Grasping the Intangible

Mastering the IP Life Cycle from a Legal, Tax and Accounting Perspective

Editors: Isabel Verlinden and Anuschka Bakker

IBFD

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Why this book?
Creativity, imagination, collaboration and entrepreneurship are the seeds of brands, trademarks, patents, algorithms and know-how, to name just a few potentially valuable attributes of successful ventures. These are constantly created, exploited and disposed of during the IP life cycle, from the cradle to the grave. Companies' investment decisions centre around where to locate brainpower and infrastructure in an eternal quest to capture the sweet spot of the global value chain. The question is how to manage, let alone price, transactions where the "ungraspable" is at stake.

Mastering the IP Life Cycle from a Legal, Tax and Accounting Perspective provides an in-depth guide to managing IP rights. The book begins with general chapters that examine, among other topics, the increased importance of IP, the significance of R&D and branding, and the protection and exploitation of IP. Each stage of the IP life cycle is discussed in detail, including such issues as the valuation, migration and extinction of such rights. The general introductory chapters are followed by 48 country chapters covering jurisdictions from across the globe. Each country chapter provides an overview of legal and tax definitions, expenditure for the development or acquisition of IP rights, income characterization, outbound royalty payments, tax treatment of the disposal of IP, specific cross-border transfer provisions, CFC rules, exit taxes, grants and incentives to stimulate inward IP investment, registration or stamp duties on transfer or license, and indirect taxes. With the aim of encouraging a harmonized approach to addressing intangibles, the standardized outline allows easy comparison between countries.

The authors draw upon their own experiences and knowledge to share their insights and to provide numerous examples that guide the reader through the full IP life cycle. With its pragmatic approach, this book is a valuable reference for all those seeking to grasp a true understanding of IP rights, particularly from a tax and legal perspective.

Title:	Mastering the IP Life Cycle from a Legal, Tax and Accounting Perspective
Editor(s):	Isabel Verlinden (PwC) and Anuschka Bakker (IBFD)
Date of publication:	October 2018
ISBN:	978-90-8722-486-8 (print/online), 978-90-8722-487-5 (ePub), 978-90-8722-488-2 (PDF)
Type of publication:	Book
Number of pages:	1,354
Terms:	Shipping fees apply. Shipping information is available on our website.
Price(print/online):	EUR 185 / USD 220 (VAT excl.)
Price (eBook: ePub or PDF):	EUR 148 / USD 176 (VAT excl.)

Order information
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ISBN 978-90-8722-486-8 (print)
ISBN 978-90-8722-487-5 (eBook, ePub); 978-90-8722-488-2 (eBook, PDF)
NUR 826

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Introduction

Writing about intangibles as a transfer pricing practitioner is probably a plausible thing to do these days, particularly when one sees how this topic sits at the top of the minds of many institutions setting the rules of the game, such as the OECD, the United Nations, the European Commission, the International Monetary Fund and many individual country legislators.

We grabbed the pen almost 2 decades ago, back in 2000, amidst the surge of the "dot-com boom". Dematerialization of products in a globalizing world would pave the way to less imperfect markets, as prices would become more transparent than ever, so companies had to fundamentally rethink how to make money. This turned out to be the reality, as many did not find that gateway to healthy margins under complete novel business models, but they served as a catalyst for a fundamental rethinking of the international tax rules. International tax and transfer pricing practitioners sharpened their familiarity with the 1995 OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, which were launched almost simultaneously with the 1994 US Transfer Pricing Regulations, and the practice of obtaining upfront certainty through rulings and advance pricing agreements gained rapid traction. This was more than welcome, as unprecedented business models required taxpayers and those auditing them to jointly land on a way to translate international tax principles dating back from the interbellum to real-life cases that were anything but mainstream if one looked at them through the classical lens of functions, risks and assets. This trinity of factors earmarks a sustainable foundation of a transfer pricing analysis, called a "functional analysis", as the cornerstone of a comparability analysis. At the end of the day, transfer pricing is about comparing how parties linked through some form of economic solidarity set prices for products, services and (the use of) assets they deliver to each other in a way that approximates how parties in an open market do. Professor Schön eloquently states things so as to avoid the distortion of organizational decisions and the competition between multinational and domestic enterprises by providing for *broadly* equal treatment.[1]

1. W. Schön, *Transfer Pricing, the Arm's Length Standard and European Union Law*, Max Planck Institute for Tax Law and Public Finance, Working Paper 2011-08 (2011), available at http://www.tax.mpg.de/RePEc/mpi/wpaper/Tax-MPG-RPS-2011-08.pdf (accessed 12 June 2018).

Two articles in The Economist of 1997[2] and 2000[3] sparked our interest to write about "brainpower" and how this is proliferated within multinational enterprises across borders, either deliberately or even subliminally. Indeed, the latter may be the case if an employee with proprietary expertise and experience "crosses the border" to assist other affiliates of the same multinational group by tapping from that knowledge to enhance the group's market impact on a consolidated basis. These days, so-called "workforce in place" may or may not command compensation when it "travels" internationally. This is even the case when the asset side of a company's balance sheet lacks any trace whatsoever of capitalized brainpower. Indeed, such assets can rarely be capitalized based on accounting conventions, and one would risk inflating the company's value through a big hot air balloon that may get bigger or flatten overnight, given its volatility. This is why, under today's accounting rules, one will find "human capital" rather on the passive side of the balance sheet in order to reflect that a cost will crystallize in case employers let them go, although this may sound disrespectful to the great number of people whose brainpower enables companies to excel and bring superior products, services and technology offerings into an increasingly demanding marketplace.

In 2009, we launched *Mastering the Intellectual Property Lifecycle*, containing 45 country chapters, as we felt that diverging local country views ran the risk of becoming impediments to an aligned and even harmonized way to address the topic on a global basis.
These were already the first signs of the slippery slopes that we were to navigate, both as taxpayers as well as those writing the rules or assessing them in the field or in court. We chose to await the final outcome of the OECD BEPS Action Plan to launch a new version, but then decided to switch gears, as the BEPS Project stakeholders seem to struggle to put the issue to bed after 5 years of intense work. We therefore decided not to await the final outcome of the "profit split" work or the proceedings on "hard-to-value-intangibles"(which both were launched only in June 2018).

Back in 2013, as part of a G20 mandate, the OECD beat the drums to announce its ambitious plan to put an end to base erosion and profit shifting by internationally active taxpayers. The idea was to have over 100 countries become part of this. The situation today is that the OECD undoubtedly reached important milestones to help taxpayers and public servants grapple with a number of deep, technical, complex tax issues, such as hybrid

2. *The tap runs dry*, The Economist (29 May 1997).
3. *The mystery of the vanishing taxpayer*, The Economist (27 Jan. 2000).

instruments, financial transactions, taxable presences in other countries (permanent establishments), interest deductions, high-risk transactions and financial dealings, just to name a few. There are some signs of fatigue in reaching a conclusion on several of these, including permanent establishments, the digital economy and, most of all, the absence of a (visible) sign to say in a consistent, unbiased and determining way that double taxation is as undesirable as double non-taxation. Ironically, thousands of pending cases of divergences in views between countries resulting in mutual agreement procedures are published on a yearly basis by the OECD, whereas cases on double non-taxation merely concentrate around a handful of (often US technology) companies challenged for not paying taxes on profits that lack a "nexus" with a jurisdiction and hence escape tax bills.

Are they doing something illegal? No. As Dennis Healey, former UK Chancellor of the Exchequer, once said: "The difference between tax avoidance and tax evasion is the thickness of a prison wall." Are they engaging in something illegitimate? That is another question, and a tough one to answer. The Court Of Public Opinion[4] is a notion referred to in TP Week in the context of a survey on reputational risk concerns by multinational enterprises. We do not want to shy away from the question, and tax policy is a serious matter for politicians to address. We definitely empathize with individuals paying huge tax bills while being spoon-fed by their government officials that multinationals are shying away from opening their wallets to pay what is known in common parlance as their "fair share" of taxes. Tax politics appear to glimmer through in tax policy initiatives these days, as it resonates well with potential voters. Professor Mindy Herzfeld firmly stated that it is easier to grill executives from multinationals in parliamentary hearings than to craft an aligned and robust set of modern international tax rules. This could not be more true. The fact that the BEPS Project drags on shows how hard it is to look into the technical merits of the various avenues available to tailor the international tax system to today's world. This is where taxpayers (and their advisors) can continuously be of help to legislators. Although not inspired by the ambition to offer a silver bullet as the final solution to the current issues, this 2018 version of our book tries to offer pragmatic solutions to those grappling with intangibles in their day-to-day lives.

The rationale behind the book is also that it fits nicely within the very purpose of PwC: solving important problems and building trust in society.

4. L. Angvik, *Corporates factor reputational risk into transfer pricing strategy*, TP Week (18 Apr. 2018).

This is exactly why it would be easy to shy away from updating our book and instead hide in the trenches of day-to-day challenges, disputes and litigations, which are all costly affairs for clients to cope with, and hence offer fertile soil for a lifetime employment guarantee for transfer pricing consultants. Our clients and our own human capital deserve better; we live in an era of unprecedented change, and intangibles will play an even more relevant role than ever before.

Let us therefore go back to the aforementioned references of those two Economist articles. They will help demystify a belief voiced in many political settings that BEPS was rooted in the 2009 financial crisis and that "toxic" multinationals needed to be put on the "naughty step" as a means of punishment.

Already in 1997 in *The tap runs dry*,[5] the reader was warned that people are finding it easier to escape paying taxes, thanks to the gradual integration of economies and the growth of electronic commerce. The former means that a nation's room to set tax rates higher than elsewhere is being constrained. The "race to the bottom" was then already mentioned as a way for countries to lure foreign investors through low tax rates. On e-commerce, the article stated that the expansion of business conducted over the Internet will make it harder to track – and hence, tax – transactions. "Crafty" transfer pricing was mentioned as a way to avoid high taxes. The idea of taxing electronic flows of information was voiced as a possible avenue for governments to react. Indeed, they were expected to be forced to shift their tax bases further from footloose factors of production, such as profits and savings, towards consumption and labour, and even here, it may be harder to tax the income from and the consumption of goods and services sold over the Internet. The article warned of the adverse effect that the least mobile unskilled labour was likely to bear a growing share of the tax burden as capital becomes more mobile.

Governments need to continuously be able to meet the legitimate demands of their citizens for public services. The "race to the bottom", together with the dematerialization of products through e-commerce, makes it complicated for the taxman to pinpoint sustainable sources of income.
The Economist predicted in 2000 that new Internet taxes would risk a US ban (i.e. the United States would unlikely agree on having those taxes be levied)[6] as a net exporter of e-commerce. This was long before the launch

5. *The tap runs dry*, The Economist (29 May 1997).
6. *The mystery of the vanishing taxpayer*, The Economist (27 Jan. 2000).

of the late 2017 US Tax Cuts and Jobs Act, informally referred to as the US tax reform. More visionary statements followed. The OECD was felt as lacking sufficient clout, especially over non-members. With hindsight, one sees indeed that some countries may feel more as "members of the club" than others, as attending a meeting in Paris every now and then may not be the same as being truly *dans le bain*, or "jointly in the same bathtub", as the French tend to say. The European Union was thought to have a better chance of curbing tax competition among its own Member States through its directives and through the Court of Justice of the European Union (ECJ), which was felt to steadily, if not slowly, enforce tax harmony in the name of the single European market. This seems to be pretty predictive when looking at the current state of play around illegal State aid. The European Commission's Competition Law unit has developed an arm's length principle derogating from the OECD one, although it seems to be softening its tone as time passes by. Moreover, its harsh verdicts "come from behind" for companies that agreed upfront with tax authorities via rulings or advance pricing agreements (or anything serving to that effect in those early days) on the ultimate tax bill. Even an Advocate General of the ECJ, Juliane Kokott, warned in a 3 May 2018 speech on taxpayer rights[7] about the risk of legal uncertainty that those cases bring. She also used the occasion to mention that it is not helpful if taxpayers are called "outliers" as a way for European Commission case handlers to refer to "bad cases" that they consider a priority target for attack.

The Economist questioned also in 2000 whether tax competition is really so bad. In the 1950s, Charles Tiebout, an American economist, already argued that competition between governments can be good for everybody concerned, as competition forces governments to render their services more efficiently. Obviously, this seems to forego the fact that "richer" taxpayers tend to be more mobile than "poorer" ones. This is why also the World Trade Organization does not reject tax competition as such, though in a more nuanced way.

But let us come back to 2018. This book draws from the enthusiasm, skills and efforts from a large number of PwC colleagues and IBFD specialists. This is how people work together, and definitely also reflects how multinationals work with geographically proliferated teams on a 24/7 basis. If they create intangibles, the identification of where the development, enhancement, maintenance, protection and exploitation (DEMPE) functions take

7. *3rd International Conference on Taxpayer Rights, Good Governance and Legal Remedies*, hosted by IBFD (Amsterdam, 3-4 May 2018).

place is a hard nut to crack. This DEMPE analysis lies at the heart of the OECD BEPS Project, and many have voiced how they struggle with the practical implementation. Professor Vann, one of our co-panellists at the 2017 International Fiscal Association Congress in Brazil on the future of transfer pricing, probably deserves the prize of the most colourful one, as he consistently referred to the "DEMPE dumps". The question is whether this is not simply one way to voice concerns over the use of a concept that predominantly sees human intervention as a key pillar to curb the use of so-called "cash box companies" that lack the people with the expertise and empowerment to credibly oversee entrepreneurial risk. It all boils down to the undoubtedly valid question of "economic substance".

This is where we believe that the OECD BEPS Project, the EU Commission State aid attacks, the United Nations' proceedings and many domestic measures, such as the United Kingdom's diverted profits tax, all teeter on the (same) edges rather than take the bull by the horns. This book will deal with their concepts, but we will draw the attention to where value creation sits in the current age of artificial intelligence (AI) and machine learning (terms that are often used interchangeably), where computers crunch vast quantities of data to find patterns and make predictions without being explicitly programmed (by human beings) to do so. Large quantities of data, more sophisticated algorithms (that are self-reinforcing) and sheer computing power have given AI greater force and capability. The outcomes are comparable to what an army of statisticians with unlimited time and resources might have come up with, but they are achieved far more quickly, cheaply and efficiently.[8]

AI supports (i) the automation of business processes; (ii) insight gained through data analysis or cognitive insight, i.e. the use of algorithms to detect patterns in vast volumes of data and interpret their meaning; and (iii) cognitive engagement whereby natural language processing chatbots, intelligent agents and machine learning are used to engage employees and customers.[9] Supply chains are getting shorter and shorter, and as a transfer pricing practitioner, one may ask how this translates into DEMPE functions, if at all. The key to this supply chain transformation is not necessarily the new equipment, such as drones and driverless vans, but the new ways

8. *GrAIt expectations*, a special report on artificial intelligence (AI) in business, The Economist (31 Mar. 2018).
9. T.H. Davenport & R. Ronanki, *Artificial Intelligence for the Real World – Don't start with moon shots*, 96 Harvard Business Review 1, pp. 110-112 (2018).

of handling data: knowing where hundreds of millions of things are and where they are going and being able to act on that data as things change.[10]

Goldman Sachs expects AI to bring logistic costs down by at least 5%, which could generate additional profits of USD 25 billion over the next 10 years, making a big difference in this cut-throat and low-margin business.[11] Manufacturing is improved through computer vision systems. In China, "co-bots" – machines that can work in factories safely alongside human beings – are upending the country's vaunted manufacturing sector, allowing fewer labourers to be vastly more productive. Any predictable work, including many jobs considered to be "knowledge economy" jobs, is now within the purview of machines. This includes many high-skill functions, such as interpreting medical images, performing legal research and analysing data.

As advanced machines and computers become more and more proficient at picking investments, diagnosing disease symptoms and conversing in natural English, it is difficult not to wonder what the limits of their capabilities are. This is why many observers believe that technology's potential to disrupt our economy – and our civilization – is unprecedented.[12] The question for us to ask and to solve is that of what this means in tax and, more specifically, transfer pricing terms. What does "functional value creation" mean amidst the technological transformation that earmarks the economy? Will a three-tiered functional analysis based on (particularly) functions, assets and risks survive? Will new factors be added that capture parameters of advanced data analytics? Or does this even put boundaries on the lifetime of the arm's length principle as such? We do not think it has to, though if it does, we will make sure to apply the rules of the game. Meanwhile, the reader should factor in that this book is written in the context of unfinished work by the OECD. But after all, as the above demonstrates, even if it would be finished, it would be founded on outdated concepts about value creation.

Within its G20 mandate under the work on BEPS, the OECD's work was limited to mere "plumbing". A fundamental revision of source-based ver-

10. *Thinking outside the box – digitisation will not just transform how goods are moved around the world, but also how the world shops*, The Economist, p. 20 (28 Apr. 2018).
11. *In algorithms we trust – AI is making companies swifter, cleverer and leaner*, a special report on AI in business, The Economist, p. 5 (31 Mar. 2018).
12. J.E. Aoun, *Robot-proof: higher education in the age of artificial intelligence*, Introduction, p.xii (MIT Press 2017).

sus residence-based taxation principles would have been the preferred option, and ideally among over 100 countries acting on true equal footing so as to ensure aligned action. This is regrettable. We can only hope that all stakeholders in this debate appreciate the best endeavours devoted by numerous companies to grapple with intangibles in the best way, taking into account the limited uniform guidance, the surge in domestic anti-avoidance rules, the continued crusade from the European Commission against (deemed) illegal State aid and the opportunity cost of spending valuable management time to substantiate in clear and undisputable fiscal terms where the true hotspot in the value chain lies. This is why we believe what Professor Shay articulated so nicely at the aforementioned IFA Congress in the panel on BEPS that "much more work is needed if one wants to achieve a major overhaul to cover remote economic activity by a remote seller". We are ready to roll up our sleeves to add to this debate. Meanwhile, we will continue to analyse functions, assets and risks and evaluate how they integrate with the group's key value drivers. We can tap from industrial organization economics, i.e. the study of the firm strategies that are characteristic of market interaction – namely competition, product positioning, advertising and research and development – to identify the sources of (sustainable) competitive advantages. A decent value chain analysis will ensure that primary functions and core competencies are pictured as a basis to determine arm's length profitability ranges for each routine function and core competency area. These can be mapped to each legal entity of the multinational group based on classical transfer pricing techniques, either one or two-sided (for entrepreneurial returns). We put high hopes that the reading of this book may add to a broad acceptance of such an analysis.

Isabel Verlinden

July 2018

Increasing Importance of IP Rights

Anuschka Bakker, Stefaan De Baets, Marco Maria Mazio and Paulina Szotek*

1.1. IP rights as a company's key value driver

1.1.1. Introduction

The importance of intangible assets is evident from the number of search results when one performs a search in the Web of Science database.[1] A keyword search on intangible assets gives 1,424 search results. If one is already impressed by this number, one should bear in mind that searches on intellectual property (IP) or intangible capital, which is different from intangible assets, will increase the aforementioned search result.[2] However, the number 1,424 on its own does not say much. There is more to this number. Therefore, let us take a deep dive into this world of intangible assets and, more specifically, into their value, the changed global value chains of companies and the relationship between intangible assets and firm performance.

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* Anuschka Bakker, Manager Transfer Pricing and Specialist Knowledge Group, IBFD, authored sections 1.1. and 1.2.; Stefaan De Baets, Senior Counsel Transfer Pricing, PwC Belgium, co-authored section 1.3.; Marco Maria Mazio, Consultant State Aid and Transfer Pricing, PwC Belgium, co-authored sections 1.3. and 1.4.; and Paulina Szotek, Senior Consultant in the EU/International Tax and Transfer Pricing Team, PwC Belgium, co-authored section 1.4. This chapter was updated based on the original chapter written by PwC and published in *Mastering the Intellectual Property Life Cycle: A global perspective on the tax-efficient management of IP rights*, 2nd ed. (PwC 2009).

1. Web of Science is an online, subscription-based scientific citation indexing service originally produced by the Institute for Scientific Information and maintained by Clarivate Analytics that provides a comprehensive citation search. *See* https://clarivate.com/products/web-of-science/ (accessed 5 June 2018).

2. Intangible assets, also known as knowledge assets or intellectual capital, are assets that do not have a physical or financial embodiment. This includes, for example, assets such as software, reputation, branding, design and research and development (R&D), which contribute to the long-term accumulation of a firm's knowledge capital. However, there is no universal definition of intangible assets. This was reflected in the reports published under OECD BEPS Action 8, which focused on transfer pricing issues relating to transactions involving intangibles, since misallocation of the profits generated by valuable intangibles has contributed to BEPS (*see* OECD, *Aligning Transfer Pricing with Value Creation – Actions 8-10: 2015 Final Report* (OECD 2015). The OECD provided an overview of the various definitions of intangibles for legal, tax, accounting and valuation purposes. In addition, reference can be made to OECD, *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, ch. VI).

1.1.2. The importance of intangible assets in economic activity

Throughout the years, it has been heard and noticed in both media and academic literature that the importance of intangible assets has increased.[3] A shift from the regular brick-and-mortar investments has taken place and is still continuing. International organizations such as the OECD, the European Union and the United Nations have noticed this change too. The OECD published, under Action 1 of the OECD BEPS Project, a report that addressed the tax challenges of the digital economy. In March 2018, the OECD/G20 Inclusive Framework on BEPS published an interim report, which is a follow-up to the aforementioned report.[4] The Interim Report provides an analysis of the main features frequently observed in certain highly digitalized business models and value creation in the digital age, as well as the potential implications for the existing international tax framework. At the same time, the European Union is also working on their set of rules for the taxation of digital business.[5] Further, the United Nations discussed the tax challenges of the digitalization of the economy in 2017 through updates to the UN Practical Manual on Transfer Pricing for Developing Countries (UN Manual)[6] and in the report of the Committee of Experts on International Cooperation in Tax Matters entitled Tax Challenges in the Digitalized Economy.[7] Reference can be made to the Introduction of this publication.

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3. *See,* among others, C. P. Skroupa, *How Intangible Assets Are Affecting Company Value In The Stock Market*, available at https://www.forbes.com/sites/christopherskroupa/2017/11/01/how-intangible-assets-are-affecting-company-value-in-the-stock-market/#5502adc92b8e (accessed 5 June 2018); M. Wolf, *The challenges of a disembodied economy,* available at https://www.ft.com/content/a01e7262-d35a-11e7-a303-9060cb1e5f44 (accessed 5 June 2018); and S. Grüber, *Intangible Values and Reporting An Analysis from the Perspective of Financial Analysts* ch. 1 (Springer Gabler 2015).
4. OECD, *Tax Challenges Arising from Digitalisation – Interim Report 2018: Inclusive Framework on BEPS* (OECD 2018), available at http://dx.doi.org/10.1787/9789264293083-en (accessed 5 June 2018).
5. *See* https://ec.europa.eu/taxation_customs/business/company-tax/fair-taxation-digital-economy_en (accessed 12 June 2018).
6. United Nations, *Practical Manual on Transfer Pricing for Developing Countries*, 2nd ed. (United Nations 2017) [hereinafter UN Manual], available at http://www.un.org/esa/ffd/wp-content/uploads/2017/04/Manual-TP-2017.pdf (accessed 19 June 2018).
7. UN Committee of Experts on International Cooperation in Tax Matters, *Tax Challenges in the Digitalized Economy: Selected Issues for Possible Committee Consideration* (United Nations 2017), available at www.un.org/esa/ffd/wp-content/uploads/2017/10/15STM_CRP22_-Digital-Economy.pdf (accessed 19 June 2018).

Intangibles are very important because they increase the value of a company. This is, for example, stated by David Post, who leads the Sustainable Accounting Standards Board's (SASB) team of sector analysts.[8] Throughout the years, the importance of intangible assets has increased. Whereas in the past, a business model of a multinational enterprise (MNE) relied on tangible assets such as plants, machines and equipment, the business models of companies nowadays highly depend on intangible assets.[9] The shift from tangible assets to intangible assets is also described in the book *Capitalism without Capital*.[10] Further, this shift has also been noticed by organizations such as the World Intellectual Property Organization (WIPO) and the OECD.[11] The rise of IP shows, for example, in the number of filings of patents and trademarks. The WIPO stated in its report entitled *World Intellectual Property Indicators 2017*[12] that global patent filings have increased by 8.3% and that global trademark filing activity has increased by 13.5%, thus making for 7 years of straight increases. The increase of patent filings led to an increase of pending patent applications and a backlog. For example, in 2016, the number of potentially pending applications stood at 1.1 million in the United States, around 847,000 in Japan and around 668,000 at the European Patent Office (EPO).[13] Table

8. *See*, among others, C.P. Skroupa, *How Intangible Assets Are Affecting Company Value In The Stock Market*, available at https://www.forbes.com/sites/christophersk roupa/2017/11/01/how-intangible-assets-are-affecting-company-value-in-the-stock-market/#5502adc92b8e (accessed 5 June 2018).
9. S. Grüber, *Intangible Values in Financial Accounting and Reporting: An Analysis from the Perspective of Financial Analsysts* p. 1 (Springer Gabler 2015).
10. J. Haskel & S. Westlake, *Capitalism without Capital: The Rise of the Intangible Economy* (Princeton U. Press 2017), available at https://press.princeton.edu/titles/11086.html (accessed 5 June 2018).
11. T. Daiko et al., *World Corporate Top R&D Investors: Industrial Property Strategies in the Digital Economy: A JRC and OECD common report* (Publications Office of the European Union 2017), available at https://www.oecd.org/sti/world-top-rd-investors.pdf. (accessed 5 June 2018).
12. WIPO, *World Intellectual Property Indicators 2017*, foreword (WIPO 2017), available at http://www.wipo.int/edocs/pubdocs/en/wipo_pub_941_2017.pdf (accessed 5 June 2018). Additionally, a growth of patent files has also been noticed by the European Patent Office (EPO); *see* http://documents.epo.org/projects/babylon/eponet.nsf/0/06F1C17C676C4632C1258247004539D1/$File/facts_and_figures_2018_en.pdf (accessed 5 June 2018).
13. WIPO, id., at pp. 11 and 29-39. This report also provides an overview of the number of filings with the five intellectual property (IP) offices (IP5). This is a forum of the five largest IP offices in the world. The members of the IP5 are the EPO, the Japan Patent Office, the Korean Intellectual Property Office, the State Intellectual Property Office of the People's Republic of China and the United States Patent and Trademark Office.

1.1. shows part of a ranking of total (resident and abroad) IP filing activity in 2016.[14]

Table 1.1. – Ranking of total (resident and abroad) IP filing activity in 2016

Country	Patent	Marks	Designs
China	1	1	1
United States	2	2	4
Germany	5	4	2
Japan	3	3	7
Republic of Korea	4	8	3
France	6	5	8
United Kingdom	7	7	11
Italy	11	5	5
Switzerland	18	13	9
India	12	6	14

1.1.3. Global Value Chains

1.1.3.1. Introduction

A number of trends have changed the business models of MNEs, but before getting into that, the definition of a business model must be discussed, as definitions of "business model" vary.[15] Kavadias, Ladas and Loch describe

14. WIPO, *supra* n. 12, at p. 11. The data in Table 1.1. does not mean that these countries are the most innovative countries in the world. Other factors that need to be taken into consideration in respect of the latter are, for example, R&D intensity, productivity, high-tech density, tertiary efficiency, researcher concentration and patent activity. *See,* for example, the 2018 Bloomberg Innovation Index, available at https://www.bloomberg.com/news/articles/2018-01-22/south-korea-tops-global-innovation-ranking-again-as-u-s-falls (accessed 5 June 2018). Other overviews are the Global Competitiveness Index published by the World Economic Forum, available at https://www.weforum.org/agenda/2017/10/these-are-the-10-most-innovative-countries-in-the-world/ (accessed 5 June 2018) and the Consumer Technology Association, which put together an International Innovation Scorecard, available at https://www.internationalscorecard.com/data (accessed 5 June 2018).

15. S. Kavadias, K. Ladas & C. Loch, *The Transformative business model: How to tell if you have one*, Harvard Business Review, pp. 91-98 (Oct. 2016), available at https://hbr.org/2016/10/the-transformative-business-model. *See also* R. Casadesus-Masanell & J.E. Ricart, *From strategy to business models and onto tactics*, 43 Long

it as the way a company creates and captures value. The business model is reflected in the value proposition to customers, pricing, allocation of resources and the organization of the supply chain.[16] Usually, the following components of business models are mentioned: (i) value proposition (the offering); (ii) value creation (the experience); and (iii) value capture (revenue/resource stream).

This section does not aim to provide a complete overview of the trends that impact business models. There are, however, a number of companies that can be considered disruptors, such as Apple, Airbnb and Starbucks. Starbucks, for instance, has changed the concept of having a cup of joe in the morning. Coffee beans are essential for brewing coffee, but with respect to coffee, we have seen a change in consumption pattern. Throughout the years, we have seen developments in the coffee market. Firstly, companies active in the field of coffee were focused on providing coffee beans, soluble coffee and coffee cups to consumers. Secondly, the companies active in the field of coffee were focused on creating the social setting of having coffee. Thirdly, the companies active in the field of coffee are targeting consumers that are willing to pay premium prices for their coffee. The last category has much resemblance with the wine industry, where the consumers want to know who grew the grapes, the origin of the grapes, etc.[17]

Further, we have seen the digitalization of business models. For a more detailed overview of the digitalization of the economy, reference can be made to the Introduction in this publication.

MNEs started to shift from brick-and-mortar business to online business, or a combination. This is what is called digitalization. According to the Oxford Dictionary, digitalization is the "conversion of text, pictures, or sound into a digital form that can be processed by a computer".[18] A similar definition is used by Ng and Wakenshaw.[19] According to them, digitalization is the "conversion of analog information in any form such as text,

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Range Planning 2-3, pp. 195-215 (Apr.-June 2010); and C. Zott, R. Amit & L. Massa, *The business model: Recent developments and future research*, 37 Journal of Management 4, pp. 1019-1042 (2011).

16. Kavadias, Ladas & Loch, id.

17. WIPO, *supra* n. 12, at pp. 45-46.

18. *See* https://en.oxforddictionaries.com/definition/digitization (accessed 28 May 2018). *See also* R. Petruzzi & S. Buriak, *Addressing the Tax Challenges of the Digitalization of the Economy – A Possible Answer in the Proper Application of the Transfer Pricing Rules?*, 72 Bull. Intl. Taxn. 4a/Special Issue (2018), Journals IBFD.

19. I.C.L. Ng & S.Y.L. Wakenshaw, *The Internet-of-Things: Review and research directions*, 34 International Journal of Research in Marketing 1, pp. 3-21 (2017).

images, sound or physical attributes to a digital format so that the information can be processed, stored, and transmitted through digital circuits, devices and networks".[20] Digitalization has, among others, changed what consumers conceive as value. Consumers do not want to own a product, but they simply want to use it, whenever and wherever they want; it is about availability. Further, connectivity is important. For instance, Zipcar, Hertz Connect and Drive Now of BMW allow their users to share a car instead of having to buy one. Another example is situated in Rotterdam, where there is an apartment building with three BMWs in the garage for sharing.[21] In addition, the importance of social platforms such as Facebook, Instagram and Foursquare has increased.[22]

In addition, MNEs have made a shift to servitization and have moved from a product-focused logic to a service-dominant logic.[23] Examples of this are the service-on-demand buttons that, for example, allow customers to order pizza[24] or mineral water[25] at the press of a button.

We have also seen that data on what consumers use, who they are and what they like is practically gold. Firms use this information for designing or improving their product or service portfolios.[26] Also, technologies such as artificial intelligence, robotics and blockchain are mentioned in the same breath.

1.1.3.2. Change in global value chains

The development mentioned in section 1.1.3.1. has impacted the business models of MNEs, and therefore the global value chains of MNEs. The

20. Id.
21. *See* http://www.duurzaamnieuws.nl/toekomstvisie-bmw-duurzaam-wonen-en-e-auto-delen/ (accessed 28 May 2018).
22. I.C.L. Ng, *Value and Worth: Creating New Markets in the Digital Economy* (Innovorsa Press 2013; printed version Cambridge University Press 2014), available at http://valueandmarkets.com (accessed 5 June 2018).
23. S.L. Vargo & R.F. Lusch, *Service-Dominant Logic: Continuing the Evolution*, 36 Journal of the Academy of Marketing Science 1, pp. 1-10 (2008).
24. *See* http://www.telegraph.co.uk/technology/news/12011388/Dominos-Easy-Order-button-lets-you-buy-pizza-with-just-one-press.html (accessed 28 May 2017).
25. *See* https://www.brandingmag.com/2012/06/13/evian-delivers-water-at-the-touch-of-a-button/ (accessed 28 May 2017).
26. Ng & Wakenshaw, *supra* n. 19. *See also*, for more information on digitalization and data and the relation with value creation and intangible assets, S. de Jong, W. Neuvel & Á. Uceda, *Dealing with Data in a Digital Economy*, 25 Intl. Transfer Pricing J. 2 (2018), Journals IBFD.

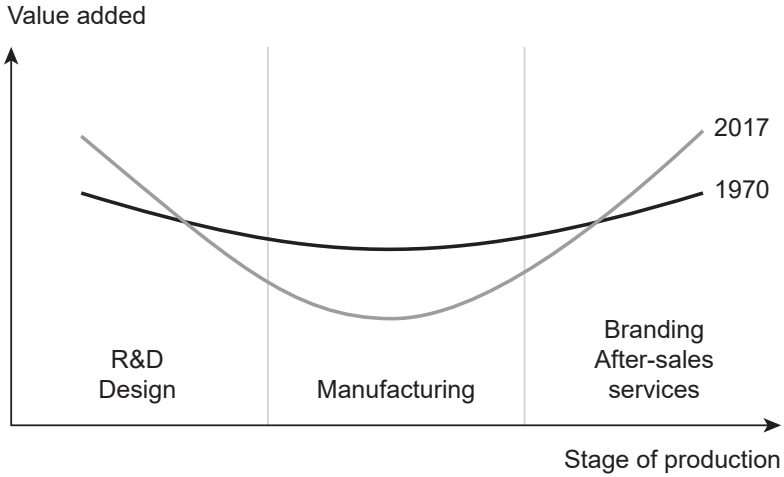
global value chains are fragmented: research and development (R&D) takes place in several countries, manufacturing in other countries and distribution is taken care of in another set of countries. Chen et al. refer to intricate networks with multiple stages of production and extensive shipping of intermediate goods and services.[27]

The WIPO has not only noticed a growing importance of intangible assets (*see* section 1.1.2.), but has also identified a rise in global value chains. The WIPO states that intangible assets shape global value chains in two important ways: (i) the organization of international supply chains entails the transfer of technological and business knowledge from one location to another; and (ii) technology, design and branding determine success in the marketplace and thus affect how value is distributed within the global value chain.[28] It is interesting to know how intangible assets contribute to the global value chain. In the report entitled *World Intellectual Property Report 2017: Intangible capital in global value chains*, the WIPO addresses questions such as (i) Which types of intangibles are most valuable at different production stages and for different consumer products? and (ii) How do companies manage their intangible assets in global value chains, and what role does IP play in generating a return on these assets? These questions are addressed from a macro-economic level. The developments mentioned in section 1.1.3.1. entail a shift from manufacturing to the development stage of a product and the branding, aftersales services. This is illustrated by the smile curve in figure 1.1.

27. W. Chen et al., *Measuring the income to intangibles in goods production: A global value chain approach*, November Economic Research Working Paper No. 36, p. 6 (WIPO 2017). In short, Chen et al. used information from so-called "global input-output" tables that contain (value) data on intermediate products that flow across industries, as well as across countries. An example is the delivery of inputs from the steel industry in China to the automobile industry in Japan. This information is taken from the world input-output database (WIOD). Global value chains for products are defined by the country/industry in which the final stage of production takes place, e.g. cars that are finalized in the German vehicle manufacturing industry. After that, they broke down the value added at each stage into the incomes accruing to labour, tangible capital and intangible capital. They measured income to intangibles as a residual by subtracting the costs for tangible capital and for labour from value added in each country by industry.

28. WIPO, *supra* n. 12, at p. 21.

Figure 1.1. – Production in the 21st century – a growing smile



Source: WIPO, World Intellectual Property Report 2017: Intangible capital in global value chains (WIPO 2017), p. 10.

The results presented in the report entitled *World Intellectual Property Report 2017: Intangible capital in global value chains* are partly based on the research by Chen et al. Besides the aforementioned, the following main results are presented in the *World Intellectual Property Report 2017*:

– the income share from intangible capital is twice the income share coming from tangible capital; and
– the intangible income share in percentages is the highest for the following product groups: (i) petroleum products (42.1%); (ii) pharmaceutical products (34.7%); and (iii) basic metals (31.4%).[29]

The WIPO states that it is not entirely clear as to which economies harvest the returns from intangible capital. This is partly due to non-arm's length pricing and BEPS. The work of international organizations to fight non-arm's length pricing and BEPS is discussed in section 1.3. of this chapter.

29. WIPO, *supra* n. 12, p. 29.

1.1.4. Relation between intangible assets and firm performance

Intangibles are generally expected to have a positive impact on firm performance.[30] Most of the time, researchers relate the market value of a company to the value of its knowledge assets with indicators such as R&D and patent citations. In addition, firm size, patent count and R&D spending are taken into account. Other variables that are considered are product innovation, process innovation, formal IP, informal IP and R&D per employee.[31] It is beyond the scope of this chapter to discuss in detail the research performed in this area. However, it is worthwhile to mention the research performed by Nemlioglu and Mallick. They found that firms that are R&D-intensive tend to perform well, regardless of whether there is a crisis.[32] Nemlioglu and Mallick also found that firms that only have intangible assets may have difficulties due to, for example, a lack of tangible assets. The reason for this is that banks ask for collateral, meaning tangible assets. Intangible assets may therefore be valued higher during profitable periods, whereas during less profitable periods, the valuation of intangible assets declines.

1.2. How do companies deal with IP rights?

1.2.1. Introduction

This section will deal with companies' awareness of the importance of intangible assets (*see* section 1.2.2.), the protection of IP (*see* section 1.2.3.), monetizing IP (*see* section 1.2.4.), litigation (*see* section 1.2.5.) M&A and IP (*see* section 1.2.6.), and investors and IP (*see* section 1.2.7.).

1.2.2. Are companies aware of the importance of IP?

IP is a strategic asset, and the successful management of it is essential for the future of a company. The importance of intangibles is shown by the numbers provided in section 1.1., where a shift from tangible to intangible assets that has taken place was noted. This is, for example, reflected in the balance sheet.

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30. H. Lin, C. Chien & S. Chiu, *The impact of value-relevant accounting rules on innovative activities*, 46 R&D Management (RADMA) 5, pp. 1-15 (2016)
31. I. Nemlioglu & S. K. Mallick, *Do Managerial Practices Matter in Innovation and Firm Performance Relations? New Evidence from the UK*, 23 European Financial Management 5, pp. 1016-1061 (2017).
32. Id., at p. 1057. Nemlioglu and Mallick used data from UK firms during 1992-2014.

When companies do not manage their IP properly, they miss opportunities to realize full returns on the large investments that are being made in IP development every year. Furthermore, companies might potentially expose themselves to business risks, for example, from their failure to adequately protect their intangible assets.

The question is whether companies are always aware of the importance of IP rights and whether they have the complete picture of their most valuable assets. This may not have been the case in the past, but the IP Strategy Report of Aistemos[33] shows that this may have changed. According to the IP Strategy Report of Aistemos, 41% of respondents consider that IP is now part of their business strategy, and a quarter regard IP to be a value driver.[34] However, the IP Strategy Report of Aistemos states that although the value of IP may even rise further, business leaders remain in the dark about its true impact. This may have partly to do with the difficulties around financial reporting. Sometimes, intangible assets are not included in the financial report or they are lumped together as a number.[35] Reference can be made to part 1, chapter 3, The Importance of Valuation and part 2, chapter 8, Accounting for IP Rights.

1.2.3. Protection of IP

Protection of IP is essential. As discussed, intangible assets have grown in importance, and they are practically the lifeblood of companies. Besides the people working in the organizations, intangible assets are almost literally all that companies have. It was also seen in part 2, chapter 5, Is Innovation Important?, that the amounts of money involved in research and development (R&D) are huge. Therefore, protection of IP is of utmost importance. This section will not suggest a strategy for each category of intangible assets, because it is not only beyond the scope of this chapter, but beyond the scope of this book, as corporate strategy is not discussed. However, generally, one can say that protection of IP depends on, among others, the

33. This is a survey of more than 70 professionals who work with major corporations, small and medium-sized enterprises, professional services and financial services. Their main area of responsibility lies in intellectual property (IP), research and development (R&D) and legal and finance fields. *See* R. Burn-Callander, *IP Strategy Report* p. 7 (J. Phillips ed., Aistemos 2017), available at http://cipher.ai/wp-content/uploads/IP-Strategy-Report.pdf (accessed 10 June 2018).
34. This is illustrated by the fact that companies like Apple, Ericsson, HP, Philips and Siemens have appointed a Chief IP Officer. *See* Burn-Callander, id., at pp. 7, 9 and 18.
35. Burn-Callander, *supra* n. 33, at p. 7.

maturity of the company, the size of the company,[36] the sector in which the company is active and the region where it is active. Start-ups, for example, are very focused on the development of their business and they sometimes tend to "forget" about the protection of their IP.[37] The OECD report entitled World Top Investors: Industrial Property Strategies in the Digital Economy[38] provides, among others, information about the top patent, trademark and industrial design-registering companies. The report shows that pharmaceuticals and chemical companies consistently appear among the top trademark-registering companies, whereas information and communication technology (ICT) companies are more active in the field of patents.[39]

For an overview of patenting activities across industries, reference can be made to Table 1.2.

Table 1.2. – Overview of patenting activities across industries

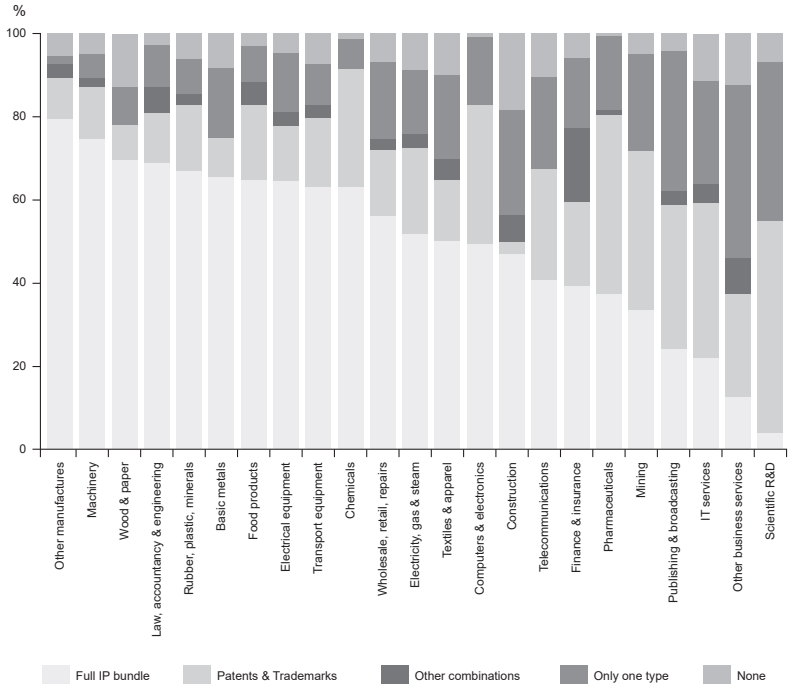
Sector group	Number	Number of inventions protected by patents	Number	Share of R&D dedicated to patenting (%)
Automobile and other transport	6	928	25	27.3
ICT	24	879	17	5.5
Basic materials	14	765	14	7.2
Consumer goods and services	9	716	7	15.8
Industrials	27	177	4	6.6
Health	17	100	15	27.6
Low R&D intensity	20	75	16	10.8

Source: L. Potters, N. Grassano & A. Tübke, The 2017 EU Survey on Industrial R&D Investment Trends p. 29 (Publications Office of the European Union 2017).

36. The 2017 EU Survey seems to suggest that protecting inventions through patents seems to be something that large firms do more frequently than smaller firms. *See* L. Potters, N. Grassano & A. Tübke, *The 2017 EU Survey on Industrial R&D Investment Trends* p. 29 (Publications Office of the European Union 2017).
37. *See* https://www.forbes.com/sites/allbusiness/2017/06/06/10-intellectual-property-strategies-for-technology-startups/2/#7b2a6a526632 (accessed 12 June 2018).
38. Daiko et al., *supra* n. 11.
39. Id., at p. 23; and Potters, Grassano & Tübke, *supra* n. 36.

Reputational assets are usually protected by trademarks. The World Intellectual Property Organization (WIPO) states in its report that managing a portfolio of trademarks may require some planning and decision-making. The WIPO explains several reasons for this being the case. Trademarks may not only cover product names, but also two-dimensional and three-dimensional shapes, sounds, colours and other features associated with those product names. Companies may have strong reasons to protect at least their main trademarks in all the markets in which they are or plan to be active.[40]

Figure 1.2. – Shares of companies with patents and/or trademarks and/or designs



Source: T. Daiko et al., World Corporate Top R&D Investors: Industrial Property Strategies in the Digital Economy: A JRC and OECD common report p. 51 (Publications Office of the European Union 2017).

40. WIPO, *World Intellectual Property Report 2017: Intangible capital in global value chains*, pp. 34 and 45-46 (WIPO 2017). The same report also shows the number of trademarks, etc. in the smartphone industry (*see* pp. 121-123). An overview of the composition of trademark and design portfolios across different industries is provided in Daiko et al., *supra* n. 11, at p. 52.

One study on the UK economy found that slightly more than half of investments in intangible assets were in assets protected by different IP rights.[41] Analysing if and to what extent companies jointly rely on different types of IP assets (i.e. the extent to which they rely on IP bundles) gives further insight into a corporation's innovation and market strategies. Figure 1.2. shows the usage of the total IP bundle across industries.

Different studies confirm what was noted in section 1.1., namely that the global value chain is changing and that many different types of activities are taking place in different countries. This globalization or internationalization, as it is mentioned in Daiko's report entitled World Corporate Top R&D Investors: Industrial Property Strategies in the Digital Economy,[42] is also reflected in the field of R&D. This report suggests that the top corporate R&D investors in different industries appear to rely to a different extent on international knowledge sourcing. With more than 50% of their inventions involving an inventor located abroad, companies that operate in the pharmaceuticals and law, accountancy and engineering industries appear to be the most internationalized, in terms of both ICT and non-ICT patents.[43] For an explanation of how this change in global value chains and the internationalization of R&D impacts the transfer pricing related to intangibles, reference can be made to section 1.3. of this chapter.

Companies could vertically integrate the different production tasks in their global value chain, or they could outsource those tasks to independent suppliers. For example, Apple is outsourcing production to Foxconn. The outsourcing of tasks to independent suppliers may be cost-efficient. However, this efficiency may come with the danger of what is called "knowledge leakage" by the WIPO.[44] How the knowledge management strategy looks depends very much on the industry and the business models of companies. Sometimes, sharing knowledge is advantageous for companies, because they can get access to technology owned by other companies. This, for

41. P. Goodridge, J. Haskel & G. Wallis, *UK Intangible Investment and Growth: New Measures of UK Investment in Knowledge Assets and Intellectual Property Rights*, Research commissioned by the UK Intellectual Property Office, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/554480/Investment-in-Intangibles.pdf (accessed 10 June 2018).
42. Daiko et al., *supra* n. 11.
43. Id., at p. 57. The 2017 EU Survey shows that R&D activity is widespread, and the sectoral distributions of R&D and R&D employees suggest that the sectors with the highest R&D and R&D employee intensities are also those with the highest average number of different locations for R&D activities. *See* Potters, Grassano & Tübke, *supra* n. 36, at p. 29.
44. WIPO, *supra* n. 40, at pp. 33 and 45-46.

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