination objective pursued by R&D aid measures may be offset by contractual limitations on disclosure and use between cooperating partners. In this way, it was shown that IPRs schemes should be coherent with the market failures that State aid measures try to solve.

Taking into account the fundamental effect that IPRs and disclosure models selected by collaboration partners may have on the spillovers pursued by R&D State aid measures, and considering the fundamental interest of the Commission in both market functioning and efficient use of State aid, it is crucial that some basic IPRs and disclosure conditions are imposed to aid measures targeting R&D cooperation in the new
Framework. Today, IPRs are only mentioned as an ingredient to define the existence of indirect State aid in RO-industry cooperation. Nonetheless, the new Framework should go beyond this point to explicitly incorporate IPRs and knowledge dissemination as one of the fundamental elements in applying the balancing test.
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