

2 FISCAL INCENTIVE PROVISIONS - A PATHWAY FROM RESEARCH AND DEVELOPMENT AND INNOVATION TO INTELLECTUAL PROPERTY RIGHTS

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ABSTRACT

This paper contains an account of the evolution pathway of fiscal incentive provisions from research & development & innovation to intellectual property rights. In order to set the main legal and economic framework, this work recognizes four different stages which are briefly described in the following paragraphs.

Keywords: *research, development, innovation, intellectual property, intangibles, fiscal incentives, taxation*

I. FIRST GENERATION: FISCAL STIMULATION FOR SCIENCE AND TECHNOLOGY

The legal and economic concept had its genesis after the Second World War. Following this period, changes in fiscal policy concepts made industrialized nation governments increasingly aware of the enormous influence that their fiscal policy measures¹ had on economic and social spheres. Thus fiscal policy measures turned out to be one of the most fundamental instruments for the extensive reconstruction efforts in Europe, the attainment of long-term financial stability, the improvement of social welfare, and the advancement of economic activities based on industrial development.²

The establishment of special fiscal regimes (*stimulants fiscaux*) prevailed during the second half of the 20th century as one of the most important measures for invigorating the required post-war industrial expansion by encouraging investments in various scientific and technological fields.³ During this period, the effect of economic growth driven by industrial development was sustained by the enhancement of investments for the manufacture of capital assets, which in turn produced consumer goods and services. Theoretically, this required a

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¹ IBFD, 'Fiscal Policy: part of economic policy which relates to taxation and public expenditure', International Tax Glossary, 2005, page 173:

² J Van Hoorn Jr., Régime Fiscal de la Recherche et du Développement Technique (Tax Treatment of Research and Development) (OECD Paris 1962) page 15; *La Recherche Fondamentale et la Politique des Gouvernements* (OECD Paris 1966) page 13: 'Après la guerre, l'évolution de la fiscalité a obéi à des concepts différents La fiscalité est devenue l'un des principaux instruments de la politique gouvernementale Lorsque, pour des raisons politiques, on estime nécessaire d'encourager certaines activités, l'un des moyens auxquels on peut recourir consiste à doter ces activités de régimes fiscaux particuliers. Ces stimulants fiscaux différent entièrement, par leur nature, des privilèges et immunités, car ils doivent être fondés sur des considérations d'intérêt général.'

³ Frascati Manual, *The Measurement of Scientific and Technological Activities, Proposed Standard Practice for Surveys on Research and Experimental Development* (OECD 1993), page 18, (OECD 2002). Also, 'Le système de la recherche' (OECD Vol. 1 1973), page 15.

combination based on fiscal planning measures in the form of direct fiscal instruments and some restrictions to importations, within an import substitution trade policy.⁴

In this early phase, fiscal incentive provisions (FIPs) were not depicted in the concept of research & development (*R & D*)⁵ and innovation (*I*)^{6,7}. The contrasting effects of direct fiscal policy measures, comprising direct financing with fiscal subsidies⁸, as opposed to indirect fiscal measures that entailed fiscal funding through tax advantages, were not clearly determined. Firstly, direct fiscal measures, encompassing economic assistance in the form of fiscal grants, loans, guarantees or other fiscal subsidies, allowed governments to control and plan the direction of the post-war efforts, particularly in the areas of public defence, energy, transport, social security, education, health, and agriculture.⁹ Subsequently, fiscal policymakers from Western economies predominantly used direct fiscal measures to foster *R & D* for civil use during the post-World War II reconstruction and economic reorganization, and to encourage the military status quo that prevailed during the Cold War period.^{10 11 12} Secondly, fiscal

⁴ WTO, Trade Report 2006, Chapter II, page 67.

⁵ Frascati Manual (OECD 2002) page 30. According to the commentaries by Frascati Manual, the definition of *R & D* covers three activities: basic research, applied research and experimental development. These three distinct categories are denominated indistinctively across jurisdictions in the world as: (a) basic, pure or fundamental research; (b) applied, experimental or industrial research; (c) applied, industrial or experimental development.

⁶ OECD *The Measurement of Scientific and Technological Activities Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*, (OECD 1992), (hereinafter Oslo Manual) 3rd edition of the OECD Oslo manual published 27 October 2005.

⁷ IBFD, *International Tax Glossary* (2005) page 341: 'Research and Development (*R & D*): Any systematic or intensive study carried out in the manufacturing and industrial fields, the results of which are to be used for the production or improvement of products and processes. As a general proposition, *R & D* only extends from the laboratory or drawing board to prototype status, i.e. so long as an activity still contains an element of uncertainty/technical risk it is within the realm of *R & D*. Quality control, routine product testing, data collection, efficiency surveys, management studies, market research and sales promotion are normally not considered *R & D* activities. Not all countries define *R & D* in their national legislation; some define it in regulations, others rely on commercial law, accounting principles, case law, etc. In many countries the definition of *R & D* for deduction purposes is broader than the definition for *R & D* credits or incentives.'

⁸ IBFD, *International Tax Glossary* (2005) page 385: Subsidy: 'Grant of money by a government to a supplier of goods or services in order to facilitate or aid current production or to enable the goods or services to be made available at a lower price. Subsidies may be in the form of a cash payment, a tax benefit, soft loan (i.e. interest at less than the market rate), etc.'

⁹ *Troisième Conférence Ministérielle sur la Science* (OECD 1968), Rapport Comité Scientifique: 'Le développement de la recherche fondamentale, en particulier en Europe, se heurte à divers obstacles dont les plus manifestes sont: la rigidité des mécanismes de financement, la dispersion des efforts, la difficulté d'intégrer, dans les structures universitaires traditionnelles, la recherche interdisciplinaire ou celle qui se situe à la frontière de plusieurs disciplines, l'absence d'une politique de recherche bien définie des institutions d'enseignement supérieur, les entraves à la mobilité des chercheurs tant à l'intérieur des pays qu'entre ceux-ci, l'insuffisance de données statistiques valables pour la planification.'

¹⁰ Albert Link, *Evaluating Public Sector Research and Development* (Praeger 1996) page 1: 'Since World War II direct government support of *R & D* and of other aspects of the innovation process increased dramatically in response to military needs and to the government's responsibility for enhancing research capabilities as outlined in the National Science Foundation Act of 1947. This public support has been focussed in two areas. One is basic research, which is an investment in the nation's science base; and the other is applied *R & D*, which even when it has a defense orientation still enhances the overall research capabilities of individual firms. During the 1940s, in addition to increasing its investment in basic science, the nation also began developing its first systematic technology policy, chiefly in connection with civilian use of nuclear power.' See also Albert N Link *Public/Private Partnerships*,

Innovation Strategies and Policy Alternatives, Chapter 2 'The History of Public/Private Partnerships' (Springer 2006) page 16.

¹¹ EU Parliament, Fact Sheets, 'Policy for Research and Technological Development': 'Community Research and Technological Development (RTD) policy was originally based on Article 55 of the European Coal and Steel Community (ECSC) Treaty (expired in 2002); Articles 4 to 11 of the European Atomic Energy Community (EAEC) Treaty (Euratom nuclear research); and Articles 35 and 308 of the European Community (EC) Treaty. An important milestone in the development of a European RTD policy was the adoption of four Council Resolutions on 14 January 1974, notably one concerning the coordination of national policies and the definition of projects of interest to the Community in the field of science and technology and one on the need for the Community to have its own science and technology policy. Title XVIII 'Research and technological development' of the EC Treaty was introduced by the Single European Act (SEA), which entered into force on 1 July 1987, and provided a new and explicit basis for RTD policy, based on multi-annual framework programmes.

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The main instrument of Community RTD policy is the multi-annual Framework Programme (FP), which sets objectives, priorities and the financial package of support for a period of several years (usually five, with planning for successive FPs overlapping by one or two years, but with distinct financial envelopes usually running over four years). With the first FP (1984-1987), Community RTD activities were for the first time coordinated as part of a single, structured framework. The main aim of the second FP (1987-1991) was to develop technologies for the future, integrating major Community programmes in the areas of information technology (ESPRIT), materials (EURAM), industrial technologies (BRITE) and advanced communications technologies (RACE). The third FP (1990-94) broadly followed the same lines, focussing on fewer lines of action, but also on the dissemination of research results. In April 1994, after a long and difficult procedure, Council and Parliament (in the first ever co-decision) adopted the fourth FP (1994-1998). This programme built on the previous initiatives, but contained several important innovations, such as a new programme on targeted socioeconomic research. The fifth FP (1998-2002) marked a shift from research concentrating largely on technical performance towards research and innovation addressing targeted socioeconomic objectives.

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The sixth RTD Framework Programme (FP6) was adopted on 27 June 2002 (Decision 1513/2002 of the European Parliament (EP) and the Council). The programme runs from 1 January 2003 to 31 December 2006. FP6 was specially designed to promote the establishment of a European Research Area (ERA) endorsed by the Lisbon European Council in March 2000 and supported by the EP. The creation of an ERA aims at: (i) ensuring the free movement of researchers, ideas and technology in Europe; (ii) overcoming the fragmentation of European research and creating a critical mass; and (iii) coordinating national and European programmes and policies.

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The European Commission published its initial proposal on 6 April 2005 with an overall budget of €72.7 billion (current prices) for the EC FP over the period 2007-2013 and €3.1 billion for the Euratom FP over the period 2007-2011. The proposals contain a number of important innovations, including creating a European Research Council (ERC) in support of investigator-driven frontier research, launching Joint Technology Initiatives (JTIs) around key technologies and helping create new research infrastructures. The EC FP is structured into five specific programmes: Cooperation (supporting collaborative research activities in nine thematic priorities); Ideas (introducing the European Research Council); People (supporting training and career development of researchers); Capacities (supporting key aspects of European research and innovation capacities) and non-nuclear actions of the JRC. The Euratom FP is structured into two specific programmes and contains substantial funding for fusion energy research, in line with the international commitments undertaken by the Community for the realization of ITER (International Thermonuclear Experimental Reactor) together with the United States, Japan, Russia, China and Korea.'

¹² Paul A David, Bronwyn H Hall, and Andrew A Toole, *Is Public R & D a Complement or Substitute for Private R & D? A Review of the Econometric Evidence* (1999) page 1: 'Most of the growth in the relative importance of this intangible form of capital accumulation has come within the past half-

instruments, consisting of indirect fiscal financing of businesses with fiscal advantage provisions, slowly matured and started to show evidence of positive effects, but the benefits of *R & D* investments spilled over to the whole industry or sector, and not only to the particular company targeted with the benefits.¹³

At that time, the range of fiscal policy choices alternated between enforcing direct fiscal measures as full support measures (*vollförderung*) as opposed to indirect fiscal measures as supplementary or subsidiary measures (*subsidiäre Förderung*). Concurrently, fiscal incentive policies for *R & D* were also discussed from the perspectives of the welfare state, the market economy and the efficient allocation of public resources. All of the aforementioned concepts had to be analysed, having as a background the tension between the legal and economic principles of fiscal planning, fiscal subsidiarity and private autonomy applied to the area of *R & D* (*plan national de recherche vs. laisser rechercher-laisser faire*).¹⁴ As a corollary from a legal point of view, direct fiscal measures comprising fiscal financing with grants, loans, guarantees and other fiscal subsidies, as opposed to indirect fiscal measures comprising fiscal advantage provisions such as tax exemptions and tax allowances, coexisted in various legal systems without thoughtful analysis about their scope and impact.

II. SECOND GENERATION: FISCAL INCENTIVE MEASURES FOR RESEARCH AND DEVELOPMENT

In the context of indirect fiscal measures of a tax nature impacting on *R & D* during the second half of the 20th century, it is difficult to distinguish precisely between fiscal incentive provisions of a general scope (*dispositions générales*), based on general fiscal advantage policy measures, and special fiscal incentive provisions (*dispositions spéciales*), based on particular tailored fiscal advantage policy measures. Thus, according to information obtained from OECD countries, fiscal studies barely distinguish between these binary categories of normative propositions.¹⁵

Clearly, the initial forms of indirect fiscal measures comprised non-specific tax advantage provisions, forming part of the general tax incentive architecture of a given national

century: even under the stimulus of military preparations during the 1930s, total *R & D* expenditures in countries such as the United States, the United Kingdom and Japan remained in the range between 0.66 per cent and 0.25 per cent of their respective national product figures. In the aftermath of World War II, the belief that organized research and development could stimulate economic growth and contribute to improving economic welfare led to the creation of many new public institutions supporting civilian science and engineering, and pushed the civil *R & D* fraction upwards towards the 1 per cent point level in a growing number of countries.'

¹³ OECD, *Tax Incentives for Research and Development: Trends and Issue*, (2004) page 8.

¹⁴ G Braunling, DM Harmsen, *Die Förderungsprinzipien und Instrumente der Forschungs- und Technologiepolitik, Schriftenreihe der Kommission für Wirtschaftlichen und Sozialen Wandel*, Bd. 85 Göttingen 1975, S. 62; Europäische Forschungs- und Technologiepolitik und die Anforderungen des Subsidiaritätsprinzips, Band 5, (1996); Theodor Schilling, *Subsidiarity as a Rule and a Principle or: Taking Subsidiarity Seriously*, NYU School of Law (1995); Thomas Stauffer, *Subsidiarity as Legitimacy?*, (World Bank 1999).

¹⁵ J Van Hoorn Jr., *Régime Fiscal de la Recherche et du Développement Technique*, IBFD, 1962, page 15. The introductory report briefly outlines country measures aimed at financing and encouraging research activities, comprising subventions, fiscal advantages and mandatory contributions: 'Les deux systèmes – octroi de subventions et avantages fiscaux – peuvent coexister... Il y a même une troisième possibilité: le gouvernement peut obliger les entreprises à contribuer financièrement à un programme donné de recherche ou à y participer, parce qu'elles peuvent bénéficier des travaux réalisés par d'autres.'

fiscal system. These non-specific fiscal measures seemed to be particularly embedded in the national income tax structure; their objectives were not limited to the particular encouragement of *R & D*, but rather they were focussed on fostering national or foreign investments in general. Within this scope, studies often describe the general income tax allowances which were applicable to amortize the assets acquired to conduct a scientific research project. The second kind of indirect fiscal measures comprised tax advantage provisions specifically designed for the encouragement of *R & D* investments, with a focus on science and technology projects.

To some extent, an analysis of such fiscal measures demonstrates the attempt of some countries to enact an unsystematic bulk of *R & D* FIPs, encompassing tax benefits ranging in scope from very broad to very limited. For example, in some jurisdictions, contributions made to research institutions and universities were exempt from donation taxes and could be deducted for income tax purposes; also, custom tariffs were waived for importation of certain technical materials used in research laboratories.

Furthermore, as a result of the progressive internationalization of markets and trading, the progress of science and advancement of automatization technologies in the 1970s, new *R & D* FIPs were extended and designed with far-reaching consequences. For example, some jurisdictions contemplated broader deductions of *R & D* expenditures in the form of improved tax allowances; fiscal legislation comprised a special tax credit for income tax purposes, in order to promote *R & D*; and tax incentives encompassed selective contributions to institutions or universities for *R & D* activities.¹⁶ At the same time, the degree of sophistication of fiscal policy measures for the promotion of industrial development found a natural correlation in the targeting of international trade measures for the promotion of exportations and in the targeting of investment measures for the attraction of foreign direct investment (FDI).

At the end of the 20th century, an accumulation of various phenomena comprising the high intensity of international commercial exchanges fostered by e-commerce and e-businesses, the increased importance of intellectual property rights (IPRs), as well as the fierce competition among jurisdictions to capture *R & D* activities, were reflected in far more complex incentive measures comprising enhanced FIPs. This intricate net of fiscal incentives included local, national, regional and global tax incentives, investment tax credits and special investment tax allowances, and other special direct tax measures of a different calibre. In sum, various fiscal devices were enacted as general or specific tax incentives applicable to national and foreign investment, with a focus on the encouragement of *R & D*, IPRs and the transfer of technology.¹⁷

¹⁶ IBFD, International Series, *Tax Treatment of Research and Development Expenses* (1988), Foreword: 'Given the current internationalization of the marketplace, it is generally in the best interests of a country that it should encourage, and even stimulate, research and development activities among companies and universities. The tax laws of most countries, if applied in a pedantic fashion, would actually discourage research and development activities. This is because, as a general tax principle, expenditures that may result in the production of an asset with a useful life of more than one year must be capitalized, rather than deducted currently. Most countries, however, recognizing the folly of such a strict approach to taxation, now permit a current deduction for research and development activities. Some countries, in addition, allow a special tax credit for research and development expenditures. Tax incentives are often granted for contributions to universities for use in basic research.'

¹⁷ IFA, Cahiers, Volume LXXXIIa, *The Taxation of Income Derived from the Supply of Technology*, General Report (Kluwer, 1997) page 45: 'Incentives can take the form of fairly simple approaches such as tax credits for performing research and development activities or tax holidays of various sorts although such incentives do not depend in most cases on an export of products or services.' Also, page 113: 'Bei diesen Anreizen handelt es sich teilweise um recht einfache Methoden, wie, z.B. die

At the same time, improved mechanisms of direct and selective government intervention appeared in the form of direct grants, equity, loans, reimbursable aid, guarantees and other subsidy instruments, with the amount of aid dependent on different parameters, such as the type of *R & D* activity, the beneficiary, the eligible costs, the performance agreement, the territorial scope, the technological impact and similar qualifying conditions. Hence, a certain necessity for technical delimitation emerged to determine the quantity and quality of State aid delivered. In the European Union, the concepts started to evolve using analytical tools from an economical and legal perspective to coordinate the different mechanisms, techniques and normative elements by which fiscal provisions, in the form of indirect fiscal aid in relation to direct fiscal aid, were simultaneously applied by competing Member States. Further, in Europe the requirement for efficient use of scarce public resources led to initial ideas of optimization and targeting of *R & D* FIPs. This new phenomenon resulted in tension between State aid and fiscal competition, which raised concerns about the necessity of curtailing certain fiscal advantages envisioned as harmful or unfair among Member States. These initial considerations in the European Union illustrate the friction between an egoistic approach on a country basis and a more cooperative and harmonized approach to fiscal incentives on a community-of-interest basis. As a correlated reflection, the concerns among OECD countries also pointed to a gradual coordination of special tax fiscal regimes among economically developed nations.¹⁸

III. THIRD GENERATION: FISCAL INCENTIVE PROVISIONS FOR RESEARCH AND DEVELOPMENT, AND INNOVATION

In the early 21st century, the concepts of global market, international free trade and free competition, international flow of private investments and public subsidization measures, established the legal and economic architecture for the development of a global knowledge-based economy. In this environment, commercial exchanges comprise technologically manufactured consumer products of a tangible and intangible nature, as well as technological services, both resulting from worldwide scientific and technological applications.^{19 20}

Most goods and services are products of industries benefiting from FIPs originally created through the legislatures of the most advanced jurisdictions, with a focus on basic research, applied research and industrial development activities.²¹ The role of FIPs is central,

steuerliche Anrechnung von Forschungs- und Entwicklungstätigkeiten oder Steuerbefreiungen verschiedener Art, obgleich diese Anreize in den meisten Fällen nicht von der Aufuhr von Erzeugnissen oder Deisntleistungen abhängen.'

¹⁸ ECOFIN, OJ 98/C 2/01; Conclusions of the Ecofin Council meeting concerning taxation policy, *Report of the Committee of Independent Experts on Company Taxation*; Code of Conduct, Primarolo Report, Ecofin Council 29 November 1999; OECD, 'Harmful Tax Competition- An Emerging Global Issue' (1998).

¹⁹ Michael Rashkin, *Research and Development Tax Incentives, Federal, State, and Foreign*, CCH, 2003, Chapter 1, page 3; Michael Rashkin, *Practical Guide to Research and Development Tax Incentives*, (CCH, 2007) page 1.

²⁰ Anwar Shah, *Fiscal Incentives for Investment and Innovation* (Oxford University Press 1995), foreword, page xiii.

²¹ UNCTAD, *World Investment Report, United Nations, 2005, Transnational Corporations and the Internationalization of R & D*. <http://www.unctad.org>; OECD Science, Technology and Industry Scoreboard 2005, www.oecd.org/sti/scoreboard. EU Commission, *R & D Investment Scoreboard, 2006*, <http://iri.jrc.es>; EU Commission, Joint Research Centre (DG JRC) and Research (DG RTD) Directorates-General of the European Commission; *The Analysis of the 2006 EU R & D Investment Scoreboard*, page 12: 'The world's top 50 *R & D* investors are mainly in the following sectors: automobiles and parts,

since *R & D* efforts have become vital for the business performance of high technology industries such as electronics, computers and robotics, biotechnology, pharmaceuticals, the automobile industry, aerospace, energy, nanotechnology, the Internet and telecommunications, and other emerging technological economic niches.^{22 23 24}

Moreover, as a further development in economic and legal studies, the concepts of *R & D* are used alongside the newly established concept of innovation. Innovation is applied to technological products and processes in the industrial and manufacturing sectors, and particularly to the economic phenomenon generated by knowledge-intensive service areas such as resource-based industries, manufacture of goods and products, the Internet, software, healthcare, tourism, and similar scientific and technological services.²⁵

Consequently, from a legal viewpoint, the new paradigm being framed in Europe embodies the notions of *R & D & I* – FIPs in order to bring together broader and all-inclusive concepts.^{26 27}

Ultimately, in the global knowledge-based economy the use of information and telecommunication technologies (ICT) enhances businesses worldwide and functions as an additional competitive factor.²⁸ ICT includes technologies of communication and information that diminish the relative importance of geographical and locational factors in decisions about where to locate business activities.²⁹ From a strict fiscal viewpoint, the business goal of attaining a lower tax rate and maximization of profits is easier to achieve, since companies are

pharmaceuticals and biotechnology, technology hardware and equipment, electronics and electrical equipment, and aerospace and defense sectors ...'.

²² EU Commission, *Promoting Innovation by Tax Incentives, a Review of Strategies and their Importance to Biotech Growth, Sixth Framework Programme* (2006). This is an example of an *R & D* tax incentives report with a view to supporting the development of biotechnology companies and *R & D*-intensive companies in other industries.

²³ OECD, *Science, Technology and Industry Scoreboard 2007, Innovation and Performance in the Global Economy*, 2007: Biotechnology, page 142; Nanoscience, page 152; Environmental Science, page 156.

²⁴ EU Commission, Joint Research Centre (JRC) and Directorate General Research (DG RTD), *2007 EU Industrial R & D Investment Scoreboard*, page 13: '*R & D* investment by sectors continues to be highly concentrated, both, in terms of numbers of companies and magnitude of *R & D* investments. Three sectors –pharmaceuticals and biotechnology, technology hardware and equipment and automobiles and parts– account for more than half of the global *R & D* investments.'

²⁵ OECD, *Innovation and Knowledge Intensive Service Activities* (2006), page 7; OECD, Forum 2007, Innovation, Croissance et Équité, 'Synthèse de l'étude sur la mondialisation et l'innovation dans le secteur des services aux entreprises', page 4.

²⁶ V Kalløe, *Research and Development and Innovation (R & D & I) Tax Incentives from an EU Perspective, Fiscaal Ondernemingsrecht, Innovatie en Fiscaliteit* (2008) page 98; Prof. Dr. P Kavelaars, *Fiscale Kenniseconomie, Fiscaal Ondernemingsrecht, Innovatie en Fiscaliteit* (2008), page 89.

²⁷ IBFD, *Tax Treatment of Research and Development Expenses*, 2004.

http://ec.europa.eu/taxation_customs/resources/documents/eu_rd_final_rep_dec_2004.pdf.

²⁸ UNCTAD, *World Investment Report, United Nations, 2005*, Transnational Corporations and the Internationalization of *R & D*, page xxix: 'The internationalization of *R & D* is also facilitated by improvements in ICT and associated cost decreases, new research techniques that allow greater fragmentation of *R & D* and better information on research capabilities that are available worldwide.'
<http://www.unctad.org>.

²⁹ Peter Nugent, *Borderline Case, Impact of Tax Incentives on the Location of Investment: A Corporate Perspective* (National Academy Press 1997) page 71.

able to breach the location constraints and seek the best fiscal environment for their *R & D & I*. Also, by transferring investments, companies are able to make use of incentives in the form of direct and indirect subsidies granted in other host jurisdictions. Hence, ICT opens up radical possibilities for business relocation, fragmentation and decentralization and such restructuring possibilities lead to extensive transfers of science and technology and the emergence of global value chains, ultimately resulting in increased outsourcing and offshoring³⁰ of *R & D & I*.³¹

Thus, it follows that the introduction of a broader legal concept of *R & D & I* FIPs plays a fundamental role in fiscal policy considerations; particularly, for the achievement of public and private *R & D & I* investment targets at a national and supranational level.^{32 33} A modern fiscal policy approach is bound to incorporate various mechanisms, instruments and techniques into a fundamental strategy, implemented within the context of the National Innovation System (NIS).³⁴ This allows constant inducement for collaboration between the public and private sectors, as well as the enhancement of business-to-business agreements in order to produce new *R & D & I*, resulting in higher standards of science and technology, which is the foundation of the present economic system.³⁵

³⁰ EU Commission, Pro-Inno Europe, *The Implications of R & D Off-Shoring on the Innovation Capacity of EU Firms*, January 2007, <http://www.proinno-europe.eu>.

³¹ *R & D Magazine*, *Global R & D Report*, September 2007, page 3 <http://www.rdmag.com>.

³² EU Council of Europe, Lisbon 2000, Presidency Conclusions. http://ec.europa.eu/growthandjobs/councils_en.htm; EU Commission, Towards a European Research Area, COM(2000)6; EU Commission, COM(2002)499, More Research for Europe, Towards 3 per cent of GDP; EU Commission, Investing in Research: an Action Plan for Europe, EU COM(2003) 226 final/2; EU Parliament Report on Investing in Research: an Action Plan for Europe, A5-0389/2003, 5.11.2003; EU Commission press release: investment in research: Europe is making progress, but too slowly, 17 March 2004; EU Commission COM(2003)112, Innovation policy: updating the Union's approach in the context of the Lisbon strategy; COM(2002)714, Industrial Policy in an enlarged Europe; EU Commission, Ten priority actions to achieve a broad-based innovation strategy for the European Union, Memo/06/325; EU Commission, Working together for growth and jobs. A new start for the Lisbon strategy, COM(2005) 24 final; EU Decision 1982/2006/EC, European Parliament and EC Council, 18/12/2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013).

³³ WTO, *World Trade Report 2006*, page 83: 'The weight of *R & D* in economic activities appears to have increased over time and around the world. At the global level *R & D* expenditure represented 0.85 per cent of GDP in the 1990s compared with 0.42 per cent in the 1960s. High-income countries invest significantly more in *R & D* than developing countries. The median level of *R & D* expenditure in high-income countries reached 1.19 per cent of GDP in the 1960s and 1.73 per cent in the 1990s. The corresponding figures for developing countries are 0.21 per cent in the 1960s and 0.59 per cent in the 1990s.'

³⁴ OECD, *National Innovation Systems*, 1997, page 10, Box 1: 'A national system of innovation has been defined as follows: ... "the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies.' (Freeman, 1987)" " ... the elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state." (Lundvall, 1992)" " ... a set of institutions whose interactions determine the innovative performance ... of national firms." (Nelson, 1993)" " ... the national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country.' (Patel and Pavitt, 1994)" "... that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies." (Metcalfe, 1995).

³⁵ OECD, *Innovation Policy and Performance, A Cross Country Comparison*, 2005, page 7.

An outcome of the many facets of globalization is that developed and developing economies have been forced to design urgent effective and efficient FIPs that encourage *R & D & I*.³⁶ As economic background to the convergence into a global fiscal policy approach, two main theoretical drivers can be highlighted: on the one hand, the recognition of the economic theory of market failure to explain the underperformance and underinvestment by firms in *R & D & I*, which lacked government support; on the other, a clear acknowledgement of positive externalities in the form of spillover effects of *R & D & I* that spread beyond the firms and sectors of the economy benefited by FIPs.³⁷

Furthermore, in recent years there has been a progressive accumulation of quantitative and statistical surveys on the cost effect of indirect tax incentive measures for stimulating *R & D & I* investment, as compared to the tax revenue cost of their implementation.³⁸

At this last stage of evolution, based on legal, accounting and econometric empirical studies, the implementation of indirect tax incentives for *R & D & I*, comprising tangible assets,

³⁶ Michael Sakbani, *A Re-Examination of the Architecture of the International Economic System in a Global Setting: Issues and Proposals*, UNCTAD/osg/dp/2006/1, 2005, 181, page 3: 'Globalization is manifested in four interrelated developments: (1) the increase in the international exchange of goods and services and the movements of human resources despite all the restrictions therein; (2) the internationalization of production and real investments; (3) the increased integration of financial markets; and (4) the relatively high degree of policy convergence among countries.'

³⁷ Christoph Spengel, *Steuerliche Förderung von Forschung und Entwicklung (FuE) in Deutschland*, Springer 2009, Executive Summary, page XI: 'Ordnungspolitisch ist eine Staatliche Förderung von Forschung und Entwicklung (FuE) aufgrund von Marktversagen gerechtfertigt. Im FuE-Bereich resultiert das Marktversagen aus Spillover-Effekten, Informationsasymmetrien und Unteilbarkeiten. Insbesondere kleine und mittlere Unternehmen Finanzierungsrestriktionen betroffen, weshalb gerade bei KMU gesamtwirtschaftlich wünschenswerte Projekte häufig unterlassen werden. Bei grossen Unternehmen steht die Gefahr von Verlagerungen von FuE-Aktivitäten ins Ausland im Vordergrund.'

³⁸ EU Commission, Commission Staff Working Document, Annex to the Communication From the Commission to the Council, The European Parliament and the European Economic and Social Committee, 'Towards a More Effective Use of Tax Incentives in Favor of R & D', COM 2006, page 728: '2. Use of R & D Tax Incentives. Both economic theory and empirical analysis emphasize that R & D plays a key role in achieving productivity gains and economic growth, and that it has the characteristics of a public good, meaning that the social return of the investment is higher than the private return to the investing firm. In presence of such market failure, which unchecked would lead to underinvestment in R & D by business, public intervention is justified. In effect, Member States have introduced a variety of instruments to support business R & D, such as direct grants or subsidies, tax incentives, guarantee mechanisms or support to risk capital. Their combination and intensity differs from one country to the other, depending mainly on policy objectives, the structure of the economy and the strengths and weaknesses of the national research and innovation system. Moreover, evidence suggests that instruments cannot easily be substituted and must be carefully designed to ensure consistency and synergy. 2.1. Recent trend In this context, a growing number of countries have recently implemented or further developed tax incentives for firms to conduct more research, and there is a growing tendency to consider that this form of public support is an important element of the policy mix to promote business R & D. Consequently, tax incentives are now being used more than previously: in 1996, 12 OECD countries offered tax incentives; this figure rose to 18 in 2004, with most of the increase coming from European countries in the context of the EU objective to raise the level of investment in R & D.' See also, documents EU COM(2003)226 Investing in Research: an Action Plan for Europe; EU COM(2005) 488 More Research and Innovation: a Common Approach.

intangible assets and human capital, plays a critical role in stimulating long-term economic investments with a comparatively low impact on public revenue.^{39 40}

In parallel to FIPs comprising indirect tax incentives, further refinements in the analysis and comparisons with direct fiscal incentives, including a variety of State aid delivered in the form of subsidy instruments, permit a continuous evolution in the differentiation, categorization, measurement and limitation of mechanisms and techniques. Hence, both fiscal approaches entailing direct and indirect fiscal incentives to foster *R & D & I* advance similarly from an economic and legal viewpoint.⁴¹

As a result of these advancements, the concept of *R & D & I* FIPs can be better depicted at present from a legal, economic and financial perspective. Nowadays, *R & D & I* FIPs are regarded as one of the most important fiscal policy mechanisms, which ought to align with the National Innovation System (NIS). The effects of these fiscal incentives originally stem from three distinct fiscal incentive policy principles⁴²:

- Programmed fiscal incentives (*programmförderung*);
- global fiscal incentives (*globalförderung*); and
- structured fiscal incentives (*strukturförderung*).

³⁹ OECD, TIP Workshop, 'R & D Tax Treatment in OECD Countries: Comparisons and Evaluations', 10 December 2007, page 2: 'Tax incentives have become one of the main instruments of innovation policy. Numerous countries use them as general instruments for improving the domestic environment for *R & D* expenditure without any sectoral or technological targeting, in contrast with subsidies. Beyond the goal of encouraging *R & D* in order to boost innovation and competitiveness, there is now the question of a country's attractiveness in terms of *R & D* activities. Some 20 OECD countries use tax instruments to encourage firms to increase their *R & D* expenditure, and such instruments are also being developed in non-member countries, including China.' See also OECD Science, Technology and Industry Scoreboard 2007.

⁴⁰ France, Ministère de l'enseignement supérieur et de la recherche, *Guide 2008, Crédit d'Impôt Recherche*, Janvier 2008, page 3: 'Le CIR en une page, Pourquoi un crédit d'impôt recherche (CIR)?' Les incitations fiscales sont devenues l'un des instruments importants des politiques publiques en faveur de la recherche et de l'innovation. De nombreux pays les ont adoptées, comme des instruments généraux, susceptibles d'améliorer l'environnement national pour les activités de recherche-développement (*R & D*) sans ciblage sectoriel ou technologique, contrairement aux aides directes ciblées telles que les subventions. A cette problématique classique d'incitation à la recherche pour accroître la capacité d'innovation nationale et renforcer la compétitivité des entreprises, s'ajoute désormais celle de l'attractivité du territoire pour les activités de *R & D*.'

⁴¹ OECD, Åsa Johansson, Christopher Heady, Jens Arnold, Bert Brys and Laura Vartia, 'Tax and Economic Growth', Economics Department Working Paper No. 620, ECO/WKP(2008)28, 11-Jul-2008, page 9: 'A widely-used policy avenue to improve productivity is to stimulate private-sector innovative activity by giving tax incentives to *R & D* expenditure. This study finds that the effect of these tax incentives on productivity appears to be relatively modest, although it is larger for industries that are structurally more *R & D*-intensive. Nonetheless, tax incentives have been found to have a stronger effect on *R & D* expenditure than direct funding.' See also in this same study page 38; UK Office of Fair Trading, Public Subsidies, A report by the Office of Fair Trading, November 2004, Annexe C – *The Effects of Public Subsidies on Competition*, A report prepared for the Office of Fair Trading by Frontier Economics.

⁴² Roland Helbing, *Die Steuerliche Behandlung von Forschung und Entwicklung in den Industrieunternehmen der EG-Staaten*, Band 3, Universität Hamburg (Nomos Verlagsgesellschaft 1982), page 41.

The aforementioned principles are concordant with the financial viewpoints that distinguish between a range of assistance systems comprising:

- Purely public budgeted incentives;
- mixed budgeted incentives; and
- purely private budgeted incentives.

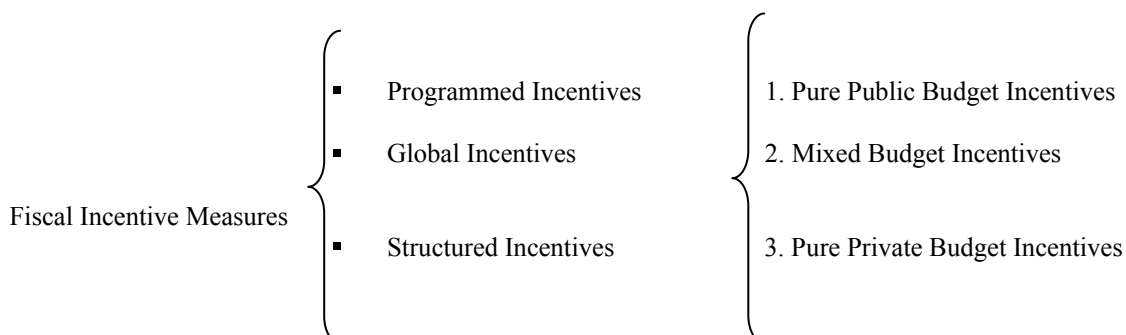
The particular mechanisms of *R & D & I* FIPs may be legally and economically characterized as horizontal advantages, if they consist of fiscal incentive provisions made available to all businesses, are not targeted to specific industries or sectors, and are available across the board. This entails businesses using their own private funds to invest in *R & D & I* and the application of fiscal advantages to the volume or increment of *R & D & I* investment, according to determined objective criteria prescribed in the relevant tax law and regulations. Conversely, incentive mechanisms may be described as vertical advantages if they involve fiscal funds, which are injected into targeted projects (winner projects) selected by a governmental authority or agency based upon certain criteria governed by the public administration.

The aforementioned fiscal incentive policy instruments, considering their implications at the level of the public and private budget, correspond to a modern fiscal approach. They are characterized in most legal frameworks as a combination of legal and economic viewpoints in which broad scope and limited scope FIPs for promoting *R & D & I* are amalgamated, forming a fiscal policy mix.⁴³ In essence, the present striving for higher intensity and quality of *R & D & I*, which leads to more sophisticated levels of science and technology, combines the endorsement of dissimilar principles which range between: (a) the application of strict State-programmed fiscal intervention; (b) the application of State global fiscally controlled measures; and (c) the application of State-structured tax incentives. All of these allow different instruments for the protection and encouragement of private autonomy, liberalization and business freedom.⁴⁴ The following diagram depicts the situation of *R & D & I* FIPs within the context of fiscal incentive measures:

⁴³ EU Commission, *Raising EU R & D Intensity, Improving the Effectiveness of Public Support, Mechanisms for Private Sector Research and Development: Fiscal Measures*, Report to the European Commission by an Independent Expert Group, 2003, page 36, Recommendation 9.

⁴⁴ EU Commission, 'Tax Policy in the European Union – Priorities for the Years Ahead', COM 2001; European Commission, *Report on Research and Development*, Working Group on Research Development, Economic Policy Committee, EPC/ECFIN/01/777-EN Final; EU Commission, Working Group on Research and Development, *Report on Research and Development*, 5402/1/02 REV 1, 2002; EU Commission, European Trend Chart on Innovation, 'Innovation Policy Candidate Countries Towards Good Practices' (2002); OECD 'Tax Incentives for Research and Development: Trends and Issues', (OECD, Paris 2003); *Raising EU R & D Intensity: Improving the Effectiveness of Public Support Mechanisms for Private Sector Research and Development: Final Measures*, Independent Expert Group, April 2003.

Diagram 1



IV. FOURTH GENERATION: FISCAL CONCESSIONS FOR INTELLECTUAL PROPERTY RIGHTS

A further state of advancement requires the recognition and coordination of *R & D & I* FIPs with IPR fiscal concessions. The relationship between *R & D & I* FIPs and fiscal concessions established in favour of IPRs is manifold. This has not been explained in comparative taxation nor in IP law. Nevertheless, an attempt at a theoretical separation between *R & D & I* FIPs and IPR fiscal concessions is possible from various points of view.

Firstly, from a temporal viewpoint, a primary interaction is given at a previous stage, whereby subsequent IPR fiscal concessions follow precedent forms of FIPs that encourage investment in *R & D & I* activities. Thus, business transactions dealing with intellectual property normally occur as a result of the encouragement given by fiscal policy tools to *R & D & I*, first in the form of FIPs and thereafter in the form of special IP fiscal concessions.

Secondly, a relationship between *R & D & I*, on the one hand, and inception, creation and protection of IPRs on the other, is not straightforward. Undisputedly, the successful creation of intangibles assets and the eventual protection of the same through IPRs have their origin in *R & D & I* activities. Nonetheless, not all basic applied research and development activities lead to the creation of any valuable intangible assets that may fall under the protection of IPRs. Further, legal procedures to establish IPRs may take years and not all applications are accepted by the relevant institutions granting particular protection for IPRs in the end.

From an economic viewpoint, the interaction between FIPs for *R & D & I* and fiscal concessions for IPRs has its contact point in the nature of the underlying economic activities encompassed by the business. Thus, *R & D & I* primarily entail economic activities comprising significant expenses targeted to basic research, applied research or experimental development for the creation of intangibles that may generate enough business profits to offset the costs of *R & D & I* investment.

Despite the above, the statistical analysis of patent applications, particularly in Europe and the United States, provides relevant information in order to measure the output of *R & D & I* to IPRs in the form of patents.⁴⁵ Moreover, there appears to be a statistical

⁴⁵ EUROSAT, 'Patents and R & D Expenditure', *Statistics in Focus*, 16/ 2006, page 1. Main Findings of the Study correspondent to data extracted on 30 June 2006 are: • Businesses applied for most EPO patents (82.4 per cent). Only 17.6 per cent of EPO patent applications are from other institutional sectors. • A high level of gross domestic expenditure on *R & D* (GERD) leads in most countries to a high

Fiscal Incentive Provisions - a Pathway from Research Development and Innovation to Intellectual Property Rights

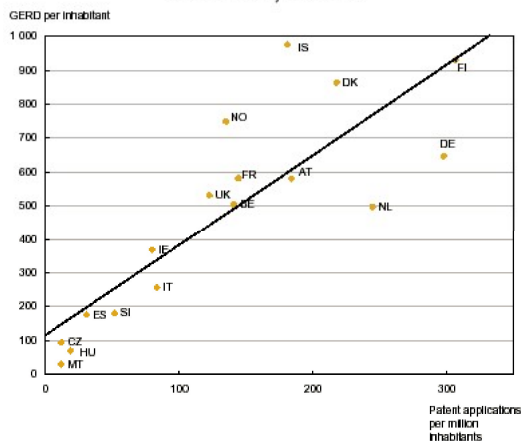
correlation which indicates that the higher the intensity of funds spent on *R & D & I*, the higher the number of patent applications produced in a given jurisdiction.⁴⁶

number of patent applications to the EPO or patents granted by the USPTO. • The United States, Germany and Japan are worldwide leaders in patenting at the European Patent Office (EPO) and at the United States Patent and Trademark Office (USPTO). • The ratio of business enterprise *R & D* to EPO patent applications in the business sector tells us that EU patent applications require fewer research funds than American or Japanese applications. • Analysis of the results of the Patent Scorecard 2006 reveals that, in spite of American leadership in US patenting activity, Europe plays a significant role in US patenting in industrial sectors such as pharmaceuticals (47 per cent), telecommunications (39 per cent), energy and environmental (38 per cent), chemicals (29 per cent), and automotive and transportation (27 per cent).'

⁴⁶ EUROSAT, 'Patents and R & D Expenditure', *Statistics in Focus*, 16/ 2006, page 2:

Figure 2 shows patent applications to the EPO per million inhabitants and *R & D* expenditure per inhabitant in 2002. The trend line indicates a positive correlation between the two indicators. The higher the *R & D* expenditure, the higher the number of patent applications produced by a country tends to be. EU Member States such as Malta, the Czech Republic and Hungary that spent less than EUR 100 per inhabitant on *R & D* produced less than 20 patent applications per million inhabitants in 2002. The *R & D* expenditure of Denmark, Finland and Iceland stood at more than EUR 800 per inhabitant and the number of patent applications per million inhabitants was 181 for Iceland, 217 for Denmark and 307 for Finland. As Figure 2 reveals, Iceland spent more on *R & D* per inhabitant than Finland, but produced fewer patent applications.

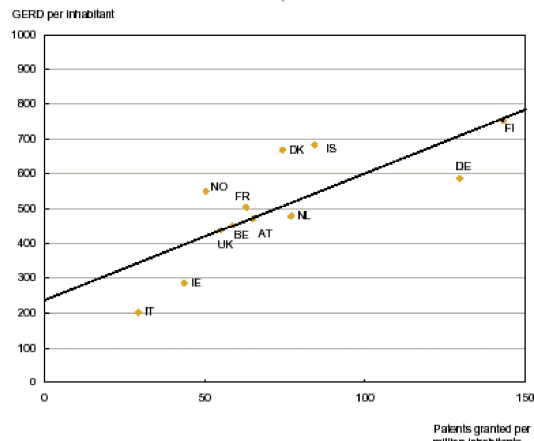
Figure 2: Patent applications to the EPO per million inhabitants and R&D expenditure per inhabitant, in 2002



Only countries with more than 10 patent applications per million inhabitants. Data for EL, LU and SE are not available.

Source: Eurostat, *R&D statistics and patent statistics*

Figure 3: Patents granted by the USPTO per million inhabitants and R&D expenditure per inhabitant, in 1999



Only countries with more than 10 patents granted per million inhabitants. Data for EL, LU and SE are not available.

Source: Eurostat, *R&D statistics and patent statistics*

Figure 3 shows patents granted by the United States Patent and Trademark Office (USPTO) per million inhabitants and *R & D* expenditure per inhabitant in 1999. As the trend line shows, the two indicators are also correlated. The United Kingdom, Belgium, Austria and Finland are on this trend line. Countries below the trend line, such as Italy, Ireland, the Netherlands, and Germany produced more patents in relation to GERD spent. Countries above the trend line, such as Norway, France, Denmark, and Iceland produced fewer patents than expected from their *R & D* expenditure.

R & D & I activities, as well as IPR business transactions, encompass considerable business risks which require the existence of direct and indirect fiscal incentive measures to encourage the business decision-making process. *R & D & I* FIPs are aimed at increasing business expenses for the investigation and discovery of new scientific or technical knowledge which later result in new products or services. Thus, IPR concessions complete the process by which the initial results of *R & D & I* may be later tax maximized by the business.

From a public finance viewpoint *R & D & I* FIPs and IPR fiscal concessions interact within the normative concepts established in the structure of the tax system. In practice, both concepts are parallel to the notion of tax expenditures. The implementation of *R & D & I* FIPs, as well as IPR concessions configure deviations from the systematic tax provisions contained in the tax structure of a given jurisdiction, in order to assist specific activities or transactions with a special tax treatment which generates impact at the level of private and public budgets.

At an international level, in comparison with targeted *R & D & I* FIPs, there appear to be relatively fewer targeted fiscal incentives for IPRs. Furthermore, some IP concessions are blended with *R & D & I* incentives. Thus, one of the main problems in determining a clear division stems from the definition of a point where research activities end in relation to the creation of intangibles assets or IPRs capable of being commercialized.

From the viewpoint of the core of scientific and technological enhancement, by definition, *R & D* activities must seek to achieve scientific or technological advancement and involve the resolution of scientific or technological uncertainty. Generally, *R & D* activities are considered to cease when the scientific or technological uncertainty, which the *R & D* activity sought to elucidate, has been resolved. Notwithstanding, this criterion may be futile in some cases when attempting to recognize if an intangible that has been created may be legally protected under an IPR. Another main issue concerning IPR tax concessions occurs in cases where the definition of intellectual property for tax purposes is confined to limited property rights.⁴⁷ To circumvent this issue some jurisdictions deal with the question of granting special tax treatments under the broader or holistic scope of innovation.⁴⁸

The fiscal treatment of transactions under the wider concept of technology and innovation focusses on definitions that use parallel concepts of IP law or on concepts stemming

⁴⁷ Australia includes a definition of depreciating assets as follows: an item of intellectual property consists of the rights (including equitable rights) that an entity has under a Commonwealth law as: (a) the patentee, or a licensee, of a patent; or (b) the owner, or a licensee, of a registered design; or (c) the owner, or a licensee, of a copyright, or of equivalent rights under a foreign law. This definition of intellectual property does not include trademarks or information.

⁴⁸ UNCTAD, *Technology Transfer and Taxation: Key Issues*, 2005, page 46. Reports few countries which provide tax incentives specifically directed at the export of technology: (a) India permits the deduction (from taxable income) of 50 per cent of royalty and service fee income earned abroad from the use of patents or inventions, and of 100 per cent of profits from the export of computer software or the provision of technical services related to software; (b) Japan allows a special deduction of the income derived from the export of certain technology or the provision of technical services outside Japan, in particular where a Japanese company exports technology-related rights to 'newly developed areas' for the purpose of its manufacture, or provides technical services in such areas; the eligible areas are mostly developing countries; (c) Korea grants an exemption for 50 per cent of the income derived from the transfer of licensing of technology; (d) Sri Lanka provides an exemption for income earned from the export of technology by means of the provision of professional services, provided a reasonable amount of that income is repatriated to Sri Lanka; various other tax holidays and exemptions are given to exporters.

from scientific and technological activities.⁴⁹ Some tax jurisdictions prefer to incorporate a broader concept of technological innovation or to address the concept of technological transfer or to relate to the accounting concept of intangible fixed asset, in order to establish tax treatments corresponding to a wider perspective of *R & D & I* and IPR fiscal concessions.⁵⁰ Consequently, some jurisdictions do not have specific tax incentives for IPRs and opt to reframe *R & D & I* FIPs to link them to intangible assets or to intellectual property once patents are obtained following the relevant national registration procedure.⁵¹

Lastly, with regard to tax, the relation between *R & D & I* activities and IPR transactions entails a turning point where pre-trade activities cease and commercial activities begin. *R & D & I* and fiscal concessions for IPRs target business decisions for the creation or acquisition of assets, which generate expenses and may create future revenue for the business. Although these activities may determine the recognition of valuable economic intangibles, they do not necessarily entail the recognition of intellectual property in the legal sense.

In fact, discrepancies in terms of legal treatment occur if the results of *R & D & I* activities eventually create an economic asset, which under general principles of civil or common law may constitute property for the company capable of being transferred, assigned or sold. These, however, may not be considered strictly as an IPR under patent, design, trademark law or copyright law. Further, this same asset may be considered an intangible, whose value is recognized for accounting or financial purposes. In parallel, it may be possible that the threshold established in tax law for the recognition of intangible property subject to taxation law is fulfilled. The outcome may be that a certain event may be qualified for tax purposes depending on the tax characterization of the IPR for tax law, yet it may not be considered an intellectual property right in the legal sense. The former illustrates in which form the tax treatment for cost recognition, amortization allowances, recognition of ordinary income, long or short-term capital gains and other taxable operations are substantially different and do not depend on the economic or legal characterization of an asset as an IPR.

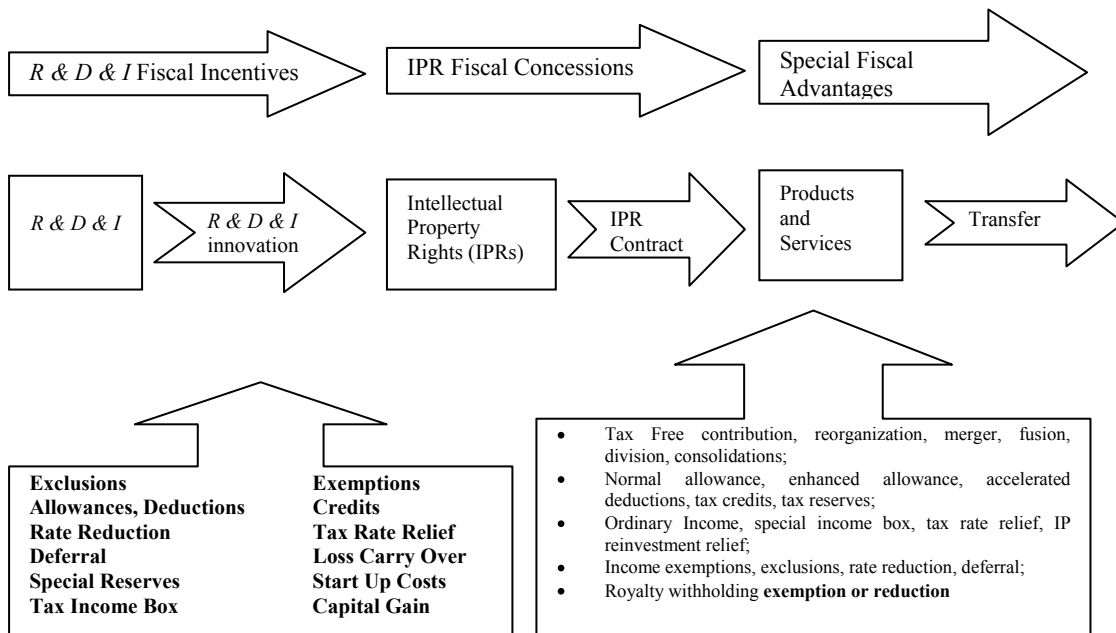
⁴⁹ IFA, *Cahiers 1997*, 'The Taxation of Income Derived from the Supply of Technology', General Report, page 27.

⁵⁰ EU Commission, 'Corporation Tax and Innovation: Issues at Stake and Review of European Union Experiences in the Nineties', Innovation Paper No. 19, page 73.

⁵¹ Spain defines technological innovation as the activity whose result is the obtaining of new products or production processes or substantial meaningful technological improvements above and beyond existing ones. New products and processes are considered to be those whose features or applications are, from the technological viewpoint, substantially different from those previously existing. Such activity includes the materialization of new products or processes in a plan, scheme or design, along with the creation of the first non-marketable prototype and initial demonstration or pilot projects, provided that they are not converted into or used for industrial application or commercial use. United Kingdom: FA 2002 defines an intangible fixed asset as an intangible asset acquired or created by the company for use on a continuing basis in the course of the company's activities. Sch. 29. paragraph 2(2) includes intellectual property denied as (a) any patent, trademark, registered design, copyright or design right, plant breeders' rights or rights under Section 7 of the Plant Varieties Act 1997; (b) any right under the law of a country or territory outside the United Kingdom corresponding to, or similar to, a right within paragraph (a); (c) any information or technique not protected by a right within paragraph (a) or (b) but having industrial, commercial or other economic value, or (d) any licence or other right in respect of anything within paragraphs (a), (b) or (c).

The following diagram is a very general approximation of the interaction between *R & D & I* FIPs and IP fiscal concessions:

Diagram 2



V. ANALYSIS OF IPR FISCAL CONCESSIONS

The analysis of particular fiscal concessions for IPRs is necessary in order to provide a brief overview of their object and characteristics in comparative legislation as a separate phenomenon of IPR law in relation to fiscal law.

In general, IP fiscal concession rules are designed to mitigate the tax impact of the transition between the creation of intangible assets through *R & D & I* activities and the recognition, maintenance, use or disposition of IPRs operating through different legal contractual forms, as recognized in different jurisdictions. Consequently, the application of provisions that contain IPR fiscal concessions follows the form in which the IPRs are created, acquired, maintained and later exploited in commercial transactions.

As mentioned above, in drafting a concept of IPR fiscal concessions it appears that these incentives are normally embedded or blended with *R & D & I* FIPs.⁵² In the first stage, it

⁵² OECD, STI Working Paper, Jacek Warda, 'Tax Treatment of Business Investments in Intellectual Assets, an International Comparison', 2006: 'Investments in patents do not benefit from any specific tax incentives, other than provisions that allow for accelerated depreciation of patent costs. But tax incentives for patents are channelled indirectly through broader schemes that encourage investments in *R & D* and other intangible assets. Patents can be an input to *R & D* processes, or an output thereof, which may help to explain the relative dearth of patent-specific tax incentives. Patents may already benefit from the *R & D* tax incentives existing in many OECD countries. Other channels also exist for the incentive tax treatment of patents, especially the growing role of patent donations and tax reductions on royalty payments.'

is not necessary to consider them as separate from the treatment given to *R & D & I* FIPs. This seems very clear in cases where the *R & D & I* activities lead to the creation of an intangible asset that is later protected under the legal configuration of an IPR. In practice, the additional costs comprised in IPR protection may be subsumed as *R & D & I* expenses and considered part of existent *R & D & I* FIPs.^{53 54}

After *R & D & I* FIPs aimed at the creation of business intangible assets, the next step is the recognition of an IPR in any of the forms established by IP law, namely, a patent, a design, a trademark, a copyright or a trade secret.⁵⁵ Thus, a logical consequence of the initiation of *R & D & I* activities fostered by FIPs in this field is the continuation of a similar level of encouragement in the form of fiscal concessions applied to IPRs.

Regarding this further stage, the scope of *R & D & I* FIPs and those used in IP fiscal concessions may be overlapping. This is evident in that some *R & D & I* incentive provisions require the activities to be carried out directly or on behalf of the company targeted by the incentives. Therefore, when the company which benefited from the *R & D & I* FIPs obtains an effective IPR as result of the *R & D & I* activity, most *R & D & I* FIPs would gradually be replaced with IP concessions. Thus, following the establishment of an IPR, IP fiscal concessions will continue as a natural transition from previous *R & D & I* incentives contained in FIPs in this area.

Some specific considerations arise following an analysis of the question of ownership of IPRs for application of tax incentives. In some jurisdictions, the *R & D & I* incentive cannot be claimed if the resulting IPR is not or will not be in the control of, and commercially exploitable by, the same taxpayer.⁵⁶ This may play a crucial role in cases of private-to-private funding of

⁵³ *R & D & I* activities may lead to the creation of IP rights, the costs of which include legal, administrative and technical fees i.e. attorney's fees, registration fees at a patent office, documentation costs, technical report fees, certification fees and the like, expenses which in most jurisdictions are not included in the economic value of the intangible asset and are considered current expenses.

⁵⁴ United Kingdom, TA 1988, Section 83, also ITA 2005, Sections 89 and 90 contain a relief for full deduction of any professional fees or expenses in respect of patents, designs or trademarks incurred for purposes of a trade. The relief includes fees paid and expenses incurred in: (a) obtaining the grant of a patent, the registration of a design or trademark; (b) extending a patent, extending of the period for which the right in a registered design subsists or renewal of a registration of a trademark; and (c) a rejected or abandoned application for a patent. United States, Section 174 IRS allows deductibility of expenses incurred in developing intellectual property. The costs include expenses for obtaining a patent, such as attorneys' fees in the prosecution of patent applications. France, Article L 242-1 of the Social Security Code contains a total exemption of social security contributions in favor of New Innovative Companies, including those paid to lawyers in charge of the industrial protection and technological agreements related to the *R & D* project, executives in charge of the elaboration, the registration of copyright, the management of the industrial property rights, legal agreements related to the *R & D* projects, and amongst other transfers of technology.

⁵⁵ Tulio Rosembu, 'Intangibles, La Fiscalidad del Capital Intelectual', El Fisco, 2003, page 88. The author argues that *R & D* activities constitute immaterial goods although not protected by exclusive intellectual property rights.

⁵⁶ United Kingdom TA 1988 Section 839. Subcontracted *R & D* can qualify for *R & D* tax relief provided that the company claiming the relief owns the resulting intellectual property. The subcontractor is not entitled to the relief because does not generate any intellectual property. US Treasury Regulations, require that in order for Section 174 to apply the research expenditures must be undertaken directly by the taxpayer or carried on by another person on behalf of the taxpayer. Under IRC 41 (d)(1)(A) similar rules apply to Tax Credits. See also Australia, Canada, New Zealand, and Singapore, where tax incentives

R & D & I, for instance in contractual research agreements or in cost-sharing agreements, where initial *R & D & I* activities are negotiated and a necessary accommodation of the conditions of performance, control and exploitation could be determined by tax considerations contained in *R & D & I* FIPs. Furthermore, analogous problems may be triggered in cases of publicly funded *R & D & I* projects within the scope of collaborative agreements or contractual research arrangements. In the latter case, the public institution granting aid could require the total or partial retention of *R & D & I* results or of IPRs.⁵⁷

VI. FISCAL INCENTIVES AND TRANSFERS OF SCIENCE AND TECHNOLOGY

The relationship between *R & D & I* FIPs and IPR fiscal concessions can also be depicted from the broader perspective of transfers of science and technology. From another perspective, the flow or diffusion of science and technology requires an analysis of those fiscal concessions associated with the life cycle of IPRs from their inception until their exploitation.

First, a special tax treatment may be extended for the acquisition of IPRs in cases where the *R & D & I* activities require, for instance, patents to be purchased and incorporated into scientific or experimental processes. Hence, IPR fiscal concessions are complementary to *R & D & I* FIPs, since IPRs constitute *R & D & I* input costs in the form of special IP allowances.⁵⁸

require ownership of intellectual property. India does not require ownership of intellectual property developed from *R & D*.

⁵⁷ EU Commission, *Cross-Border Collaboration Between Publicly Funded Research Organizations and Industry and Technology Transfer Training Intellectual Property*, Report of the CREST OMC Expert Group on Intellectual Property (2nd Cycle), 2006, page 29: '6. In many of countries surveyed, contracts generally provided that the ownership of the IPR generated in collaborative projects will vest in the inventor, when an individual inventor can be identified. In some countries the issue is open to negotiation and will depend on a number of issues, including the input of the respective parties, including funding and background know-how. 7. If an individual cannot be identified as the inventor, contracts usually provide that the parties will jointly own the IPR. 11. By way of example, the UK scheme targeting SMEs requires the SME to be the owner of the intellectual property resulting from the research in order for them to be able to claim the tax credit. For this reason, UK SMEs are likely to seek ownership of any intellectual property resulting from research collaboration. 12. In most cases tax incentives for patents are introduced through broader incentives to encourage investment in intangible assets. For example, some countries (e.g. France, Hungary and Spain) explicitly allow purchased patents to qualify as *R & D* expenditure when calculating their *R & D* tax credits (either through depreciation allowances or acquisition costs). Evidently, such mechanisms may prove to be an incentive when deciding which partner owns the IPR resulting from the project, and should be taken into consideration during negotiations. In France, a new law enacted on April 18 2006 provides (Article 28) an income ("impôt sur les sociétés") exoneration for PROs' revenues coming from the valorization of their results.'

⁵⁸ IBFD, *Tax Treatment of Research and Development Expenses*, December 2004. France, page 70, *R & D* qualifying expenses include (a) depreciation allowance relating to intangible assets purchased in order to perform *R & D* activities; and (b) the acquisition cost of patents for the purpose of adaptation to a specific application or to succeed in creating a substantial new product. Greece, page 80, *R & D* expenditure includes licences paid for the exploitation of patents used in *R & D* activities. Hungary, page 98, The incentive base for qualifying *R & D* expenditures includes the cost of purchased inventions, patents, licences and know-how. Portugal, page 152, qualifying *R & D* expenditures for the purpose of a tax reserve for *R & D* investment include the acquisition of patents and know-how licences exclusively destined for *R & D* activities. Spain, page 168, qualifying *R & D* and technology expenditure for the tax incentive includes acquisition of advanced technology in the form of patents, licences, know-how and designs.

The tax treatment of the acquisition of IPRs entails different tax incentive rules which take the form of a general investment allowance. The total acquisition of IPRs may fall under tax rules that determine the amortization or depreciation of the cost of the intangible asset over its useful time according to specific measurement methods. The cost of acquisition is normally the acquisition price that may be assessed under rules regarding the fair market value, considering an arm's length transaction for tax purposes.⁵⁹ Under general IP allowances, the depreciable time of the intangible asset is determined by most jurisdictions in special schedules that determine the particular amortization period of the intangible.⁶⁰ The method of depreciation of intellectual property varies in most jurisdictions from the straight-line method to the declining balance method. Depreciation rules follow the mandatory standards set by accounting rules or the statutory provisions contained in tax law and regulations delivered by IRS, depending on the interaction between tax and accounting statutes. The aforementioned interaction determines total accounting and tax rules independence, a direct tax dependence on accounting rules or a reverse accounting dependence on tax rules.

Second, in the same way enhanced *R & D & I* FIPs investment allowances for IPRs may create an additional deduction from the taxable income of the business, based on the purchase cost of the IP asset.⁶¹ Further, in cases of partial acquisition of intellectual property, according to the various IPR contractual possibilities, the tax treatment for the payment of licences, royalties or special fees may also fall under the scope of special IP fiscal concessions.⁶²

⁵⁹ Anti-avoidance rules for determining the acquisition cost of intangibles determine: (a) Fair-Market Value or Actual Commercial Cost of Intangibles or a Reasonable Transaction Price; (b) Valuation of sale and buy-back transactions; (c) Valuation of sale and lease-back transactions; (d) Transfer pricing between related parties according to arm's length principles; (e) Valuation for reorganizations, mergers – de-mergers, fusions, capital contributions.

⁶⁰ IBFD, *Taxation and Investment in the People's Republic of China*, page 171: Expenditures incurred for acquiring intangible assets, such as patents, proprietary technology, trademarks, copyrights and site use rights, may be amortized on a straight-line basis in accordance with Article 45 of the Foreign Income Tax Regulations. Amortization is based on the useful life of the asset and determined in Foreign Income Tax Regulations with ten years for intangible assets.

⁶¹ OECD, STI, Jacek Warda, 'Tax Treatment of Business Investments in Intellectual Assets: An International Comparison' (2006) page 22: Belgium 13.5 per cent deduction of the cost of purchased patents. This deduction is applicable to *R & D*. The Netherlands deduction ranges from 3 per cent to 25 per cent of the cost of an asset depending on the size of the company. Turkey grants an investment allowance equal to 40 per cent of the patent's original cost.

⁶² IBFD, *International Guide to Taxation of Transfers of Technology*. Accelerated Amortization of Intellectual Property Rights: (1) Finland, page 39, ten-year period or shorter if taxpayer demonstrates economic life; (2) India, page 44, at a rate of 25 per cent on written value basis; (3) Israel, page 39, at a rate of 12.5 per cent on value basis; (4) Korea, five years for trademark, design or utility model and ten years for patent right. Norway, page 28, depreciated over useful life after straight line method; (5) South Africa, page 34, 5 per cent to 10 per cent of the amount of the cost is to be amortized annually in case of invention, patent, copyright or other property; (6) Switzerland, page 47, amortization follows the same rules as those applicable to the amortization of *R & D* expenses which have been capitalized, 40 per cent or 20 per cent straight line method. Royalty payments deductible as expense; (7) Finland, page 41 royalty payments deductible expense; (8) India, page 45 royalty payments for a licence are deductible expense; (9) Israel, page 40 royalties deductible as expense; (10) Japan, page 26 royalties deductible as expense; (11) Korea, page 28 royalties deductible as expense; (12) New Zealand 28, royalty deductible; (13) South Africa, page 35, royalties deductible as expense; (13) Switzerland, page 48, royalties deductible as expense.

Third, some IPR fiscal concessions which relate to the legal maintenance of IPRs consistently follow the initial tax conditions established for *R & D & I* FIPs, in order to recognize capitalized expenses, whose costs are subject to extraordinary amortization rules. Hence, IPR fiscal concessions require the pre-existence of an asset subject to valuation and cost recognition in accordance with accounting and tax rules. This, in some jurisdictions, translates into special tax incentives in the form of enhanced or extraordinary amortizations.^{63 64} Together, in case business activities require the payment of licences, copyrights or royalties, special IPR fiscal concessions may apply to the recognition of income and expenses for both parties. In most jurisdictions, the payment of royalties, technical fees or services related to *R & D & I* implies the recognition of expenses.

Other substantial IPR fiscal concessions may be granted in the area of customs, VAT, stamp taxes and similar indirect taxes for the acquisition and maintenance of IPRs. These types of IP fiscal concessions may also be related to human capital tax incentives for the hiring of scientific personnel able to handle IPRs, as explained in the case of *R & D & I* FIPs, through a reduction in social contributions, wages or social security payments.

⁶³ Brazil, Law 11.196, 2005, Article 17 contains a *R & D* fiscal incentive provision with an accelerated depreciation for expenses related to the acquisition of intangible assets exclusively connected to *R & D* activities. 'IV - amortização acelerada, mediante dedução como custo ou despesa operacional, no período de apuração em que forem efetuados, dos dispêndios relativos à aquisição de bens intangíveis, vinculados exclusivamente às atividades de pesquisa tecnológica e desenvolvimento de inovação tecnológica, classificáveis no ativo diferido do beneficiário, para efeito de apuração do IRPJ'; (2) South Africa, Revenue Laws Amendment Act, Article 11B contains an allowance for expenditure actually incurred by a taxpayer in the year of assessment for the purposes of registration of any invention, patent, design, copyright or other property of a similar nature; and obtaining the extension of the period of legal protection or registration, or the renewal of the registration of any such invention, patent, design copyright or other property of similar nature.

⁶⁴ IBFD, *Asia Pacific Bulletin*, Volume 12, Number 3, 2006. Tax Treatment of Capital Expenditure: (1) Australia, page 239: Development costs in respect of a copyright, patent or registered design may be deductible under the capital allowance provisions to the extent they are not otherwise deductible. Development costs in respect of these assets may be deductible also under specific *R & D* incentive provisions; (2) Hong Kong, page 241: Section 16F of the IRO contains a specific deduction for expenditure to purchase patent rights and rights to know-how. (3) India, page 243: Depreciation at rate of 25 per cent is allowed as deduction in respect of know-how, patents, trademarks, licences, franchises or any other business or commercial rights of similar nature acquired after 31 March 1998. Japan, page 249: Amortization of acquired patents, utility model rights, trademark rights varies and is specified in tax regulations; (4) Philippines, page 257: Intangible property, such as patents, copyrights and franchises, may be subject to a depreciation allowance; (5) Singapore, page 259: An allowance for writing down capital expenditure in acquiring any intellectual property right may be applicable under approval basis by a governmental agency; (6) South Korea, page 262: Cost of intangible assets are generally amortized using a straight line method with statutory useful life of five years for designs, models, trademarks and ten years for patents; (7) Taiwan, page 265: According to Section 60 of ITL, development costs that are accounted as intangible assets on the books may be amortizable over a useful life of the taxpayer's choice not exceeding 20 years. Trademarks, copyrights, patents and other franchises are assets only if they are acquired by purchase, the cost of which is amortized according to statutory useful life consistent of 15 years for copyrights, and for trademarks, patents and all other franchises may be based on the number of years of enjoyment of such rights after acquisition. (8) Thailand, page 269: Costs of acquisition of the right in a process, formula, trademark, business licence, patent, copyright, or any other right is 10 per cent if the period of use is not limited; and 100 per cent divided by the number of years of use, if the period of use is limited.

Fourth, the treatment of the disposition or exploitation of IPRs is a complex subject that may also benefit from IPR fiscal concessions, whose application depends on the contractual forms by which IP commercial transactions are conducted.

As discussed in international tax literature, income from the disposition or exploitation of IPRs may take different forms, such as business revenue, gains, royalties from licences, franchises, services fees and technical fees. Therefore, IPR fiscal concessions comprise special treatment in the form of deviations in the recognition of ordinary business income, royalties income, capital gains, income tax relieves and other tax incentives. The clearest IPR fiscal concessions found in most jurisdictions refer to recognition of ordinary income, capital gain income and royalty income resulting from the total or partial disposition of patents, trademarks and know-how.

In particular, IPR fiscal concessions encourage the commercial exploitation of IPRs by implementing tax exclusions, exemptions, rate reduction or income deferral for the IP provider.^{65 66} In addition, IPR concessions, to alleviate the imposition of withholding taxes for royalty payments related to the provision of technology, may be in the form of tax exemptions, withholding tax rate reductions and other types of royalty tax holidays.⁶⁷ Recent examples of

⁶⁵ OECD, STI, 'Tax Treatment of Business Investments in Intellectual Assets: An International Comparison, 2006'. In the countries surveyed, royalties paid for the right to use a licence are generally considered a deductible expense. Royalty revenues are generally treated as ordinary business income and taxed at the statutory corporate income tax rate. Nevertheless, selective tax incentives are offered in a small number of countries to encourage exploiting the patent. Royalty tax incentives are given in the form of tax reductions – full or partial exemptions from corporate income tax on royalties, which is a sort of a tax holiday. Royalty tax incentives differ among countries. Three types can be distinguished:• A full exemption from income tax: Ireland offers this incentive for companies based in the country and conducting R & D there which results in a patent that is then licensed out. • A partial exemption or reduction in income tax – typically 50 per cent – is offered in Switzerland, Hungary and Korea. A reduction in capital gains tax – offered in France.

⁶⁶ IBFD, *International Guide to Taxation of Transfers of Technology*. Korea, page 31. Gains derived from the transfer, licensing or renting of patents, utility models or business secrets qualify for 50 per cent tax exemption. Switzerland, page 59, Partial or even full exemption from cantonal and communal income and capital taxed for a maximum of 10 years can be obtained. France, New innovative company's tax exemption on profits and capital gains in the initial three profitable years of the innovative activity, reduced to 50 per cent in the succeeding two profitable years. The Netherlands, a Patent Box establishes a special rate of taxation of 10 per cent with respect to intangible assets for which a patent has been granted. The income arising from intangible assets must be at least 30 per cent as consequence of the patent.

⁶⁷ IBFD, *Taxation and Investment in the People's Republic of China*, page 264a. Royalties are exempt from withholding tax if obtained from: (1) The provision of proprietary technology in the production of farming, forestry, animal husbandry and fishing; (2) Royalties obtained from China for the provision of proprietary technology to academies of science, colleges and universities and other institutions of higher learning and for cooperation in or the conduct of scientific research or scientific experiments; (3) Royalties obtained from China for the provision of proprietary technology in energy conservation and the prevention and control of environmental pollution; (4) royalties from the provision of technology for the exploitation of energy resources and the development of communications and transportation; (5) royalties obtained from the provision of proprietary technology in the development of important fields of technology and important advanced technology in the production of mechanical and electronic equipment in several areas.

concessions in order to foster IPRs have been established in Europe by Spain⁶⁸, Belgium⁶⁹ and the Netherlands.⁷⁰

Finally, particular withholding tax rates for IPRs are negotiated within the scope of Double Taxation Agreements following the analysis of Article 12 of the OECD Model Convention.⁷¹ Pursuant to this Article, transactions may entail the payment of sums for the use or the right to use intellectual property.

However, international payment for IPR transactions may entail the full or partial alienation of rights attached to intellectual property, in which case they may fall outside the scope of Article 12 and would generally be treated as business income pursuant to Article 5 and 7 or as capital gain pursuant to Article 13. Some countries expressly include in their Double Taxation Treaties a definition of royalty payments for the use of, or the right to use, industrial, commercial, or scientific equipment, giving rise to taxation on the property that is intended to be an accessory to the intangible.⁷²

Moreover, present tax controversies concerning the interpretation of IPR concepts such as know-how, show-how and technical services also comprise the treatment given pursuant to the royalty article. In principle, know-how falls within the definition of information concerning industrial, commercial or scientific experience contained in Article 12(2) of the OECD Model. These payments must be distinguished from those for technical services, in which one party undertakes to use his skills in order to execute or perform the work of another party.⁷³

Most of these discussions are now being conducted by OECD experts, who have undertaken the task to clarify these matters for international taxation, transfer pricing and IP purposes. Nevertheless, discrepancies and asymmetries of treatment exist within OECD jurisdictions which complicate the discussion for multinational companies.⁷⁴

VII. CONCLUSION

The present work is conceived as a theoretical examination focussing on the evolution pathway of FIPs from *R & D & I* to IPRs. In order to depict the whole evolutionary cycle, this paper analyses the four historical stages involved in this process.

⁶⁸ Spanish Corporation Tax Law, Article 23, approved by Royal Legislative Decree 4/2004 of 5 March. See also European Commission, State Aid N 480/2007, Spain, 'The Reduction of Tax from Intangible Assets', Brussels, 13.2.2008, C(2008)467 final.

⁶⁹ Law 27 April 2007, *Belgian State Gazette* 8 May 2007.

⁷⁰ E Sporken and E Gommers, 'The Patents Box: Approved and Implemented in the Netherlands', 14 *International Transfer Pricing Journal* 3 (2007), page 198; Eduard Sporken and Edwin Gommers, 'Recent Developments Transfer Pricing Implication of the Proposed Patents Box', *International Transfer Pricing Journal* 3 (2007), page 266, September/October 2006.

⁷¹ IBFD, *The Taxation of Patent Royalties, Dividends, Interest in Europe Vol I and Vol II*. Contains information concerning withholding tax treatment for 29 countries.

⁷² OECD, *Technical Advisory Group on Treaty Characterization of Electronic Commerce Payments*, (2000) Tax Treaty Characterization Issues Arising from E-Commerce: Report to Working Party No. 1 of the OECD Committee on Fiscal Affairs, OECD, Paris, February.

⁷³ OECD, Committee on Fiscal Affairs, (2003) *Model Tax Convention on Income and on Capital – Condensed Version*, OECD, Paris, April, Commentary on Article 12 11.2.

⁷⁴ OECD, Scoping Document on Transfer Pricing of Intangibles, 27 January 2011.
http://www.oecd.org/document/44/0,3746,en_2649_33753_46988012_1_1_1_1.00.html

The analysis of particular *R & D & I* and IPR fiscal concessions continues to be widely discussed in the literature. Some of these discussions serve to clarify the concept and application of FIPs in the area of *R & D & I* as the most comprehensive system of incentives for the creation of science and technology. In any case, IPR concessions enacted for the exploitation of intangibles or intellectual property are always linked to prior *R & D & I* activities.

Importantly, in order to establish a sound public policy in this matter, policymakers must correctly assess and target the type of fiscal incentive measures corresponding to the national economic stage of development. Thus, politicians must always bear in mind that national decisions in this area must be tailored, since they necessarily affect: (a) the labor market, requiring the use of specialized human resource factors; (b) the firm's productivity by requiring the acquisition of physical technological assets; and (c) national competitiveness in global markets by fostering the creation of valuable intangibles. Thus, *R & D & I* and IPR fiscal advantages must be treated 'organically', following similar underlying legal and economic principles, and targeted to similar objectives for the creation of science and technology.

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