Chapter 1. Concept, justifications and legal nature of trade secrets

§ 1 The significance and concept of trade secrets

On an abstract level, the intrinsic significance of trade secrets revolves around two conflicting forces: the principles of openness, freedom of discourse and communications, which clash with the principles of privacy, secrecy and a restrictive flow of information.[7] Such a tension also reflects the dichotomy between the intellectual commons movement and the increasing commodification of intellectual creations.[8] The former aims at fostering open innovation and knowledge dissemination and opposes overpowering proprietary systems. In such a context, the interest of firms in keeping their valuable information secret conflicts with the public interest in securing a certain degree of openness and free circulation of information in the markets, both of which are essential in democratic societies that operate under free market principles.[9]

Despite the economic and social importance of trade secrets, there is no universally accepted definition of the concept. At the international level, much common ground is provided by Article 39(2) TRIPs, which has laid down minimum standards of protection to be implemented by all WTO Member States. Pursuant to this provision, to merit protection "undisclosed information" needs to be secret, derive economic value from its secret nature and be subject to reasonable steps under the circumstances to keep it secret. Yet, on the basis of this three-pronged approach, which has also been included in the TSD as the foundation to conceptualise trade secrets, WTO Member States, including some EU jurisdictions, have developed different definitions, some of which include additional requirements.[10] The requirements of protection and the subject matter covered by

7 William van Caenegem, *Trade Secrets and Intellectual Property* (Kluwer Law International 2014) 11.

8 William van Caenegem 2014 (n 7) 11; Yochai Benkler, 'Free As the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain' [1997] 74 NYULR 354, 355.

9 William van Caenegem 2014 (n 7) 11.

10 Recital 6 TSD.

the notion of trade secrets constitute the study of chapter 2 (from the perspective of the TRIPs Agreement and the U.S. jurisdiction) and chapter 4 (from the perspective of the English and German jurisdictions, and the harmonised framework created by the TSD).

For clarity, it should be noted that throughout the thesis, unless specified otherwise, the term "undisclosed information" is used as a synonym for trade secrets, as defined in Article 39 TRIPs. In the same vein, "confidential information" is deployed as an alternative expression to "secret" or "concealed information", i.e. information that is not generally known (and that does not necessarily confer a competitive advantage upon its holder). Yet, in the context of the English jurisdiction, this expression should be understood as referring solely to information covered by the breach of confidence action. Likewise, unless stated otherwise, "know-how" is used exclusively in the sense laid down in Article 1(i) TTBER, that is, to refer to a specific type of non-patentable technical trade secret resulting from experience and testing.[11]

§ 2 The problematic justifications underlying trade secrets protection

Market economies operate under the principles of (typically) unrestricted competition and the free circulation of goods and information in order to enhance consumer welfare. However, at first glance, trade secrets protection seems to contravene this proposition, as protection is afforded to information for the mere fact of keeping it undisclosed to competitors. In this context, it appears that the study of the optimal scope of secrecy should first start by considering the rationales underlying the protection of valuable secret information.

Indeed, the underpinning policy justifications for the protection of trade secrets remain to a large extent unexplored, if compared to other IPRs such

11 Article 1(1)(g) of Commission Regulation (EU) No 316/2014 of 21 March on the application of Article 101 (3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements [2014] OJ L93/17 (TTBER): "'know-how' means a package of practical information, resulting from experience and testing, which is: (i) secret, that is to say, not generally known or easily accessible, (ii) substantial, that is to say, significant and useful for the production of the contract products, and (iii) identified, that is to say, described in a sufficiently comprehensive manner so as to make it possible to verify that it fulfils the criteria of secrecy and substantiality".

as patents and copyright.[12] Legal scholars and industry representatives usually resort to the argument that trade secrets should be protected because they are economically valuable and thus constitute relevant assets for their holders.[13] However, such an approach conflicts with most of the policy justifications upon which the intellectual property system is built, where providing incentives to create or innovate through exclusivity is weighed against the welfare effects triggered by the disclosure of information.[14]

Against this background, a number of grounds have been put forward to explain the need to protect secret information,[15] although in Europe the theoretical foundations have garnered less scholarly discussion than in the U.S. Nonetheless, a comprehensive inquiry into the underlying justifications appears to be of paramount importance considering the TSD. If the EU Member States are to embark on the complex task of harmonising their legal systems (in this case, as regards trade secrets) they should do so on the basis of solid and coherent grounds.[16]

In line with the above, this section surveys the most relevant policy arguments that have been invoked by legal scholars and case law, following the traditional classification of justifications for intellectual property: deontological and utilitarian.[17] The former are linked to the concept of fairness

12 Robert G. Bone, 'A New Look at Trade Secret Law: Doctrine in Search of Justification' [1998] 86 California LR 241, 245 refers to a "normative vacuum that continues to remain unfulfilled".

13 Ansgar Ohly, 'Harmonising the Protection of Trade Secrets' 2, 35 in Jacques de Werra (ed), *La protection des secrets d'affaires* (Schulthess 2013).

14 For a more detailed account of the underpinning policy justifications to IPRs see Justin Hughes, 'The Philosophy of Intellectual Property' [1988] 77 George Mason LJ 287; for an overall assessment of trade secrets vis-à-vis IPRs see chapter 1 § 3 A) below.

15 Some of the most influential scholarly works concerning the justification of trade secrets are Robert G. Bone, 'A New Look at Trade Secret Law: Doctrine in Search of Justification' [1998] 86 California LR 241; Robert G. Bone, 'Trade Secrecy, Innovation and the Requirement of Reasonable Secrecy Precautions' 46 in Rochelle C. Dreyfuss and Katherine J. Strandburg (eds), *The Law and Theory of Trade Secrecy: A Handbook of Contemporary Research* (Edward Elgar 2011); Robert G. Bone, 'The Still Shaky Foundations of Trade Secret Law' [2014] 92 Texa s LR 1803; Mark A. Lemley, 'The Surprising Virtues of Treating Trade Secrets as IP Rights' [2008] 61 Stanford LR 311; Michael Risch, 'Why Do We Have Trade Secrets?' [2007] 11 Marquette IPLR 1.

16 Ansgar Ohly 2013 (n 13) 36 highlighting the importance of finding a solid theoretical justification, particularly after the creation of the still contested sui generis right by the Directive 96/9 on the legal protection of databases [1996] OJ L77/20 (Database Directive).

17 Ansgar Ohly 2013 (n 13) 36.

and encompass the need to maintain commercial morality, labour value theories, and veil-of-ignorance arguments.[18] From a utilitarian perspective, it has been suggested that affording protection to secret information generates incentives to innovate and to disclose, reduces investment in protective measures and ultimately protects business privacy.[19] More generally, it has been argued that trade secrets law serves as a complement to the patent system. Each of these policy justifications is analysed in turn, with the exception of the complementary theory, which is examined in § 3 A), where the interplay between patents and trade secrets is studied.

18 Pursuant to the Stanford Encyclopaedia of Philosophy "Deontological theories (…), hold that some choices cannot be justified by their effects— that no matter how morally good their consequences, some choices are morally forbidden" <http://plato.stanford.edu/entries/ethics-deontological/#DeoThe> accessed 15 September 2018; Immanuel Kant, *Groundwork for the Metaphysics of Morals* (first published 1785, CUP 2011), probably the most prominent among the deontological philosophers, regarded that good will was central to any moral choice. As applied to the realm of IPRs, it is held that these are granted based on the principle of justice in one's intellectual creations and against free riders.

19 Utilitarism holds that the morally right action is the one that yields the most good. One of classical exponents of this normative ethics approach was Jeremy Bentham; see Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/entries/utilitarianism-history/#JerBen> accessed 15 September 2018; Jeremy Bentham, *An Introduction to the Principles of Morals and Legislation* (first published 1781, Batoche Books 2000) Chapter I.II regarded the principle of utility as "that principle which approves or disapproves of every action whatsoever. According to the tendency it appears to have to augment or diminish the happiness of the party whose interest is in question: or, what is the same thing in other words to promote or to oppose that happiness. I say of every action whatsoever, and therefore not only of every action of a private individual, but of every measure of government". As applied to IPRs, utilitarism suggests that granting an exclusive right to exploit an intangible good stimulates the development of socially valuable inventions or creations and is essential to avoid the market failure inherent to their exploitation; see further Jeanne C. Former, 'Expressive Incentives in Intellectual Property' [2012] 98 Virginia LR 1745, 1751.

A) Deontological arguments

I. Commercial ethics

One of the most widely accepted theories underlying trade secrets legislation is that it is necessary in order to maintain "the standard of commercial ethics".[20]

This argument stems from a general moral principle according to which "reaping without sowing" is unfair.[21] It is unethical for a business to acquire the information of another by unfair means and thus be unjustly enriched.[22] At first glance, this justification seems very appealing. Behaviours that contravene generally accepted ethical codes or customs appear immediately morally reprehensible.[23] Notwithstanding this, upon a closer look the contours of the "standard of commercial ethics" seem intrinsically open-ended.[24] As noted by Jacob J "what one man calls 'unfair' another calls 'fair.'"[25] However, flexibility and a certain degree of uncertainty are typical characteristics of any unfair competition law regime[26] and this has not prevented the development of unfair competition legislation in most continental European jurisdictions, especially vis-à-vis intellectual property law.[27]

---

20 In the words of the U.S. Supreme Court in *Kewanee Oil Co. v. Bicron Co*., 416 U.S. 470, 481 (1974): "The maintenance of standards of commercial ethics and the encouragement of invention are the broadly stated policies behind trade secret law".

21 This principle was most notably applied by the U.S. Supreme Court in *INS v. Associated Press*, 248 U.S. 215 (1918); Ansgar Ohly 2013 (n 13) 35.

22 Tanya Aplin and others, *Gurry on Breach of Confidence* (2nd edn, OUP 2012) para 3.20.

23 Notwithstanding this, Michael Risch 2007 (n 15) 36-37 considers that this is a "populist justification" rooted in the fact that people do not like bad actions; the opposite view is purported by Michael Spence, *Intellectual Property* (OUP 2007) 62.

24 Vincent Chiappetta, 'Myth, Chameleon or Intellectual Property Olympian?' [1999] 8 George Mason LR 69, 90.

25 *L'Oréal SA v Bellure NV* [2007] EWCA Civ 968 (CA), [139].

26 Ansgar Ohly, 'Unfair Competition', *Max Planck Encyclopaedia of European Private Law* (OUP 2012) 1172.

27 Annette Kur, 'What to Protect, and How? Unfair Competition, Intellectual Property, or Protection Sui Generis' 11, 14 in Nari Lee and others (eds), *Intellectual Property, Unfair Competition and Publicity* (Edward 2014); conversely, on the UK's approach to unfair competition Tanya Aplin and others 2012 (n 22) para 3.27 highlight that: "The first problem (…) is the problem of legal knowledge: how

Likewise, some purport that trade secret legislation could be used for the purposes of enforcing morality in the marketplace, i.e. to enforce industry norms. This hypothesis has been challenged essentially for two reasons. First, there is no empirical evidence that shows that generally accepted norms for a given industry regulating when the acquisition, use and disclosure of secret valuable information from a competitor should be deemed lawful exist. Second, even if they did exist, the extent to which judicial enforcement would increase the already high litigation costs and undermine the equilibrium upon which any tacit norm is built is unclear.[28]

In view of the foregoing, it is submitted that on the basis of commercial ethics only certain types of behaviour such as the breach of a confidential relationship, the theft of a secret or fraud can be proscribed. The inherent vagueness attached to the commercial ethics justification does not provide solutions for more controversial issues, such as the limits of reverse engineering and obligations after termination of an employment relationship.[29]

II. Labour value theory

The labour value justification draws from John Locke's theory of property and in essence submits that those who create value should own the products of their work.[30] As regards trade secrets, this is understood as meaning

---

does the law know what is to count as ethically appropriate or inappropriate commercial behaviour? It is this problem that has informed the refusal of the English Courts to sanction 'unfair' competition as a cause of action in English law"; similarly, Anselm Kamperman Sanders, *Unfair Competition Law* (1st edn, OUP 1997) 78 noting that "Reasons for the absence of a law of unfair competition in common law systems lie mostly in the fact that the judges are of the opinion that general principles are not suited for regulation of the market-place. This is because the criteria for the assessment of what is unfair behaviour in the market-place are thought to be ambiguous".

28 Robert G. Bone 1998 (n 15) 294-296.

29 This argument is raised by Ansgar Ohly 2013 (n 13) 36.

30 John Locke, *The Selected Political Writings of John Locke* (Paul E. Sigmund ed, Norton& Company 2005) 28-29: "Whatsoever then he removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it property (...) For this labour being the unquestionable property of the labourer, no man but he can have a right to what that is once joined to, a least where there is enough , and as good, left in common for others".

that the person who creates information has a right in such information and against third parties.[31]

However, following this natural law argument as a guiding principle does not offer a convincing ground to justify two of the essential features of trade secret protection, namely (i) the secret nature of information and (ii) the fact that protection is only envisaged against misappropriation.[32] Under the labour value theory even non-secret information can be protected, so long as it is the result of one's effort.[33] Similarly, information should be afforded protection against appropriation as such, irrespective of the means used. This may lead to the overprotection of information, one of the aspects that has garnered more criticism when applying the Lockean theory of property to trade secrets. Furthermore, it does not provide solid grounds to justify the exceptions and limitations to trade secrets protection, which are central to the interplay with the intellectual property system.

III. Contractarian theory

The contractarian argument results from applying the hypothetical bargaining model created by Rawls in *A Theory of Justice* with the purpose of finding a solid explanation for trade secrets protection. Rawls' theory is based on the decision-making process that occurs in a social contract under the so-called "veil of ignorance". This is a hypothetical state of nature under which rational individuals decide on the distribution of rights without knowing which position they will ultimately occupy in a society (their wealth, social status, level of intelligence and the like), as well as the particular circumstances of that society (economic and political), the so-called

31 As stressed by Justin Hughes (n 14) 306: "There is a very simple reason why the legal doctrines of unfair competition and trade secret protection are inherently orientated toward the value-added theory: they are court-created doctrines and people rarely go to court unless something of valuable is at stake. When intellectual property is created more systematically, such as through legislation, the resulting property doctrines seem less singularly oriented toward rewarding social value"; but see also Michel Risch 2007 (n 15) 29: "An initial criticism of this theory is that Locke was dealing with real property and not intellectual property, which can be 'possessed' by two people at the same time".

32 Robert G. Bone 2014 (n 15) 1824.

33 Robert G. Bone 2014 (n 15) 1825; contrary Eric R. Claeys, 'Private Law Theory and Corrective Justice in Trade Secrecy' [2011] 4 J of Tort Law 1, 33 arguing that the secrecy requirement signals the information as his own.

"original position".[34] Against this background, Rawls propounds that individuals will make choices following the maximin rule, that is, they "are to adopt the alternative the worst outcome of which is superior to the worst outcome of the others".[35] This will ensure that even if individuals turn out to be in the worst position in society, they will not be in need.[36]

As applied to the trade secrets scenario, under the veil of ignorance companies will agree to provide at least some level of trade secrets protection in order to reduce the negative outcome resulting from an eventual loss of confidential information.[37] On the same ground, it has been suggested that industry members would ex ante accept reverse engineering due to the expected gains stemming from product improvements.[38] Notwithstanding this, as with most contractarian arguments, it has been fiercely criticised, due to the fact that there is no solid reason to believe that firms would accept the terms of the agreement in the real world.[39]

B) Utilitarian arguments

I. Incentives to innovate

The most frequently cited economic argument to justify trade secrets protection, which is also invoked in connection to formal IPRs, submits that it generates incentives to innovate.[40]

---

34 John Rawls, *A Theory of Justice* (OUP 1972) 136-142.

35 John Rawls, *A Theory of Justice* (OUP 1972) 152-153.

36 Ultimately, Rawls advocates in favour of a redistribution of wealth as part of the concept of justice; see Michael Risch 2007 (n 15) 35.

37 See Kim Lane Scheppele, *Legal Secrets: Equality and Efficiency in the Common Law* (The University of Chicago Press 1992) 76-83.

38 William Landes and Richard Posner, *The Economic Structure of Intellectual Property Law* (Belknap Press 2003) 370.

39 Robert G. Bone 1998 (n 15) 292-293; Michael Risch 2007 (n 15) 35 holds a different view and argues that this justification is useful from a normative perspective and notes that even an efficient analysis cannot predict if one rule or another will turn out to be more efficient under all circumstances.

40 Innovation is understood as creation of inventions, but also other types of information that do not meet inventive standards. For the purposes of the present research, the definition of Innovation provided by Schumpeter will be followed as per Jon Sundbo, *The Theory of Innovation: Entrepreneurs, Technology and Strategy* (Edward Elgar 2009) 20: "Schumpeter defines innovation as one or more of the following events:
1. Introduction of a new product or a new product quality.

Economists consider that information falls within the category of "public goods", namely those goods whose "use by one person does not preclude use by another person and does not cost additional resources, except the small cost of distributing them".[41] As a result, information is defined as non-rival because it can be consumed by an individual without limiting its availability to others.[42] Another essential characteristic is that it is non-exclusive, meaning that it is very difficult to prevent unauthorised individuals from making use of it once it is created. Indeed, the development of information can be very costly; yet its acquisition and use by third parties can be carried out at a very low incremental cost. This has a two-fold effect: acquirers save the costs of generating the data and at the same time the competitive advantage conferred by the information on its creator disappears. As a result, acquirers may compete at a much lower price. This may ultimately lead to a market failure, if there are no incentives to create the information because the creator cannot recoup the investment made in its development.[43]

It is against this backdrop that trade secrets law provides the owner of new and valuable information the right to restrict others from using it.[44] Consequently, he can obtain supracompetitive profits from the information, both as regards technical and commercial secrets and in terms of re-

---

2. Introduction of a new production method. This need not be a new scientific invention. It may consist of a new way of treating a product commercially.
3. The opening up of a new market.
4. The opening up of a new source of raw materials, or semimanufacturers regardless of whether the source has existed before.
5. The creation of a new organizational structure in industry, for example by creating or breaking down a monopoly situation".

41 Suzanne Scotchmer, *Innovation and Incentives* (1st edn, The MIT Press 2004) 311.

42 Yochai Benkler, *The Wealth of Networks* (Yale University Press 2006) 35; as opposed to that, apples are rival goods.

43 Vincent Chiappetta 1999 (n 24) 86; Suzanne Scotchmer 2004 (n 41) 31; also Harold Demsetz, 'The Private Production of Public Goods' [1970] 13 Journal of Law and Economics 293, 300-306 and Wendy J. Gordon, 'On Owning Information: Intellectual Property and the Restitutionary Impulse' [1992] 78 Vanderbilt LR 149, where she provides an overview of the conditions that may lead to a market failure in the appropriation of intellectual goods and concludes that there is a need for intellectual property protection.

44 Jonathan R. Chally, 'The Law of Trade Secrets: Toward a More Efficient Approach' [2004] 57 Vanderbilt LR 1269, 1280: "Trade secret law enhances exclusivity and thereby increases innovation by supplanting the precautions that an innovator must take to guard the secrecy of her information".

covering his investment.[45] In this scenario, there would be no market failure, as the holder would internalise the benefits of innovation and would be able to recoup the investment made in the creation of the information.[46] However, the rights in a trade secret are not absolute; protection is only envisaged against misappropriation.[47]

The incentives to innovate argument was most prominently raised by the U.S. Supreme Court in its landmark decision *Kewanee Oil Co. v. Bicron Co*., where it was noted that "trade secret law will encourage invention in areas where patent law does not reach, and will prompt the independent innovator to proceed with the discovery of his invention".[48]

Notwithstanding the aforementioned, in recent years, a number of scholars have cast doubt on the extent to which trade secrets law in fact creates incentives to innovate and create.[49] It cannot be ensured that the

45 See Mark A. Lemley 2008 (n 15) 330; the TSD also echoes this argument in Recital 1, where it is stated that "By protecting such a wide range of know-how and commercial information, whether as a complement or as an alternative to intellectual property right, trade secrets allow the creator to derive profit from his/her creation and innovations and therefore are particularly important for research and development and innovative performance".

46 David D. William M. Landes and Richard A. Posner, 'Some Economics of Trade Secret Law' [1991] 5 JEP 61, 64 noting that trade secret law provides means of internalizing the benefits of innovation; similarly, Jerome H. Reichman, 'How trade secrecy law generates a natural semicommons of innovative know-how' 185, 188 in Rochelle C. Dreyfuss and Katherine J. Strandburg (eds), *The law and theory of trade secrecy* (Edward Elgar 2011) purports that the law of trade secrets encourage investment in innovative activities: "the conduct-based liability rules of trade secrecy law were the primary vehicle for stimulating investment in innovative enterprise after the industrial revolution. This conclusion follows because most innovation consists of cumulative and sequential applications of know-how to industry by routine engineers at work on common technical trajectories. Given relatively high standards of non-obviousness in patent law, as well as the possibilities for inventing around patents once issued, most commercial ventures depend on the conduct-based liability rules of trade secrecy law (and other unfair competition laws, as well as trade mark law) for opportunities to recoup their investment in R&D".

47 See Mark A. Lemley 2008 (n 15) 329-330.

48 *Kewanee Oil Co. v. Bicron Corp*., 416 U.S. 470, 481-482 (1974).

49 See Michael Risch 2007 (n 15) 26 noting that the creation of incentives to innovate "is only a very minor justification of trade secret law".

information protected is innovative, as it merits protection for the mere fact of being secret.[50]

From an economic perspective, Bone argues that the objective of protecting information is to distribute it widely, so long as such information is still created. He further notes that secrecy generates high costs, but these have been overlooked by most of the existing literature.[51] In his cost-benefit analysis, two different scenarios are considered: (i) incentives as regards patentable inventions that most likely will not be reinvented during the patent term, and (ii) non-patentable inventions that are difficult to invent around.

In the first case, choosing secrecy over patent protection may lead to a wasteful duplication of efforts, as trade secrets law does not prevent independent discovery by competitors. Furthermore, this may have an adverse effect on cumulative innovation.[52] As noted by Beier and Straus, "the greatest danger of keeping an invention secret lies in the fact that the inventor cannot be fertile in its own field as the mother of new inventions".[53] In effect, innovation nowadays is to a large extent cumulative; every innovator uses prior discoveries or developments as a basis for further innovation.[54] Hence, in most cases, the benefit of a given innovation lies in the boost it gives to subsequent innovators.[55] If the holder of innovative information conceals it as a trade secret, later innovators will not be able to use it for their own innovations.

In the case of non-patentable inventions, Bone purports that trade secrets law only creates ex ante incentives to innovate if they are "moderately" difficult to reverse engineer. If the secret can be unveiled with little effort it only merits very weak protection, as it will most likely not be considered secret. At the other end of the spectrum, inventions that are very

50 Josef Drexl, 'Refusal to grant access to trade secrets as an abuse of market dominance'165, 181-182 in Steven Anderman and Ariel Ezrachi (eds), *Intellectual Property and Competition Law* (OUP 2011).

51 Robert G. Bone 1998 (n 15) 266; Michael Abramowicz and John F. Duffy, 'Intellectual Property for Market Experimentation' [2008] 83 NYULR 337, 391.

52 William Landes and Richard Posner 2003 (n 38) 357 note that in this case, applying for a patent may enable the competitor to invent around of instruct him on how to infringe. The relationship between patents and trade secrets is discussed in detail in chapter 1 § 3 A) I.

53 Friederich-Karl Beier and Josef Straus, 'The Patent System and Its Informational Function' [1977] IIC 387, 397.

54 Cumulativeness is central in technological fields such as biotechnology, computer hardware and computer software.

55 Suzanne Scotchmer 2004 (n 41) 127.

difficult to reverse engineer or reinvent are likely to be deemed inventive and thus patent law would provide greater incentives than trade secrecy law.[56] On this specific point he disagrees with Landes and Posner, who consider that allowing for trade secret protection proves that the patent system was wrong and consequenlty the holder can achieve a level of exclusivity similar to the one provided by patent rights.[57]

In a similar vein, Chiappetta submits that there are two major shortcomings to the encouragement of innovation theory. In the first place, he argues that this guiding principle alone does not provide solid grounds to establish the rights conferred by a trade secret and the equally important limitations to those rights, such as reverse engineering and independent creation. Next, he is of the opinion that the grant of IPRs is largely based on the presumption that they will provide incentives to create and that applying the same foundation to justify trade secrets protection may "conflict, duplicate or absorb" the incentives provided by patent and copyright law.[58]

Against this background, Risch further suggests that formal IPRs, such as patents and copyright, confer a period of exclusivity to allow the holder to recoup the cost of the creation. However, he convincingly argues that this rationale does not apply in the case of trade secrets protection: in the absence of self-help measures, if a company cannot keep valuable information concealed from third parties, trade secrets laws will not provide additional incentives to maintain the confidentiality of the said information.[59]

In the light of the foregoing criticism, it has been suggested that the protection of trade secrets is to be understood as a social subsidy to encourage market experimentation, rather than as an incentive to innovate. Such an approach underscores that trade secrets laws, as opposed to patent laws, also afford protection to non-technological information produced during the ordinary course of business. Consequently, the main purpose of trade secrets law would not be to foster the creation of information, but rather to foster the development of business activities as such. Under this theory, by protecting business data that can be kept undisclosed, the entry of competitors would be deterred and the profits of the first comers would increase accordingly. This is likely to generate stronger incentives for com-

56 Robert G. Bone 1998 (n 15) 266-270.
57 William Landes and Richard Posner 2003 (n 38) 358-359.
58 Vincent Chiappetta 1999 (n 24) 88.
59 Michael Risch 2007 (n 15) 27.

panies to carry out market experiments that create data, irrespective of their inventive or original nature.[60]

Bearing the above analysis in mind, it can be concluded that trade secrets protection does provide certain incentives to create new information of both a commercial and technical nature. It protects factual secrecy over the information concerned until it becomes generally known, thus allowing the creator to internalise the benefits of innovation. It is also a useful means to encourage market experimentation and the development of business. The most salient problem in this context is reconciling these incentives with the ones created by other IPRs (more notably patent law), and avoiding tensions with the former. This can best be achieved through the establishment of clear and solid exceptions and limitations to the rights in a trade secret, such as reverse engineering, independent discovery or even a public interest defence, such as the one implemented in England under the breach of confidence action.[61]

II. Incentives to disclose

One of the soundest policies that explains trade secrets law is that it creates incentives to disclose by reducing transaction costs. The efficient exploitation of secret information requires that the holders are able to pass on information to other parties, with some certainty that they will not reveal it or use it against their interests. This applies not only within the internal sphere of a company (employees), but also in relation to third parties (suppliers of materials, prospective company partners, clients or licensees).[62]

Even though at first glance this may seem counterintuitive, trade secrets protection provides a partial solution to the so-called "Arrow's Information Paradox", which is best explained with an example, such as the nego-

60 Michael Abramowicz and John F. Duffy 2008 (n 51) 391 the authors nevertheless conclude that "on our theory, trade secret law may be overinclusive -it protects copycat businesses too- but in general, innovators are the businesses that have the most information worth protecting".

61 This topic will be elaborated further in chapter 6 below.

62 Aurea Sunol, 'Trade Secrets vs Skill and knowledge' 197, 198-199 in Fabrizio Cafaggi and others (eds), *The Organizational Contract, From Exchange to Long-term network Cooperation in European Contract Law* (Ashgate 2013).

tiation of a licensing agreement.[63] In this case, the commercial exploitation of information requires that any potential licensee, prior to concluding the agreement, gains full knowledge of the information object of the contract. However, such a disclosure implies that the licensee acquires the information in question without cost and to the detriment of the licensor. In view of this, the licensor will be reluctant to engage in negotiations unless the licensee agrees not to use such information in the event that no contract is concluded. Under such an agreement the licensee could be precluded from using the information even if he developed it independently or through reverse engineering. Therefore, transaction costs increase and licensing becomes more difficult.[64] In order to solve the Information Paradox, trade secrets provide a legal right to prevent third parties from using and disclosing information revealed in confidence during the course of precontractual negotiations.[65] As a result, the holder of information will be more willing to share it, thus facilitating the conclusion of licensing agreements (or any other commercial transactions) and ultimately the exploitation of knowledge.[66]

This argument has been strongly criticised because it does not contemplate a number of parameters. In particular, it has been suggested that the limited disclosure achieved through a licensing agreement or other transactions is not the kind of disclosure that intellectual property law aims at promoting.[67] For instance, in patent law the grant of an exclusive right is conditioned upon the publication of the relevant technology in the patent specification. This allows competitors to invent around and avoid the duplication of research,[68] thus fostering competition in the market and incentivising the creation of new products. In the words of the U.S. Supreme Court:

---

63 Kenneth J. Arrow, 'Allocation of Resources for invention' 609, 615 in Universities-National Bureau Committee for Economic Research and Committee on Economic Growth of the Social Science Research Council (ed), *The Rate and Direction of Inventive Activity: Economic and Social Factors* (Princeton University Press 1962): "There is a fundamental paradox in the determination of demand for information; its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost"; Josef Drexl 2011 (n 50) 181-182.

64 Robert G. Bone 1998 (n 15) 280.

65 Mark A. Lemley 2008 (n 15) 336.

66 James Pooley, *Trade Secrets* (Law Journal Press 2002) § 1.02[5]1-12

67 Robert G. Bone 1998 (n 15) 280.

68 William Landes and Richard Posner 2003 (n 38) 357.

> Patents are not given as favours (…) but are meant to encourage invention by rewarding the inventor with the right, limited to a term of years fixed by the patent, to exclude others from the use of his invention.[69]

The disclosure of the technical teachings of a patent is of paramount importance for technological, economic and social development.[70] As a matter of principle, this function is undermined by the law of trade secrecy, due to the fact that information may never become generally known. As a whole, there is social value in the general dissemination of information that is not fulfilled in the case of licensing agreements (or any other commercial transaction), where information is only disclosed to the other parties to the negotiation. In the same vein, it has been argued that the Arrow Paradox could be solved by the operation of contract law, without the need to resort to specific legislation.[71]

To be sure, it is undeniable that trade secrets laws incentivise some level of secrecy, as protection is only afforded to information that is not generally known. However, considering the previous analysis, there are solid grounds to argue that they also help to lower the transaction costs associated with the commercial exploitation of confidential information, which despite not fulfilling the patent system's underlying information function in the broadest sense, is also desirable in order to enhance cooperation between market participants and facilitate organisation within a company.

III. Limit to the arms race

Even more convincing is the theory that trade secrets protection helps to decrease the economic investment in the factual protection of secret information. Trade secrets law serves as an alternative to measures that undertakings would otherwise have to adopt for the purposes of ensuring confi-

---

69 *Sears Roebuck&Co. v. Stiffel Co.*, 376 U.S. 225, 229-230 (1964).

70 Friedrich-Karl Beier, 'Die Bedeutung des Patentsystems für den technischen, wirtschaftlichen und sozialen Fortschritt' [1979] GRUR Int 227, 234: "Wichtig ist aber vor allem die Erkenntnis, daß die Verbreitung technischer Kenntnisse durch die Ausschließlichkeit des Patentrechts nicht etwa gehemmt, sondern im Gegenteil entscheidend *gefördert* wird. Man sollte an sich meinen, die optimale Form der Verbreitung und Anwendung technischen Wissens bestehe darin, es jedermann, z. B. durch Veröffentlichung in Fachzeitschriften, kostenlos zur Verfügung zu stellen".

71 Robert G. Bone 2014 (n 15) 1818.

dentiality (self-help measures).[72] If no such thing as the law of trade secrets existed, holders of information would spend large sums of money protecting their secrets (both through physical measures and additional remuneration for employees to keep the business's secrets or not leave the company). In turn, appropriators would increase the amount spent to acquire them. This would lead to a so-called "arms race" without social value.[73]

This is best illustrated with a real example. An undertaking with two manufacturing facilities, one located in the United States and the other in China, equipped the latter with very sophisticated technology in order to prevent trade secrets misappropriation (fingerprint scanners, almost no Internet access, physical security, etc.), whereas in the one located in the United States only standard efficient measures were implemented. The difference in the self-help measures adopted was triggered by the fact that the trade secret holder did not rely on the possibility of enforcing trade secrets protection in China.[74]

In view of these conflicting interests, the law of trade secrets strikes a balance between the wish to acquire a competitor's information and the need to protect one's own information. This is achieved by prohibiting only the costliest means of acquiring a secret, thus preventing holders from being forced to implement equally expensive and non-efficient protective measures.[75] The resources saved both by the holder of the information and the alleged misappropriator can be invested in a more productive way.[76] In order to achieve such a balance, trade secret holders are only required to implement "reasonable steps under the circumstances".[77]

Although convincing, this justification has been challenged by commentators in the U.S. on the basis of the following four arguments: in the first place, the detection of misappropriation conduct in practice can be very

72 Mark A. Lemley 2008 (n 15) 332.

73 Michael Risch 2007 (n 15) 43-44; similarly, Mark A. Lemley 2008 (n 15) 334 noting that evidence shows that overinvestment in secrecy is a problem in countries like Brazil or Mexico where trade secret protection and enforcement are not efficient.

74 This case is reported by Michael Risch 2007 (n 15) 44.

75 William Landes and Richard Posner 2003 (n 38) 364, 365; Peter S. Menell and Suzanne Scotchmer, 'Intellectual Property' 1473, 1479 in A. Mitchell Polinsky and Steven Shave (eds), *Handbook of Law and Economics*, vol 2 (Elsevier 2007).

76 William Landes and Richard Posner 2003 (n 38) 371: "Obtaining a trade secret by force or fraud … should be punishable because of the heavy costs that would be incurred in self-help remedies against such incursions if they were lawful and the damage to the incentive to invent that would be produced".

77 See Article 39(2)(c) TRIPs.

costly.[78] Similarly, bringing lawsuits is also usually very expensive for most trade secret holders, as they bear the burden of proof.[79] Likewise, the extent to which rules that try to prevent arms races will merely result in the efforts being directed elsewhere (namely, costly litigation or more sophisticated technology to acquire the secret) is unclear.[80] Finally, it should be borne in mind that not all arms races are wasteful. The law should not prevent those (unusual) ones that yield spill-over benefits that would not have been achieved otherwise.[81] Ultimately, the persuasiveness of this argument should be based upon a comparison of the costs in a legal system where no trade secrets protection is envisaged and the social cost incurred where such protection is foreseen.[82]

IV. The privacy rationale

Trade secrets protection has often been justified on the basis of business privacy.[83] This approach has both a deontological and utilitarian dimen-

78 James Pooley and others, 'Understanding the Economic Espionage Act of 1996' [1997] 5 Texas IPLJ 177, 224: "Information loss is inherently difficult to detect, since the original property remains intact, apparently untouched".

79 Robert G. Bone 2014 (n 15) 1816.

80 Douglas Gary Lichtman, 'How the Law Responds to Self-Help' (2004) John M. Olin Program in Law and economics Working Paper 232, 31 <http://www.law.uchicago.edu/Lawecon/index.html> accessed 15 September 2018.

81 Douglas Gary Lichtman 2004 (n 80) 32 arguing that the race on distribution of online materials protected under copyright law has yielded substantial progression on Internet based technologies.

82 Tanya Aplin and others 2012 (n 22) para 3.16.

83 The U.S. Supreme Court adopted a similar position in three of its landmark decisions on trade secret protection. In *E.I. DuPont de Nemours&Co. v. Cristopher*, 447 431 F.2d 1012, 1016 (5th Cir. 1970) the Court noted that "Our tolerance of the espionage game must cease when the protections required to prevent another's spying cost so much that the spirit of inventiveness is dampened. Commercial privacy must be protected from espionage which could not have been reasonably anticipated or prevented"; some years later, when ruling on the potential preemption of state trade secret law by federal patent law, the Court stressed in *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 487 (1974) that "A most fundamental right, that of privacy, is threatened when industrial espionage is condoned or is made profitable; the state interest in denying profit to such illegal ventures is unchallengeable; finally, the Supreme Court restated that privacy was one of the three policies underlying trade secret protection in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 155 (1989); see Melvin F. Jager, *Trade Secrets Law* (Thomsons Reuters 2015) § 1:5.

sion. Before turning to these, some general remarks should be made as to its conceptual contours. The Right of Privacy has been defined as "the Right of a person to be free from intrusion into matters of a personal nature"[84] or in a more succinct fashion, as the right "to be let alone".[85] In Europe, it has been codified in Article 8 of the European Convention on Human Rights[86] and is now part of the acquis communautaire since the entry into force of the Charter of Fundamental Rights of the European Union ("ChFREU") pursuant to Article 7.[87] [88] The European Court of Human Rights ("ECtHR") has interpreted that Article 8 ECHR is essentially intended to:

> ensure the development, without outside interference, of the personality of each individual in his relations with other human beings. There is therefore a zone of interaction of a person, with others, even in the public context, which may fall within the scope of private life.[89]

---

84 *Encyclopaedia Britannica*, 'Rights of privacy' <https://global.britannica.com/topic/rights-of-privacy> accessed 15 September 2018.

85 Samuel Warren and Louis Brandeis, 'The Right to Privacy' [1980] 4 Harvard LR 193, 195 (as cited in Thomas M. Cooley on Torts, *A Treatise on the Law of Torts, Or, The Wrongs which Arise Independent of Contract* (2nd edn, Callaghan 1879) 29); other definitions include the one provided by the Parliamentary Assembly of the Council of Europe "Right to live one's own life with a minimum of interference" Resolution 1165 (1998) Assembly debate on 26 June 1998 (24th Sitting). Doc. 8130, report of the Committee on Legal Affairs and Human Rights (rapporteur: Mr Schwimmer), Doc. 8147, opinion of the Committee on Culture and Education (rapporteur: Mr Staes) and Doc. 8146, opinion of the Social, Health and Family Affairs Committee (rapporteur: Mr Mitterrand).

86 Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms (European Convention on Human Rights, as amended on 1 June 2010) (ECHR) reads as follows:
"1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic wellbeing of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others".

87 Article 7 of the Charter of Fundamental Rights of the European Union [2012] OJ C326/391 (ChFREU) sets out that: "Everyone has the right to respect for his or her private and family life, home and communications".

88 Both provisions are rooted in the Universal Declaration of Human Rights (adopted 10 December 1948 UNGAs 217 A (III) (UDHR), Art 12.

89 *Von Hannover v Germany* (2005) 40 EHHR 1, para 50.

As is apparent from the above, privacy arguments appear best suited for physical persons. Corporations do not present the personality attributes a priori protected by such a right that would ultimately justify trade secrets protection.[90]

Notwithstanding this, the ECtHR in *Société Colás Est v France*,[91] a case concerning the inspection of the premises of various companies during the course of an investigation by the French Competition Authority, held that "in certain circumstances the rights guaranteed by Article 8 of the Convention may be construed as including the right to respect for a company's registered office, branches and other business premises".[92] [93] In view of this and following a dynamic interpretation of the ECHR, the scope of Article 8(1)ECHR might be extended to the protection of telephone, mail or electronic communications in the context of an inspection of premises.[94] The CJEU has followed a more extensive approach and has stated that the privacy right "cannot be taken to mean that the professional or commercial activities of either natural or legal persons are excluded.[95] In the same vein, it has concluded that "the protection of business secrets is a general principle".[96]

Consequently, from a deontological perspective, even if it could be agreed that legal persons are entitled to a right of privacy, it is still unclear whether or not trade secrets fall under the scope of its protection, as resorting to a moral right to commercial privacy for corporations is seemingly weak. As noted above, such a right can best be explained in the context of personal relationships, but it is unsatisfactory when applied to corporations and the protection of their undisclosed information.[97]

On the other hand, following a utilitarian rationale, trade secrets protection ensures that companies have a so-called "Laboratory Zone" in which

90 Robert G. Bone 1998 (n 15) 286-288; Tanya Aplin and others 2012 (n 22) para 3.31.

91 *Société Colás Est v France* (2004) 39 EHRR 17.

92 *Société Colás Est v France* (2004) 39 EHRR 17, para 388.

93 A more detailed account of this issue is provided by Tanya Aplin, 'A right of privacy for corporations?' 475-505 in Paul L.C. Torremans (ed), *Intellectual Property and Human Rights* (Kluwer Law International 2008).

94 Tanya Aplin 2008 (n 93) 14.

95 Case C–450/06 *Varec SA v Belgium* [2008] ECR I-581 para 48.

96 Case C–450/06 *Varec SA v Belgium* [2008] ECR I-581 para 48; Gianclaudio Malgieri, 'Trade Secrets v Personal Data: a possible solution for balancing rights' [2016] 6 International Data Privacy LR 1, 9.

97 Robert G. Bone 1998 (n 15) 288-289.

to develop their inventions or business strategies in confidence.[98] Trial and error is essential to any innovative process and it is most effectively carried out under conditions of secrecy. It is also crucial to preserve the novelty of an innovation until the application date.[99] A similar rationale can be applied with respect to commercial and business information; a market strategy cannot be known to competitors to succeed.[100] As noted by the Commission, "every IPR starts with a secret".[101]

As a whole, the protection of "business privacy" in its utilitarian dimension appears as a key element to encourage both innovation and competition in the market. If secrecy were not protected at all and every market participant had access to a competitor's information, incentives to innovate and compete with better products would disappear.[102]

C) Conclusion on the doctrines underlying trade secrets protection

A survey of the main legal justifications underlying trade secrets protection reveals that deontological theories seem intrinsically vague. In effect, resorting to commercial moral standards, natural labour value principles and contractarian doctrines does not seem to provide solid legal grounds to justify some of the pillars upon which trade secrets laws are premised. Under the commercial ethics theory, reverse engineering and the limitation of post-contractual obligations do not appear legitimate. Equally, following labour value doctrines, the creation of information should confer a property right in rem on its creator, irrespective of the concealed nature of the information, which furthermore should not be subject to any exceptions and limitations. Similar considerations apply to contractarian theories:

98 This argument is discussed by Ansgar Ohly, 'Reverse Engineering: Unfair Competition or Catalyst for Innovation?' 540, 547 in Joseph Drexl and others (eds), *Patents and Technological Progress in a Globalized World* (Springer 2009).

99 Florian Schweyer, *Die rechtliche Bewertung des Reverse Engineering in Deutschland und den USA* (Mohr Siebeck 2012) 431-432.

100 Ansgar Ohly, 'Der Geheimnisschutz im deutschen Recht: heutiger Stand und Perspektiven' [2014] GRUR 1, 3.

101 Commission, 'Explanatory Memorandum, Proposal for a Directive of the European Parliament and of the Council on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure' 2.

102 Jerome H. Reichman, 'Legal Hybrids Between the Patent and Copyright Paradigm' [1994] 94 Columbia LR 2432, 2506 noting that competition presupposes the lead time conferred by secrecy.

there is no actual evidence that the assumptions upon which they are premised would take place in the real world.

Consequently, it is submitted that utilitarian theories provide a more solid justification for the enactment of rules that regulate the protection of trade secrets and the resulting limitation on the flow of information among market participants that such protection entails. As argued above,[103] trade secrets legislation protects factual secrecy, allowing the creator of information to internalise the benefits of its (incremental) innovations, thereby preventing potential market failures in the development of information that is not eligible for protection under the general IPRs framework. Crucially, it creates incentives to encourage market experimentation and the development of business as such. According to the incentives to disclose rationale, trade secrets legal regimes also lower the transaction costs associated with the commercial exploitation of confidential information, foster cooperation between market participants and prevent the fragmentation of information within the internal sphere of a company. Most importantly, trade secrets laws prevent wasteful arms races in the adoption of protective measures and provide companies with a Laboratory Zone in which to develop their innovations without third party interference.[104]

Whereas some of the doctrines analysed above, such as the contractarian theories and incentives to innovate rationale, are common to other IPRs (patents and copyright), others serve conflicting interests. For instance, the incentives to disclose doctrine serves different objectives to the disclosure function under patent law. Such a tension inevitably leads to the question of how trade secrets interrelate with other IPRs and whether they should even be conceptualised as a species of them. This complex topic is the object of analysis in the following section (§ 3).

§ 3 *Dissecting the legal nature of trade secrets: between IPRs and unfair competition*

The legal nature of secret information is one of the most contested aspects of the law of trade secrets. There has been a longstanding debate regarding whether they should be considered property rights or even be protected as

103 See chapter 1 § 2 B) I.

104 Contrary, Robert G. Bone 1998 (n 15) concludes that there is no normative theory capable of justifying trade secrets protection.

an IPR. This tension is a common theme in other areas of intellectual property law and stems from the different conceptions of property in civil law countries and the "Anglo-American legal system".[105] In the former, the property right is understood as a single and solid right that the owner has in respect of the material object.[106] It is regarded as the most complete and absolute right that one can enjoy in an asset.[107] By contrast, property in common law is a broader notion that comprises a number of situations where a person has "some exclusive rights, though not absolute, to use a resource".[108] As regards intellectual property, the problem lies in the extension of the property metaphor to the protection of intangible assets, because originally it was only envisaged to protect real property.[109] Therefore, some commentators suggest that intellectual property should be considered a "unique form of legal protection" that is specifically tailored to deal with the protection of public goods.[110]

This controversy is even more prominent in the field of trade secrets, as they present a hybrid legal nature within the IPRs spectrum, and share some of the features of IPRs and some of the unfair competition paradigm.[111]

---

105 Thomas Dreier, 'How much 'property' is there in intellectual property?' 116, 116-117 in Helena R. Howe and Jonathan Griffiths (eds), *Concepts of Property in Intellectual Property Law* (CUP 2013); Ralf Michaels, 'Property', *The Max Planck Encyclopaedia of European Private Law* (OUP 2012) 1371 noting that: "The term property is ambiguous. Sometimes property designates a right in an object; sometimes it designates the object itself: a person has property in an object, and the object is her property. Understood as a right, property is the most comprehensive right that one can have over an object. It encompasses the right to use and enjoy, the right to exclude and the power to dispose".

106 Thomas Dreier 2013 (n 105) highlighting that "the effects of this different understanding of the legal concept of what constitutes property in general runs like a red thread through the history of intellectual property protection in most, if not all civil law states".

107 Séverine Dusollier, 'The commons as a reverse intellectual property-from exclusivity to inclusivity' 258, 265 in Helena R. Howe and Jonathan Griffiths (eds), *Concepts of Property in Intellectual Property Law* (CUP 2013).

108 Séverine Dusollier 2013 (n 107) 265.

109 Mark. A. Lemley, 'Property, Intellectual Property, and Free Riding' [2004] 83 Texas LR 1031, 1033.

110 Mark A. Lemley 2004 (n 109) 1031-1032; see also Lionel Bently, 'Trade Secrets: 'Intellectual property' but not property?' in Helena R. Howe and Jonathan Griffiths (eds), *Concepts of Property in Intellectual Property Law* (CUP 2013).

111 Stanisław Sołtysiński, 'Are Trade Secrets Property?' [1986] IIC 331-356 distinguishes between property and subjective rights.

The following sections intend to map out the complex topic of the legal nature of trade secrets protection, following a two-fold approach. In the first place, the relationship and overlaps between trade secrets law and other IPRs (patents, copyrights, trade marks and the database right) are examined in section A. Next, section B looks into whether trade secrets themselves can be the object of an IPR. To this end, the prevailing academic and case law views on this topic are surveyed.

A) The unsettled relationship between trade secrets and IPRs

I. Trade secrets and patents[112]

The relationship between the patent system and trade secrecy is not settled. These two means of appropriation have often been regarded as mutually exclusive.[113] Such an approach, nevertheless, overlooks many aspects of the interplay between the two regimes. In fact, trade secrets protection supplements the patent system in a number of ways. In view of this, the following sections provide an analysis of the three possible scenarios in which trade secrets and patents may interact: (i) trade secrets prior to patenting; (ii) preferring trade secrecy to patents, and (iii) combining patent protection with trade secrets protection.[114]

---

112 Similar considerations would apply in the context of utility models that are characterised, among others, by a (i) flexibility on the level of novelty (innovations are usually required to be regionally or even locally new); (ii) a lower level of inventiveness and (iii) a shorter term of duration than patents (the period of durations in countries that do provide for utility models protection ranges from five to twenty years); see further on this issue Uma Suthersanen, 'Utility Models and Innovation in Developing Countries' (2006) ICTSD Issue Paper No. 13, 2 <http://unctad.org/en/docs/iteipc20066_en.pdf> accessed 15 September 2018 and Henning Grosse Ruse-Khan, 'The International Legal Framework for the protection of Utility Models' (2012) WIPO Regional Seminar on the Legislative, Economic and Policy Aspects of the Utility Model System, Kuala Lumpur <http://www.wipo.int/edocs/mdocs/aspac/en/wipo_ip_kul_12/wipo_ip_kul_12_ref_t2b.pdf> accessed 15 September 2018.

113 For instance Michael Risch 2011 (n 113) 168 noting that "Patent law and trade secret law cannot be co-extensive because trades secrets must be secret and patents must be publicly disclosed"; contrary, David D. Friedman, William M. Landes and Richard A. Posner, 'Some Economics of Trade Secret Law' [1991] 5 JEP 61, 64.

114 The legal analysis of this section is conducted based on the framework created by the European Patent Convention, as it governs the application and grant pro-

1. Trade secrets prior to patenting

Pursuant to Article 52(1) of the European Patent Convention,[115] patents shall only be granted for inventions if they are new, involve an inventive step and are susceptible to industrial applicability.[116] Frequently, before reaching the patentability stage, undertakings must conduct costly and lengthy research and development endeavours, particularly in order to come up with an invention with some degree of industrial applicability.[117] This process should be carried out in a working environment where secrecy is guaranteed for the purposes of ensuring novelty, the Laboratory Zone referred to above.[118] Conversely, the invention would fall into the public domain and would not meet the patentability standards. In practice, stakeholders also take this time to assess, from a business perspective, whether to apply for a patent or opt for informal protection (such as secrecy, lead time or complexity).[119]

Under the legal framework created by the EPC, an invention can be exploited secretly without detriment to the possibility of obtaining a patent for it later on.[120] Notwithstanding this, prior to filing an application with the patent office, the holder of the information should be careful not to disclose it. In this regard, it is important to note that the priority date is crucial for two reasons: it indicates the date at which novelty is assessed

---

cess for European patents and has shaped patent law in the 28 Member States. The three identified scenarios follow the scheme presented by Lionel Bently, 'Patents and trade secrets' 57 para 3.62 in Neil Wilkof and Shamnad Basheer (eds), *Overlapping Intellectual Property Rights* (OUP 2012).

115 Convention on the Grant of European Patents (European Patent Convention) of 5 October 1973 (as revised by the Act revising Article 63 EPC of 17 December 1991 and the Act revising the EPC of 29 November 2000) (EPC).

116 See also Article 27(1) TRIPs.

117 Lionel Bently 2012 (n 114) para 3.58; Robert P. Merges, 'Priority and Novelty Under the AIA' [2012] 27 Berkeley Technology LJ 1023, 1044.

118 See chapter 1 § 2 B) IV.

119 This is further developed by Katrin Hussinger, 'Is Silence golden? Patent versus secrecy at the firm level, Governance and the Efficiency of Economic Systems' (2005) ZEW Discussion Papers 04-78, 16 <https://ideas.repec.org/p/zbw/zewdip/2883.html> accessed 15 September 2018 noting that the strong reliance on secrecy takes places for early-state inventions that will be marketed afterwards.

120 Lionel Bently 2012 (n 114) para 3.62; Rudolf Kraßer and Christoph Ann, *Patentrecht* (6th edn, C.H. Beck 2009) § 16 IV, Rdn 2; similarly, in the U.S. with the adoption of The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (America Invents Act of 2011 or AIA), see 35 U.S.C. § 102(a)(1).

and the date at which the invention can be used without compromising potential patents.[121]

The novelty requirement plays a central role in understanding the complementarity between secrecy and patents. The basic framework for the assessment of this patentability condition is laid down in Article 54 EPC, which as a general rule provides that an invention is new if it does not form part of the state of the art (paragraph 1). In turn, the state of the art is composed of everything that is made available to the public (paragraph 2).[122] No territorial or time limits shall apply for establishing relevant disclosures, provided that there is an actual possibility of acquiring the knowledge.[123] This can be oral, written or even refer to public prior uses that make the invention accessible. There are also no restrictions regarding the type of media in which the information is made available.[124]

Typically, the question that arises in connection with trade secrets is whether marketing a product in which a secret invention is embodied renders it automatically available and thus part of the public domain. Consistent case law from the Boards of Appeal of the European Patent Office ("EPO") indicates that the use of an invention is only regarded as novelty-destroying if it is possible for members of the public to acquire knowledge of that subject matter on the relevant priority day. This includes not only the external examination of the product, but also the obtention after further analysis of the intrinsic features (those which do not need to interact with external conditions to become apparent).[125] Against this background, it should be noted that pursuant to settled case law from the Boards of Appeal of the EPO, if it is possible to reverse engineer the secret, the invention will lack novelty for the purposes of patent law, provided that there

121 Lionel Bently 2012 (n 114) para 3.62.

122 See Article 54 EPC.

123 The EPC follows an absolute novelty approach. For instance, in T 355/07 (28 November 2008) the Boards of Appeal of the European Patent Office (EPO) considered that the theoretical possibility of having access to the information included in a document on a particular date renders it available to the public as of that date, regardless of whether on that date a member of the public actually inspected the file; see also Rudolf Kraßer and Christoph Ann 2009 (n 120) Kapitel 3, § 17 I a) 1; William Cornish, 'The Essential Criteria for Patentability of European Inventions: Novelty and Inventive Step' [1983] IIC 765, 765-766.

124 Joel Nägerl and Lorenz Walder-Hartmann, 'Differentiation from the state of the art' 129, 142-150 in Maximilian Haedicke and Henrik Timmann (eds), *Patent Law A Handbook on European and German Patent Law* (C.H. Beck 2014).

125 Lionel Bently and Brad Sherman, *Intellectual Property Law* (4th edn, 2014 OUP) 536.

was no confidentiality obligation restricting the use or dissemination of such knowledge and no additional inventive effort is required.[126]

Notably, secret information disclosed in confidence is not regarded as available.[127] The existence of a confidentiality obligation can derive either from an express or a tacit agreement.[128] If, on the other hand the recipient of secret information covering a patentable invention reveals it, for example breaching a duty of secrecy, such a disclosure is deemed non-prejudicial when assessing novelty.[129] In this case, the holder of the information has six months to file for a European patent.[130] If the disclosure takes place before the six months prior to the filing of the application, it will lack novelty and thus will be part of the state of the art.[131]

All in all, the legal framework created by the EPC affords some level of protection to an inventor who relies on secrecy prior to patenting. This approach is in line with the argument that "every IPR starts with a secret"[132]

---

126 G 1/92 [1993] OJ EPO 277, 279; see further Guidelines for Examination in the EPO. Part G. Chapter IV. Section 6.2.1 noting that "subject matter should be regarded as made available to the public by use or in any other way if, at the relevant date, it was possible for members of the public to gain knowledge of the subject-matter and there was no bar of confidentiality restricting the use or dissemination of such knowledge (…). This may, for example, arise if an object is unconditionally sold to a member of the public, since the buyer thereby acquires unlimited possession of any knowledge which may be obtained from the object. Even where in such cases the specific features of the object may not be ascertained from an external examination, but only by further analysis, those features are nevertheless to be considered as having been made available to the public. This is irrespective of whether or not particular reasons can be identified for analysing the composition or internal structure of the object".

127 See Article 55(1)(a) EPC.

128 Lionel Bently 2012 (n 114) para 3.68; T 830/90 [1994] OJ EPO 713 and T 681/01 (28 November 2006) para 2.8, where the Technical Board of Appeal noted that the supply of a product does not necessarily entail a tacit agreement as to confidentiality.

129 Guidelines for Examination in the EPO. Part G. Chapter V. Section 3; see also Rudolf Kraßer and Christoph Ann 2009 (n 120) Kapitel 3, § 16.A.IV. Rdn 2.

130 Guidelines for Examination in the EPO. Part G. Chapter V. Section 2.

131 Article 55(1) EPC; this point was later clarified by the EPO Enlarge Board of Appeal in G 2/99 [2001] OJ EPO 83, where it was noted that the relevant date to calculate the six months period was the actual date of filing before the EPO and not the priority date.

132 Commission, 'Explanatory Memorandum, Proposal for a Directive of the European Parliament and of the Council on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure' 2.

and highlights the complementarity of patents and trade secrets as appropriation methods.[133] Inventors can rely on secrecy during the development phase and apply for patents to protect their inventions during the marketing phase. Notwithstanding this, the EPC also imposes temporal restrictions on unlawful disclosure in order to encourage early patenting.[134]

2. Preferring trade secrets over patents

a) Analysis of economical empirical evidence

Contrary to the general belief that patents protect a company's most valuable inventions, empirical evidence suggests that alternative mechanisms, such as secrecy and lead-time advantage, are the preferred methods of appropriating returns from innovation.[135] This is true at least in the EU,[136] the UK,[137] Switzerland[138] and the U.S.[139] Indeed, it has been reported that in the UK, only 4% of the companies engaging in innovative activities applied for a patent between 1998 and 2006.[140] This figure is only slightly higher for undertakings operating in the U.S., where only 5,5% of the

133 Anthony V. Arundel, 'The relative effectiveness of patents and secrecy for appropriation' [2001] 30 Research Policy 611-624.

134 Lionel Bently 2012 (n 114) para 3.68.

135 Bronwyn H. Hall, Christian Helmers, Mark Rogers and Vania Sena, 'The Choice between Formal and Informal Intellectual Property: A Review' [2014] 52 Journal of Economic Literature 1, 6.

136 Anthony V. Arundel 2001 (n 133) 611-624.

137 UK Innovation Survey 2007.

138 Najib Harabi, 'Appropiability of Technichal Innovations an Empirical Analysis' [1995] 24 Research Policy 981-992.

139 Over the last decades, a number of studies have addressed the preferred means of appropriation in the U.S. The most well-known ones are two: Richard C. Levin, Alvin K, Klevorick, Richard R. Nelson and Sidney G. Winter 'Appropriating the Returns from Industrial Research and Development' [1987] 18 Brookings Papers on Economic Activity 783-832; and Wesley Cohen, Richard R. Nelson, John P. Walsh, 'Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)' (2000) National Bureau of Economic Research Working Paper 7552 <http://www.nber.org/papers/w7552> accessed 15 September 2018.

140 Bronwyn H. Hall, Christian Helmers, Mark Rogers and Vania Sena, 'The importance (or not) of patents to UK Firms' (2013) NBER Working Paper No. 19089 <http://www.nber.org/papers/w19089> accessed 15 September 2018.

manufacturing companies hold patents for their inventions.[141] With regard to these statistics, this section surveys the underlying economic factors that determine whether firms will opt to apply for patents or rely on other informal appropriation mechanisms instead.

For the purposes of the current research, Arundel's survey is reviewed as it provides the most accurate insight into the preferred methods for protecting innovations by EU firms during a certain period.[142] Arundel's study looks into the data gathered from 1990 to 1992 in the Community Innovation Survey ("CIS") of six EU Member States (Germany, Luxemburg, the Netherlands, Belgium, Denmark and Ireland), as well as Norway and analyses the responses of 2.849 R&D performing firms. His research intends to answer mainly three questions. In the first place, he examines the relative importance of secrecy and patents for European manufacturers. Next, he considers whether small firms believe that patents are of greater value than secrets as opposed to larger firms. Finally, he looks into the factors that affect the value of secrecy in contrast to patents.[143]

With regard to the relative importance of secrecy, the respondents in the CIS were asked to take into account not only trade secrets and patents as potential appropriation means to maintain and increase the competitiveness of innovations, but also three other parameters, namely (i) design registration, (ii) complexity of product design,[144] and (iii) lead-time advantage over competitors.[145] At the same time, a distinction was drawn between product and process innovations. The results are illustrated in Table 1 below:

141 Natarajan Balasubramanian and Jagadeesh Sivadasan, 'What happens when firms patent? New evidence from U.S. economic census data' [2011] 93 The Review of Economics and Statistics 126, 126-127.

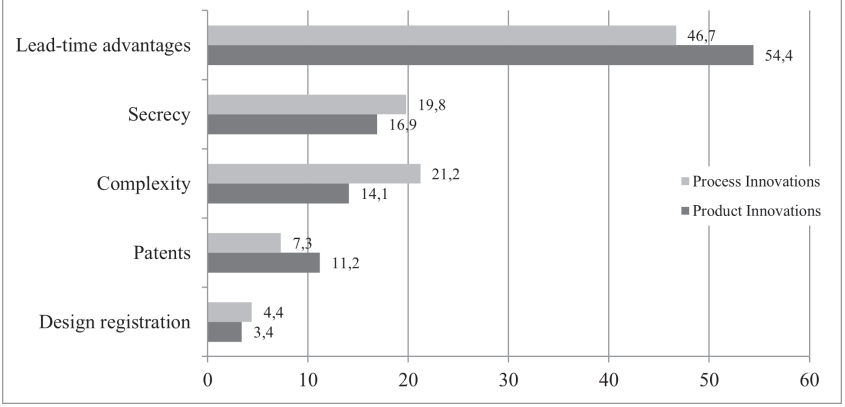
142 Anthony V. Arundel 2001 (n 133) 611-624.

143 Anthony V. Arundel 2001 (n 133) 614.

144 Complexity of product design refers to a product of high intricacy that requires considerable resources to be reverse engineered; see further Pamela Samuelson and Suzanne Scotchmer 2002 (n 226) 1619.

145 The term lead-time advantage (also known as the first mover advantage) refers to "the ability of pioneering firms to earn positive economic profits (i.e. profits in excess of capital). (…) It arises from three primary sources (1) technological leadership, (2) preemption of assets, and (3) buyer switching costs" according to Marvin B. Lieberman, 'First-Mover Advantage' [1988] 9 Strategic Management J 41, 41-42.

TABLE 1. PERCENTAGE OF 2849 R&D-PERFORMING FIRMS THAT GIVE THEIR HIGHEST RATING TO EACH APPROPRIATION METHOD



As is apparent from the above reproduced table, lead-time advantage (the first mover advantage) was deemed the preferred method of appropriation for product innovation by 54,4% of the respondents, followed by secrecy (16,95%), complexity of product design (14,1%), patents (11,2%) and design registration (3,4%). As regards process innovations, lead-time advantage also received the highest rating score (54,4%), followed by the complexity of the product (21,2%), and secrecy (19,8%).[146] Notably, in regard to process innovations, the complexity of the product was considered more effective to secure returns from innovation than secrecy. In contrast, patents were the preferred option only for 7,3% of the R&D companies.

146 The UK Innovation Survey 2007 provided similar results. The preferred methods for protecting innovations among the more than 28.000 undertakings surveyed between 2004 and 2006 were confidentiality agreements (18%), lead-time advantage (15%) and secrecy (13%). In contrast, only 8% of the sampled companies ranked patents as highly important means of protecting innovations. In the U.S., the survey evidence conducted by Weseley Cohen and others 2000 (n 139) shows that for product innovations secrecy and lead-time are perceived as the two most effective appropriation mechanisms. This means that in more than 50% of the product innovations in which undertakings resorted to lead-time and secrecy, effective protection was achieved. At the other end of the spectrum, patents were only regarded as effective means of appropriation in 34.83% of the innovations. As regards process innovations, secrecy was regarded as the most effective mechanism of appropriation (50.59%), followed by lead-time (38.43%). Patents were only effective in 23.30% of the cases in which companies resorted to them.

This is in line with the idea that process patents are likely to disclose too much information to competitors in their specification, as it is generally considered that they are easier to invent around than product patents.[147] Also, when process innovations are kept secret, they are less likely to be examined by third parties and thus protection can last beyond the twenty-year patent term.[148] On the other hand, keeping a product innovation secret is seemingly more difficult, as it can be inspected upon purchase of the product.[149]

Turning to the size of firms, in regard to product innovations, a higher percentage of small firms considered trade secrets to be more important than patents as compared to larger firms. The data gathered from the CIS survey suggests that there is a correlation between the size of the firm and the relative importance of secrecy, when compared to patents.[150] However, this correlation does not exist in regard to process innovations, where the relative value of secrecy and patents is similar across firms of all sizes. Special emphasis should be given to the responses provided by small R&D-intensive firms, as on average they regarded patents as more important than small R&D-performing firms.[151]

Other factors that come into play in the assessment of the relative value of secrecy and patents are the firm's own innovative strategies and the sector in which they are applied. As noted in the previous paragraph, R&D-intensive firms tend to attach greater value to patents. Most importantly, there are significant variations across manufacturing sectors. Patents are most valued by firms when the development of the invention is very cost-

147 Bronwyn Hall, Christian Helmers, Mark Rogers and Vania Sena 2014 (n 135) 380.

148 Wesley Cohen and others 2000 (n 139) 10.

149 Richard C. Levin and others 1987 (n 139) 795.

150 Anthony V. Arundel 2001 (n 133) 617; similar conclusions were reached by Serge Pajak, 'Do innovative firms rely on big secrets? An analysis of IP protection strategies with the CIS 4 survey' [2016] 25 Economics of Innovation and New Technology 516; Knut Blind, Jakob Edler, Rainer Frietsch and Ulrich Schmoch, 'Motives to patent: Empirical evidence from Germany'[2006] 35 Research Policy 655-672 studied the German scenario and came to the conclusion that the importance of patents increases according to the size of the firm. Larger firms tend to rely more on patents as means of appropriation than smaller ones, which prefer informal means. This is also the case in the UK according to the studies of Alan Hughes and Andrea Mina, 'The Impact of the Patent System on SMEs' (2010) Centre for Business Research, University of Cambridge Working Paper No.411 Working Papers <https://www.uspto.gov/sites/default/files/aia_implementation/ipp-2011nov08-ukipo-1.pdf> accessed 15 September 2018.

151 Anthony V. Arundel 2001 (n 133) 616-617.

ly, but its imitation is actually very cheap.[152] Thus, the pharmaceutical and chemical industries are two of the most paradigmatic examples of sectors where there is a strong reliance on patents.[153]

As a whole, the prevalence of lead-time advantage and secrecy over patents as the preferred appropriation mechanisms both for product and process innovations seems intrinsically linked to the disclosure requirement provided for in patent law.[154] Secrecy plays a central role in ensuring a technological head start, which is irretrievably hindered by patent disclosure.[155]

b) Advantages of secrets over patents

Protecting information through the law of trade secrecy entails a number of advantages over patents for their holders. The three most salient ones are that: (i) the protection is available without burdensome administrative procedures and at a very low cost, (ii) critical information is not disclosed to competitors, and (iii) protection may extend beyond the twenty-year term. Each of these features are examined in turn.

The grant of a patent is subject to a formal (and in some instances lengthy)[156] procedure of application to national offices.[157] In addition, patent applications must be drafted in a very specific manner, which in most countries involves engaging the services of qualified patent attorneys.

---

152 Anthony V. Arundel 2001 (n 133) 618-619.

153 Richard C. Levin and others 1987 (n 139) 796; empirical evidence on the positive effects of the patent system in the pharmaceutical and chemical sector is provided by Edwin Mansfield 'Patents and Innovation: An Empirical Study' [1986] 32 Management Science 173-181.

154 Wesley Cohen and others 2000 (n 139) 14 provide empirical evidence (Figure 5), according to which the main reason not to apply for a patent is the ease to invent around by competitors; a similar point is raised in Richard C. Levin and others 1987 (n 139) 802-803.

155 See Alexandra K. Zaby, 'Losing the lead: Patents and the disclosure requirement' (2005) Tübinger Diskussionsbeitrag No. 296 <http://nbn.resolving.de/urn:nbn:de:bsz:21-opus-20528> accessed 15 September 2018.

156 For a more detailed account see Eugenio Hoss, 'Delays in Patent Examination and their Implications under the TRIPS Agreement' (Master Thesis, MIPLC 2010/11) <http://ssrn.com/abstract=2166853> accessed 15 September 2018.

157 Article 4 A PC; for a detailed account of the European and German grant proceedings see Felix Landry, 'The proceedings for grant' 338-501 in Maximilian Haedicke and Henrik Timmann (eds), *Patent Law Handbook* (2013 C.H. Beck).

Furthermore, if international protection is sought, costly translations for the selected countries are required.[158] Similarly, most patent offices demand the payment of maintenance fees yearly throughout the life of the patent.[159]

Conversely, under the law of trade secrets undisclosed information is protected as long as it is not publicly known and without the need to comply with burdensome administrative procedures.[160] As a result, information can be protected automatically and at a lower cost. However, pursuant to Article 39(2)(c) TRIPs, the holders of information must take reasonable measures to protect the secret nature of their information.[161] It is generally accepted that the cost of implementing protective measures is lower than the fixed patentability costs (these include the average price of patenting and the maintenance cost of the patent throughout its life), particularly for trade secrets of modest value, as from a rational perspective the investment made in protecting trade secrets should never be higher than their actual value.[162]

The most relevant advantage provided by the law of trade secrets as opposed to the patent system is that it affords protection to inventions without disclosing relevant information to competitors. Patent law ensures that the holder can benefit exclusively from his innovation for a certain period of time, subject to the condition that the patent is published and thus accessible to the public at large.[163] As indicated above,[164] a number of empirical studies show that the disclosure requirement is the main reason why holders of information choose informal means to protect their inventions. They fear that the description of an innovation in the patent specification may instruct competitors on how to invent around before the expiry of the

158 As provided by Article 22 PCT; this point is further elaborated in Lionel Bentley 2012 (n 114) 62.

159 See for instance the schedule of fees and expenses applicable to patents granted by the EPO <http://www.epo.org/law-practice/legal-texts/official-journal/2014/etc/se3/p1.html> accessed 15 September 2018 and the USPTO <http://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule#Patent%20Fees> accessed 15 September 2018.

160 Roger M. Milgrim, *Milgrim on Trade Secrets* (Matthew Bender 2014) § 1.06 [2]; see James Pooley 2002 (n 66) § 3.01 [3-5]; Lionel Bently 2012 (n 114) 62.

161 This requirement is developed further in chapter 2 § 1 A) IV. 2. d).

162 Michael Risch 2007 (n 15) 43.

163 Friedrich-Karl Beier and Josef Straus, 'The Patent System and Its Informational Function – Yesterday and Today' [1977] IIC 387, 397.

164 See chapter 1 § 3 A) I. 2. a).

patent term.[165] Furthermore, innovations that do not fulfil the patentability standards because they are not regarded as new or inventive will be dedicated to the public after the publication of a patent application, even if a patent is not granted, thus forfeiting trade secrets protection. These factors explain the prevalence of trade secrets over patents as a means of appropriating returns from innovation across different industries.[166]

Thirdly, the protection of innovations through secrecy may last for as long as the inventor is able to keep the invention secret,[167] whereas with patents the term of protection is limited to twenty years from filing.[168] In theory, trade secrets may extend for as long as the secret remains unveiled. Prime examples of this are the Coca-Cola formula for the so-called "Merchandise 7x" flavouring or KFC's famous "11 herbs and spices" sauce.[169] However, this feature of trade secrets is an advantage only for those inventions that are not easy to study.[170]

The foregoing analysis has been conducted from the perspective of the trade secret holder. However, it is important to bear in mind that the patent system is based on four pillars that take into account not only the private interest of the inventor, but also the general interest of society. According to Machlup, the grant of an exclusive right on a patent is justified on the basis of four grounds that partially overlap with the justifications outlined with respect to trade secrets protection:[171] (i) the intellectual property thesis, (ii) the reward thesis, (iii) the incentive thesis and (iv) the

165 See Article 93(1)(a) EPC; but also 35 U.S.C. § 122 (2008) (U.S. Patent Act) regarding the confidential status of applications; William Landes and Richard Posner 2003 (n 38) 362-363; Suzanne Scotchmer 2004 (n 41) 83 noting that "Nevertheless, inventors generally prefer to avoid disclosure because it is difficult to protect all of the knowledge disclosed in a patent. Trade secrecy is especially attractive if the inventor thinks that the trade secret would never leak out and never be rediscovered independently by someone else. However, choosing trade secrecy undermines the well-thought-out objectives of the patent system".

166 Sabra Chartrand, 'Patents; Many companies will forgo patents in an effort to safeguard their trade secrets' *New York Times* (New York, 5 February 2001) C00005.

167 Michael Risch 2011 (n 113) 168.

168 See Article 38 TRIPs, Article 63 EPC and Article 33 TRIPs. However, it should be borne in mind that TRIPs only lays down minimum standards of protection and thus, the patent term may extend beyond twenty years.

169 Robbie Brown and Kim Severson, 'Recipe for Coke? One More to Add to the File' *New York Times* (New York, 19 February 2011) WK3.

170 Michael Risch 2011 (n 113) 168; William Landes and Richard Posner 2003 (n 38) 362.

171 See chapter 1 § 2.

disclosure thesis.[172] The first two are of a deontological nature and consider that individuals have a natural right in their inventions and should be rewarded for their contribution to society (following the Lockean labour law theory described in § 2 A) II of this chapter).[173] Under the incentive thesis, the exclusive patent right is granted in order to encourage technical and scientific progress.[174] As outlined above,[175] the disclosure thesis contends that the main goal of the patent system is to make publicly available information that otherwise would be concealed by its holder in order to encourage further development. Following this rationale, the patent system is pictured as a trade-off between the inventor and society.[176]

In the light of the above, it should be highlighted that although the justifications for the protection of trade secrets and patents present some common ground, they also present notable differences owing to the hybrid legal nature of trade secrets and the fact that protection is only envisaged against misappropriation. Turning first to the deontological arguments, pursuant to the labour value thesis, both the patent holder and the trade secrets holder have a natural right in their inventions and the information that they have generated.

In the same vein, contractarian theories are also applicable to justify both trade secrets protection and the general legal framework created by IPRs.[177] With respect to the latter, Merges, in his seminal book *Justifying Intellectual Property,* submits that individuals in the Original Position

---

172 A more detailed account on the justifications of the patent system is provided by Fritz Machlup in his seminal article 'Economic Review of the Patent System' (1958) Study No. 15 of the subcommittee on the Judiciary-United States Senate 85th Congress, 2nd session, Washington, 20-21; Rudolf Kraßer and Christoph Ann 2009 (n 120) § 3 II.

173 Friedrich-Karl Beier, 'Traditional and Socialist Concepts of Protecting Inventions' [1970] IIC 328, 330-332.

174 Similarly, William Fisher 'Theories of Intellectual Property' 168, 173 in Stephen R. Munzer (ed), *New Essays in the Legal and Political Theory of Property* (CUP 2001); Friedrich-Karl Beier 1970 (n 173) 333 noting that "The incentive thesis views the main purpose of patent protection in its function to stimulate the profit expectations of the inventor and to encourage enterprises to invest capital in research, development, and exploitation of new inventions".

175 A more comprehensive account of this principle is provided in chapter 1 § 2 B) II.

176 See Friedrich-Karl Beier 1970 (n 173) 336-338; but see Robert P. Merges and Richard R. Nelson, 'On the complete economics of patent scope' [1990] 90 Columbia LR 839, 868 arguing that the trade-off analysis is too simplistic and appropriate consideration should be paid to other factors.

177 Robert P. Merges, *Justiffying Intellectual Property Law* (HUP 2011) 112, 135-136.

would agree on granting IPRs (including patents) to creators and inventors despite the unequal distribution of resources among members of a society that this would entail. He argues that such an incentive would encourage the most creative/inventive individuals to pursue this kind of activity, which would ultimately result in a net positive distributional effect. In other words, the individuals in the worst position in society would still benefit from the products covered by IPRs. Consequently, he concludes that the unfair allocation of resources may appear justified and should be part of the essential liberties to which every individual is entitled.[178]

In contrast, the patent reward theory is not applicable to trade secrets protection, as trade secrets holders do not publish the subject matter covered by the secret, which in addition is not necessarily innovative. In fact, upon disclosure, protection ceases. Therefore, the holder of valuable secret information does not participate in the trade-off between the inventor and society and will not be entitled to obtain an absolute erga omnes right to exploit the information concerned.

With respect to the commercial ethics theory, its application to patent rights is highly questionable, based on the fact that patents are absolute property rights with erga omnes effects. This means that the patent holder is protected against the exploitation of products in which the invention is embodied by any third party.[179] Consequently, the standard of liability is a strict one, unlike the one applicable to trade secrets, where protection is afforded only in case of unlawful acquisition, use and disclosure of information. Hence, while trade secrets protection may be justified on the basis that it is necessary to enforce honest commercial practices in the marketplace among competitors, the strict patent liability standard precludes any analogous consideration in the field of patents. Indeed, in patent infringement cases, the appraisal of negligence or wilfulness on the side of the in-

178 Robert P. Merges, *Justiffying Intellectual Property Law* (HUP 2011) 112.

179 In this regard, it should be noted that Article 28 the TRIPs Agreement sets out the following minimum standards of protection with regard to the rights conferred by a patent:
"1. A patent shall confer on its owner the following exclusive rights:
(a)where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product;
(b) where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process".

fringer does not play a role during the assessment of the acts that trigger liability in direct infringement cases, with the exception of those situations where the defendant uses a process or offers to use a process.[180] In the latter case, the plaintiff must prove that the defendant knew or that it was obvious from the circumstances that use of the process without consent would result in an infringement.[181]

Following utilitarian arguments, at first glance it seems that the fact that under the law of trade secrets an invention that may be eligible for patent protection can be perpetually exploited without disclosing to the public at large its technical innovation runs counter to the last two theoretical justifications put forward with respect to the patent law systems: the incentive thesis and the disclosure thesis. There is social value in the disclosure of an invention that is undermined if the trade secret holder is able to reap the fruits indefinitely.[182] In such a case, society would not be able to build on existing knowledge and develop follow-on innovation.[183] As noted above, cumulative innovation is central to the development of technological progress.[184] In the words of Scotchmer, "intellectual property should be designed to achieve the right balance of protection for innovators, protection for consumers, and opportunity for rivals to make improvements. Protection through secrecy can obstruct these objectives".[185] However, following the conclusions previously outlined,[186] trade secrets protection does provide certain incentives to generate information (that may be both of an innovative and non-innovative nature) and allows for lower transaction costs, which despite not fulfilling the patent disclosure function, incentivise information sharing among market participants and within the internal sphere of firms. Consequently, it is submitted that the incentive

180 Lionel Bently and Brad Sherman 2014 (n 125) 610 and 624-625.

181 Lionel Bently and Brad Sherman 2014 (n 125) 619; along the same lines see § 9(2) Patentgesetz in der Fassung der Bekanntmachung vom 16. Dezember 1980 (BGBl. 1981 I S. 1), das zuletzt durch Artikel 4 des Gesetzes vom 8. Oktober 2017 (BGBl. I S. 3546) geändert worden ist (German Patent Act).

182 See Fritz Machlup 1985 (n 172) 76; Suzanne Scotchmer 2004 (n 41) 83; Surblyte Gintare, *The Refusal to Disclose Trade Secrets as an Abuse of Market Dominance – Microsoft and Beyond* (Stämpfli 2011) 92.

183 Katherine J. Strandburg, 'What does the public get? Experimental use and the patent bargain?'[2004] 57 Wisconsin LR 81, 107-118 discussing the interplay between the incentive to disclose and the incentive to innovate within the patent system and its effects on follow-on innovation.

184 See chapter 1 § 2 B) I.

185 Suzanne Scotchmer 2004 (n 41) 26.

186 See chapter 1 § 2 B) II.

thesis and the disclosure thesis under patent law and the trade secrets legal regime are not completely mutually exclusive.

As a final consideration, it should be noted that the two additional utilitarian arguments that have been discussed with respect to trade secrets protection are not extrapolatable to the patent system. With respect to the limit to the arms race argument, it should be observed that according to the strict liability rules followed in patent law, patentees do not have to invest in costly self-help measures to protect their inventions. Once the patent is granted, the patentee will be protected against any unauthorised acts of exploitation in the market of the products in which the patented invention is embodied or that have been directly obtained from a new patented process.[187] This is further reinforced by the fact that the adoption of reasonable measures under the circumstances to protect the undisclosed nature of a trade secret is not a requirement for protection under patent law.

In the same vein, the privacy rationale is not applicable to justify patent legal regimes, as knowledge diffusion is one of the principles upon with the patent system is built. In fact, pursuant to the PCT, patent applications are published at the latest eighteen months after filing[188] and according to the EPO, upon grant, the patent specification is also published in the European Patent Bulletin.[189] Notwithstanding this, it should be recalled that following the utilitarian dimension of the privacy rationale explained above,[190] it is of utmost importance that the secrecy of the invention is not lost prior to the submission of the patent application. Prospective patent applicants should be guaranteed a Laboratory Zone in which to develop their innovations without the interference of third parties.

c) The risks of secrecy

The protection of innovations through secrecy involves considerable risks, in contrast to patents. The most salient one is the revelation of the information. Upon disclosure, information ceases to be protected and enters the

187 Please note that some countries confer provisional protection to the applicant from the date of publication and until the date of publication of mention of its grant is published in the Patent Office Bulletin. In Europe, such a right is regulated under Articl 67 of the EPC, which confers upon the applicant the same protection provided for granted patents in the designated contracting state.

188 See Article 21 PCT and 93 EPC.

189 See Article 98 EPC.

190 See chapter 1 § 2 B) IV.

public domain. It is not possible to recoup the confidential nature once it is lost. As noted by Sir John Donaldson M.R. during the course of the so-called "Spycatcher" litigation in England:

> Confidential information is like an ice cube. Give it to the party who undertakes to keep it in his refrigerator and you still have an ice cube by the time the matter comes to trial. Either party may then succeed in obtaining possession of the cube. Give it to the party who has no refrigerator or will not agree to keep it in one, and by the time of the trial you just have a pool of water which neither party wants. It is the inherently perishable nature of confidential information which gives rise to unique problems.[191]

Against this background, it is important to outline the four main scenarios in which secrets may be revealed,[192] namely: (i) with the publication of the information by its holder; (ii) if the information is independently generated and made available; (iii) if the secret is unveiled through lawful means such as reverse engineering; and (iv) as a result of a breach of a duty of confidence.

In the first scenario, a lack of due diligence may lead the trade secret holder to disclose his own invention. Sometimes scientists publish their inventions in journals, unaware of how the novelty requirement operates within the patent system. Subsequently, in the assessment of their application by the patent office their own publication is regarded as prior art.[193] Similarly, if an inventor applies for a patent that in the end is not granted, the application will be published and the secret contained therein will fall into the public domain. As a result, the invention will be protected neither by patent law nor as a trade secret.[194]

According to the second scenario, even if an invention is successfully concealed by the trade secret holder, it is possible that a competitor will be

---

191 *Attorney General v Newspaper Publishing Plc and Others* [1989] 2 FSR 27(Ch), 48.

192 As noted by Lionel Bently 2012 (n 114) para 3.27-3.51.

193 EPO T 381/87 [1990] OJ EPO 213 dealing with an invention published before the priority date in an article submitted to a scientific journal by the three inventors.

194 This has been confirmed by case law in the UK (*Mustad v Son v Dosen and another* [1964] 1 WRL 109 (HL)); Germany (BGH GRUR 1975, 206 – *Kunststoffschaum-Bahnen*) and also in the United States (*Timely Products Corp v. Arron* 523 F 2d 288 (2d Cir. 19751975)); for a more detailed account of the underlying policy see Friedrich-Karl Beier and Josef Straus, 'The Patent System and Its Informational Function – Yesterday and Today' [1977] IIC 387, 387.

able to generate it independently. Nowadays most technological progress is built upon prior innovations and thus it is possible that two competing firms will manage to develop the same invention separately.[195] This is particularly problematic if the second inventor obtains a patent covering the secret innovation, as according to consistent case law from the EPO, a secret or inherent use does not anticipate the invention unless it is accessible to the public. Thus, the first inventor will not be able to rely on such a use to invalidate the patent.[196]

In this context, another problem that may arise is the potential infringement of the patent by the first inventor. To overcome this, most European jurisdictions have developed a so-called "prior user right", which entitles the holder of a secret invention to continue using it, despite the grant of a valid patent.[197] Such a defence was developed on the basis of fairness arguments and with the purpose of counterbalancing the effects of the first-to-file system. It is generally accepted that the trade secret holder who has invested time and work and incurred high costs to use the invention should not be deprived of the fruits of his work by a third party's patent application.[198] In Germany for instance, the exercise of the prior user right is conditioned upon the fulfilment of two requirements. In the first place, the

---

195 Suzanne Scotchmer, 'Standing on the Shoulders of Giants: Cumulative Research and the Patent Law' [1991] 5 JEP 29, 29 noting that "most innovators stand on the shoulders of giants, and never more so than in the current evolution of high technologies, where almost all technical progress builds on a foundation provided by earlier innovators".

196 See T 472/92 [1998] OJ EPO 161, where the Board of Appeal held that the mere delivery of materials did not render them publicly available; see also more generally G 1/92 [1993] OJ EPO 277, where the Enlarged Board of Appeal deemed that if an invention is accessible on the date of priority, it is dedicated to the public.

197 Article 122(5) EPC establishes the so-called "intervening rights", which operate in a similar manner to prior user rights. Pursuant to this provision, if a person in good faith has used or prepared to use an invention which is the object of a published EP application or a granted EP, between the time a loss of rights occurred and the time of publication of the mention of re-establishment of rights, he may continue to use it in the course of his business. Notwithstanding this, substantive issues concerning the acquisition, scope and transferability of prior user rights is subject to the national legislation of the EPC Contracting States. As regards TRIPs, it is generally accepted that prior user rights to fall within the general scope of Article 30 TRIPs. Prior user rights are regulated for instance in § 12 of the German Patent Acct and § 64 of the UK Patents Act 1977.

198 Rudolf Kraßer and Christoph Ann 2009 (n 120) § 34 II a. 2; a similar position was expressed by the German Federal Supreme Court in one of its decisions on § 12 of the German Patent Act (BGH GRUR, 2010, 47, 48 –*Füllstoff*), where the

patented invention must have actually been used (or arrangements to use it must have been made) in Germany before the priority date. Secondly, the inventor must be in possession of the invention. If these two conditions are met, the patent cannot be enforced against the trade secret holder.[199] However, as the prior user right (unlike the patent right) is not of an exclusive nature, its holder will not be able to enforce it against third parties.[200]

In the U.S., historically there was no general "prior user's right" defence, as it was only envisaged for business method patents.[201] Until the America Invents Act ("AIA") was passed, the patent system was premised on the first to invent principle, where non-disclosing uses could be invoked as the basis for invalidating a patent application.[202] Under the new framework created by the AIA, the paradigm shifted and as of March 16, 2013 it became closer to a first-to-file system.[203] In view of that, § 273 U.S. Patent Act[204] was amended in order to create a general defence allowing any per-

---

court noted that "The purpose of Section 12 PatG is, for reasons of fairness, to safeguard an existing previously initiated vested right of the prior user, and hence to prevent the unfair destruction of values created in a permissible and, in particular, lawful manner. His (the prior user's) efforts, time and capital in existing assets, which are utilised to exploit the invention, or in which the will to do so has been confirmed, ought not to have been invested for nothing, nor should such a vested right be stripped of value by someone else's patent application". translation by Johannes W. Bukow, 'Defences' § 9c I, Rdn 98 in Maximilian Haedicke and Henrik Timmann (eds), *Patent Law Handbook* (2013 C.H. Beck).

199 Johannes W. Bukow, 'Defences' § 9c II in Maximilian Haedicke and Henrik Timmann (eds), *Patent Law Handbook* (2013 C.H. Beck).

200 Rudolf Kraßer and Christoph Ann 2009 (n 120) § 34 II a. 3; a more detailed account of the prior user right falls outside the scope of the present research. However, see The Tegernsee Group 'Consolidated Report on the Tegernsee user consultation on substantive Patent Law Harmonization (Tegernsee V)' (2014), 75-101 <http://www.epo.org/news-issues/issues/harmonisation_de.html> accessed 15 September 2018.

201 For a general overview of the prior user rights in the U.S. see The Tegernsee Group 'Report on Prior User Right (Tegernsee III)' (2012), 8-9 <http://www.epo.org/news-issues/issues/harmonisation_de.html> accessed 15 September 2018; see further Lionel Bently 2012 (n 114) para 3.40.

202 See 35 U.S.C. §§ 102 (g) (2008), which is not applicable to patents filed after 1 March 2013, subject to the provisions of the AIA.

203 For an introduction to the rules laid down before the AIA was passed see Mark A. Lemley, 'Does "Public Use" Mean the Same Thing It Did Last year?' [2014] 93 Texas LR 1119, 1123-1125.

204 U.S Patent Act, Public Law 593, 66 Stat. 792 (1952) (codified as amended at 35 U.S.C. §§ 1 et seq) (U.S. Patent Act).

son who acting in good faith had used the invention in the U.S. in a commercial context to continue using the invention after the grant of the patent. However, the prior user can only avail himself of this defence if the relevant use occurred at least one year before the filing date or the date of public disclosure of the patentee who relies on the one-year grace period provided for in § 102(b).[205]

The two additional scenarios in which the right in a trade secret is lost, i.e. when it is lawfully acquired through reverse engineering and when it is unlawfully acquired, used or disclosed are examined in the following chapters,[206] as they are of paramount importance in striking an optimal balance between the trade secrets regime and the IPRs system and are deemed essential limitations for the construction of a solid public domain.

In sum, it can be concluded that the choice between patent protection and trade secrets when they are both mutually exclusive will depend on the interplay of a number of factors. Ultimately, from an economic perspective, the holder of information will prefer trade secrets protection if the costs of the patent system are too high compared to the value of the invention or the expected profit is lower than their value.[207] Rational inventors will choose the most profitable option. This would be the case if the patentable invention took longer to reverse engineer than the twenty-year patent term.[208] In the latter case, the objectives pursued by the patent system and the trade secrets legal regime seem incompatible, as the trade secrets owner may be able to reap the fruits of his endeavours indefinitely.

3. Simultaneous protection of trade secrets and patents

The academic literature has paid little attention to the complementarity relationship between patents and trade secrets, even though in practice it plays an essential role in planning the strategic protection of intangible assets and maximising returns from innovative activities.[209]

---

205 35 U.S.C. § 102(b).

206 Chapter 3 § 5 C) III provides an account of the misappropriation doctrines under the TSD and chapter 6 § 2 B) examines reverse engineering practices.

207 William Landes and Richard Posner 2003 (n 38) 359.

208 William Landes and Richard Posner 2003 (n 38) 359.

209 William Cornish, David Llewellyn and Tanya Aplin, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (8th edn, Sweet&Maxwell 2013) para 8-03 noting that "In actual practice, patents are often secured for a central invention, while much that is learned in the process of bringing it into commer-

Trade secrets are not only key in early-stage inventions,[210] but also when innovations can be protected simultaneously both by trade secrets and patents. In this case, companies will often make use of both appropriation mechanisms.[211] On the one hand, processes or products that fulfil the patentability criteria will be protected under the patent law regime. On the other hand, more specific information that is not necessary for the purposes of providing an enabling disclosure in the patent application will be concealed.[212] Usually, such information refers to the precise way in which the inventor performed the claimed product or process and it is disclosed through licensing agreements.[213]

This complementarity relationship is enhanced by the fact that "trade secret law reaches into a number of corners patent law cannot".[214] The spectrum of subject matter eligible for protection is broader for trade secrets than for patents, particularly in Europe where patents covering software and business models are difficult to obtain. However, trade secrets protection may be invoked to protect business plans, customer lists and so-called "negative know-how" against use by third parties.[215] The EPO consideres that this type of information lacks inventiveness and hence falls outside the scope of protection of patent law. Yet, it is effectively protected against misappropriation by the law of trade secrets. Furthermore, in some cases inventors must wait up to three years for the patent office to decide

---

cial production is tied up as secret 'know-how' by means of confidence undertakings".

210 See chapter 1 § 3 A) I. 1.

211 Lionel Bently 2012 (n 114) para 3.78; Anthony V. Arundel 2001 (n 133) 613.

212 Elisabetta Ottoz and Franco Cugno, 'Patent-Secret Mix in Complex Product Firms' [2008] 10 American Law & Economics R 142.

213 In the U.S., such practices may appear more controversial, as pursuant to 35 U.S.C. § 112 (a) (2011) the inventor must disclose to the public the best mode he knows for performing the invention. That is, of all the embodiments covered within the scope of a claim, the most effective one has to be specified. The fact that the inventor concludes a licensing agreement that includes several recommendations as to how to practice the invention not described in the patent may suggest that he has failed to comply with the "best mode requirement". Yet, this has been simplified after the adoption of the AIA, by virtue of which, the best mode is no longer an accepted defence in an infringement suit; Robert P. Merges and John F. Duffy, *Patent Law and Policy, Cases and Materials* (6th edn, Lexis Nexis 2013) 263; Lionel Bently 2012 (n 114) para 3.78.

214 Mark A Lemley 2008 (n 15) 331.

215 David S. Almeling, 'Seven Reasons Why Trade Secrets are Increasingly Important' [2012] 27 Berkeley Technology LJ 1091, 1112.

whether to grant protection.[216] As a result and for practical reasons, in fast-moving industries like the software industry, patents are rarely applied for.[217]

Hence, simultaneous reliance on both appropriation mechanisms provides protection of additional subject matter, enhances exclusivity, provides additional remedies in the event of litigation and acts as a fall-back position if the other IPR is not enforceable.[218]

II. Trade secrets and copyright

As argued in the previous section, upon perfunctory analysis trade secrets are usually associated with patentable subject matter. Nevertheless, overlaps may also occur with regard to copyright. To name some, technical drawings or software can be afforded protection under both regimes.[219] Notwithstanding this, relying on such a two-tiered scheme may come into conflict with one of the goals upon which the copyright system is built: promoting access to new works. Indeed, modern copyright law aims at striking an adequate balance between the public interest in education, research and access to information on the one hand, and the exclusive proprietary right granted to the author to incentivise further creation on the other.[220] Ultimately, concealing information that is eligible for copyright protection prevents its dissemination to the public at large. The tensions

---

216 On average grant procedures at the EPO take three years and three months <http://www.epo.org/service-support/faq/own-file.html#faq-274.v> accessed 15 September 2018; similarly, the USPTO grant procedure lasts around 27,4 months pursuant to the USPTO, 'Performance and Accountability Report' (2014) 128 <https://www.uspto.gov/about/stratplan/ar/USPTOFY2014PAR.pdf.> accessed September 15, 2018; this period is substantially shorter if the application takes place before offices that do not conduct a substantive examination, but rather a mere registration.

217 Mark A. Lemley 2008 (n 15) 332.

218 Elisabetta Ottoz and Franco Cugno 2008 (n 212) 156.

219 Diane L. Zimmerman, 'Trade secrets and the "philosophy" of copyright: a case of culture crash' 299, 300 in Rochelle C. Dreyfuss and Katherine J. Strandburg (eds), *The Law and Theory of Trade Secrecy: A Handbook of Contemporary Research* (Edward Elgar 2011), where the author notes that "technical drawings and specifications are eligible for copyright protection and at the same time may embody information that the author may wish to conceal".

220 See Recital Fifth of the WIPO Copyright Treaty (adopted 20 December 1996, entered into force 6 March 2002) 2186 UNTS 121 (WCT): "Recognizing the need to maintain a balance between the rights of authors and the larger public

arising from such an overlap of regimes are best explained in connection to computer programs, which are taken as an example case due to their economic significance and the fact that mass-market computer program producers rely on a dual protection strategy to secure returns from their innovations.[221]

Indeed, computer programs can be protected simultaneously under the law of trade secrets and copyright. Pursuant to Article 10(1) TRIPs both the source[222] and the object code[223] fall within the material scope of the Berne Convention[224] as a form of literary work.[225] Notwithstanding the aforementioned, in practice, software manufacturers protect the source code of a program through trade secrets and resort to copyright for the object code. The rationale for this is two-fold: users prefer the functionality of the object code of programs and, most importantly, software developers are inclined to keep the source code a trade secret, and thus hinder the access to the market of third parties seeking to compete with the new com-

---

interest, particularly education, research and access to information, as reflected in the Berne Convention"; however Recital 22 of the Council Directive (EC) 2001/29 on the harmonisation of certain aspects of copyright and related rights in the information society [2001] OJ L167/10 (Information Society Directive) highlights that "The objective of proper support of dissemination of culture must not be achieved by sacrificing strict protection of rights or by tolerating illegal forms of distribution of counterfeited or pirated goods".

221 James Pooley 2002 (n 66) § 3.02 [3] 3-23.

222 The Oxford Advanced Learner's Dictionary defines 'source code, n' as "a computer program written in text form that must be translated into another form, such as machine code, before it can run on a computer" (OALD Online, 9th edn, OUP 2015) <https://www.oxfordlearnersdictionaries.com/definition/english/source-code?q=source+code> accessed 15 September 2018.

223 The Oxford Advanced Learner's Dictionary defines 'object code, n' as "the language into which a program is translated using a compiler or an assembler" (OALD Online, 9th edn, OUP 2015) <https://www.oxfordlearnersdictionaries.com/definition/english/object-code?q=object+code> accessed 15 September 2018.

224 Berne Convention for the Protection of Literary and Artistic Works (9 September 1886) 828 UNTS. 221 (BC).

225 Several commentators have called into question the characterisation of computer programs as "literary works": Sean Gordon, 'The Very Idea! Why Copyright Law is an Inappropriate Way to Protect Computer Programs' [1998] 1 EIPR 10; Jerome H. Reichman 1994 (n 102) 2432; Pamela Samuelson and others, 'A Manifesto Concerning the Legal Protection of Computer Programs [1994] 94 Columbia LR 2308; Tanya Aplin, 'Subject Matter' 49, 51-53 in Estelle Derclaye (ed), *Research Handbook on the Future of EU Copyright Law* (Edward Elgar 2009).

puter program.[226] However, the source code can be partially reconstructed in an imperfect way through the use of decompilation programs, which allow reverse engineering of the object code and thereby reveal the source code.[227]

Under EU Copyright law, as set forth in Article 6(1) and 6(2) of the Software Directive,[228] decompilation is only deemed lawful if it is required in order to develop an interoperable program[229] and if the three following restrictive conditions are all met, namely:

(i) The acts of decompilation shall only be carried out by the licensee or another person entitled to use the copy;
(ii) The information should not have previously been available to the person who wishes to achieve interoperability;
(iii) Only the original parts of the program which are necessary in order to develop an independent generated interoperable program can be subject to decompilation processes.

Against this background, it appears that trade secrets are a crucial asset for the fast-moving software industry, where many firms decide to keep their interfaces undisclosed in an attempt to capture the market. Indeed, concealing the information through which interoperability between the different programs (so-called "interfaces")[230] is achieved allows the software developer to control the applications created for its platform and limit their

226 Pamela Samuelson and Suzanne Scotchmer, 'The law and economics of reverse Engineering' [2002] 111 Yale LJ 1575, 1608.

227 Jerome H. Reichman, 'Computer Programs as applied scientific know-how: implications of copyright'[1989] 42 Vanderbilt LR 639, 701; Pamela Samuelson and Suzanne Scotchmer 2002 (n 226) 1614, where the authors quote a technologist who notes that reverse engineering (decompilation) does not reveal the programm's inner secrets. According to the expert, these are embodied in the source code and do not appear in the object code after its conversion. Also, reverse engineering of computer programs is described as a very costly and difficult process.

228 Directive of the European Parliament and of the Council 2009/24/EC of 23 April 2009 on the legal protection of computer programs [2009] OJ L122/9 (Software Directive).

229 In this regard, it should be noted that "interoperability" is defined in Recital 10 of the Software Directive "as the ability to exchange information and mutually to use the information which has been exchanged".

230 The Oxford English Dictionary defines 'interface, n' as "A device or program enabling a user to communicate with a computer" (*OED Online*, OUP June 2013) <https://en.oxforddictionaries.com/definition/interface> accessed 15 September 2018.

availability to competitors, thus exploiting the resulting network effects.[231] This has important legal consequences, both from a copyright and competition law perspective. However, providing a more detailed account of the former exceeds the limits of the present research and the implications of applying competition law as a necessary limitation to trade secrets protection is analysed in chapter 6.[232]

Aside from the overlap tensions outlined above, it is noteworthy that trade secrets law also provides an incentive to create information where copyright is not available, in line with the market experimentation incentive purported by Duffy and Abramowicz. Indeed, copyright only protects the expression of literary and artistic works.[233] Ideas, facts and processes fall outside of its material scope of application.[234] Hence, trade secrets law seems to have been designed to protect non-creative "sweat of the brow" information, which results from economic investment or intellectual effort.[235] Unlike copyright, trade secrets law only requires that information is secret and derives its value from its undisclosed nature.[236] Thus, business plans or customer lists that are not original in their selection and arrangement are still protectable as undisclosed information. The implications derived from protecting information for the mere fact of keeping it undisclosed are developed in greater detail below.[237]

III. Trade secrets and trade marks

In the context of trade mark law, there is virtually no possibility that the subject matter protected by trade marks and trade secrets will overlap.[238] Indeed, trade marks are valuable because they convey information to con-

231 Pamela Samuelson and Suzanne Scotchmer 2002 (n 226) 1617.
232 Legal scholars have thoroughly examined the multiple issues raised by Article 6 of Software Directive, both from an IP law and a competition law perspective. A more detailed account of this topic is provided in chapter 6 § 2 B) IV. 2).
233 See Article 2 BC.
234 Michael Risch 2011 (n 113) 152.
235 The "sweat of the brow" doctrine was first developed in the United States and purported that copyright should be a reward for the labour, time and cost invested in compiling facts. Such a theory was expressly rejected by the U.S. Supreme Court in *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co*., 499 U.S. 340 (1991).
236 Michael Risch 2011 (n 113) 175.
237 Chapter 1 § 3 B).
238 Michael Risch 2011 (n 113) 178.

sumers, whereas the value of trade secrets lies in their concealed nature.[239] However, in some cases, relying on trade secrets and trade marks at the same time as means of appropriation provides further incentives to create both types of information.[240]

This is best illustrated through the example of luxury perfume producers that market fragrances under famous fashion brands and rely simultaneously on trade mark and trade secrets protection in order to recoup the investment made in their development and maximise profits.[241] As is examined in chapter 5, perfume manufacturers try to keep the formula and composition of their perfumes undisclosed in order to avoid potential imitations of their high-end perfumes, which can nevertheless be easily unveiled through not very complex reverse engineering techniques. Consequently, in order to capture the market, they also invest substantial amounts in marketing campaigns to create an aura of exclusivity for their fine fragrances.

Against this background, the importance of trade mark protection for the perfume industry was underscored in the famous *L'Oréal v Bellure*[242] case decided by the CJEU, where the L'Oréal Group brought legal action against a manufacturer of so-called "smell-alike perfumes" in the UK (Bellure) and two of its distributors (Malaika and Starion) on the basis of an infringement of its trade mark rights. According to the fact-pattern of the decision, Bellure produced imitations (conveying similar olfactory messages) of famous fragrances including "Trésor", "Miracle", "Anais-Anais" and "Noa",[243] as well as of the bottles and packaging of "Trésor" and "Miracle". These were subsequently marketed by Malaika and Starion and their retailers through comparison lists that indicated the correspondence between the smell-alike perfumes and the famous fragrances by referring to the word mark under which they were protected. In the second instance, the Court of Appeal of England and Wales submitted a number of questions for a preliminary ruling before the CJEU regarding the protection conferred by the Trade Mark Directive ("TMD")[244] to marks having a repu-

239 See Article 39(2)(b) TRIPs.
240 Michael Risch 2011 (n 113) 178.
241 A detailed account of the relationship between perfumes, trade secrets and other IPRs is provided in chapter 5 of this dissertation.
242 Case C–487/07 *L'Oréal v Bellure* [2009] ECR I-05185.
243 A detailed overview of this case is provided in chapter 5 § 3 D) II. 2.
244 Directive (EU) 2015/2436 of the European Parliament and of the Council of 16 December 2015 to approximate the laws of the Member States relating to trade marks [2015] OJ L336/1 (Trade Mark Directive or TMD).

tation and its interrelation with the Misleading and Comparative Advertising Directive.[245]

In its ruling, the CJEU held that a third party takes unfair advantage of the reputation or distinctiveness of a mark when he intends to "ride on the coat tails of the mark with a reputation" in order to take advantage of its power of attraction, position or prestige without providing any financial compensation. Thus, the finding of trade mark infringement does not require either likelihood of confusion among the relevant consumers, or detriment to the distinctive character or repute of the mark.[246]

With respect to the possibility of the use of trade marks in comparative advertisements (such as comparison lists) by any third party, where the essential origin function of the trade mark is not affected (i.e. designation of origin of the goods and services protected), but such use is likely to play a significant role in the promotion of the goods and services of the other party, the CJEU held that such conduct would only be deemed lawful if it did not affect any of the other trade mark functions. In this context, specific reference was made to the communication, investment and advertisement functions.[247] Otherwise, the acts of comparative advertisement would amount to trade mark infringement.[248]

As regards comparative advertisement, the CJEU held that any explicit or implicit statement in a comparative advertisement that presents goods or services as imitations of marks with a reputation shall be regarded as an infringement for the purposes of Article 4(g) MCAD. In addition, such conduct would be regarded as taking unfair advantage of the reputation of the famous mark, as per Article 4(f) MCAD.[249]

The foregoing analysis demonstrates the complementarity relationship between trade marks and trade secrets, in particular when the secrets can be easily unveiled through reverse engineering practices and where it is not possible to resort to the protection of any formal IPR, other than trade marks. In this context, trade marks may provide additional incentives to create information by conferring an aura of luxury and exclusivity to products that incorporate secret information, thereby allowing their manufac-

245 Directive of the European Parliament and of the Council 2006/114/EC of 12 December 2006 concerning misleading and comparative advertising [2006] OJ L376/21 (Misleading and Comparative Advertisement Directive or MCAD).

246 As per Article Article 10(2)(c) TMD.

247 The uncertanty sorrounding the trade mark functions discussion is outlined in chapter 5 § 3 C) II. 2. below.

248 As per Article 10(3)(f) of the TMD.

249 Case C–487/07 *L'Oréal v Bellure* [2009] ECR I-05185, paras 75-79.

tures to internalise the cost of creation and development of the said products.

IV. Trade secrets and the database right: the protection of investment as such

Although not as self-evident as in the case of patent rights, the sui generis right introduced by the European legislator to protect databases may also overlap with the subject matter protected by the law of trade secrets. After all, both legal regimes aim at protecting investments. However, whereas the sui generis regime aims at protecting the investment made in the *compilation* of data,[250] trade secrets law, following the incentives to innovate theory, is justified because it protects the investment made in the *creation* of valuable information.[251] The interplay between these two legal regimes is examined in section 1. Thereafter, the possibility of resorting to trade secrets protection in the absence of sui generis protection is analysed in section 2.

1. The EU two-tier legal regime for the protection of databases and its interplay with trade secrets protection

In the EU, the legal protection of databases was harmonised in the highly contested Database Directive, by virtue of which a two-tier regime of protection was established and a uniform notion of database was introduced. Pursuant to Article 1(2), a database is defined as "a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic and other means". This definition, together with Recitals 13 and 14, reveals that the protection covers both compilations of data or other materials that are arranged, stored and accessed by means that include electronic, electromagnetic or electro-optical processes or analogous processes, as well as non-electronic databases.

250 See Recital 40 of the Database Directive: "Whereas the object of this sui generis right is to *ensure protection of any investment* in obtaining, verifying or presenting the contents of a database for the limited duration of the right; whereas such investment may consist in the deployment of financial resources and/or the expending of time, effort and energy (emphasis added). "

251 See chapter 1 § 2 B) I.

Under the harmonised system, on the one hand, copyright protection is afforded to the structure[252] of those databases that by reason of the selection and arrangement of their contents constitute the *author's own intellectual creation*.[253] In this case, the term of protection extends to seventy years after the death of the author. However, the Directive expressly clarifies that copyright protection does not cover the contents of the database concerned, i.e. the data gathered, which may be the object of independent protection by other rights, such as trade secrets or formal IRPs.[254]

On the other hand, the European legislator created a sui generis right for the maker of a database who carries out substantial investment (assessed from a qualitative and/or quantitative perspective) in the obtention, verification or presentation of its contents.[255]

The term of duration of the sui generis right is fifteen years from the date of completion of the database or the date on which it was made available.[256] Yet, in practice, such a term may be extended further if substantial changes in the contents of the database are introduced. Following the wording of Article 10(3) along with Recital 55, the mere update or verification of the content of the database will be considered as a new investment

252 The emphasis on the structure of the database is set out in Recital 15 of the Database Directive, which provides that: "Whereas the criteria used to determine whether a database should be protected by copyright should be defined to the fact that the selection or the arrangements of the contents of the database is the author's own intellectual creation; whereas such protection should cover the structure of the database".

253 The CJEU clarified in Case C–604/10 *Football Dataco Ltd and Others v Yahoo! UK Ltd and Others* (CJEU, 1 March 2012), para 38 that the originality requirement of "author's own intellectual creation is satisfied when, through the selection or arrangement of the data which it contains, its author expresses his, creative ability in an original manner by making free and creative choices (…) and thus stamps his 'personal touch;'" this is in line with previous case law of the CJEU, such as Case C–5/08 *Infopaq International v Danske Dagblades Forening* [2009] ECR I-6569, paras 47-48, where the originality standard was also defined by reference to the "author's intellectual creation".

254 See Artice 3(2) of the Database Directive: "The copyright protection of databases provided for in this Directive shall not extend to their contents and shall be without prejudice to any rights subsisting in those contents themselves".

255 Article 7(1) and (2) of the Database Directive; see further Estelle Derclaye, 'Databases sui generis right: what is a substantial investment?' [2005] IIC 2-30 providing an insighful analysis of the notion of substantial investment.

256 See Article 10 of the Database Directive.

worthy of protection for fifteen additional years.[257] In the context of the sui generis right, the EU legislator stated again that its scope of protection should not affect the rights existing in respect of its contents.[258] Indeed, sui generis protection is only applicable to "databases as collection of data".[259]

In essence, the sui generis right grants the maker of the database the exclusive right to:

(i) prevent unauthorised third parties from *extracting* and *re-utilizing* the whole or a *substantial* part of the contents of the database,[260] without prejudice to any other existing rights on its contents[261] and;
(ii) prevent unauthorised third parties from *extracting repeatedly* and *systematically* insubstantial parts of the database, implying acts that would conflict with the normal exploitation of the database.

From the above considerations, it appears that in theory (i) the content of a database may constitute the object of a trade secret (i.e. with respect both to individual data and data sets as a whole), whereas (ii) its selection and arrangement may merit protection under copyright law and/or (iii) the investment made in the obtention, verification or presentation of its contents may be the object of the sui generis right. Therefore, the three regimes of protection may overlap and protect two distinct aspects of a database: its structure (through copyright) and its contents (but only against substantial extraction and re-utilisation, in the case of the sui generis database right, and against unlawful acquisition, use and disclosure, in the case of trade secrets law).

---

257 P. Bernt Hugenholtz 'Something Completely Different: Europe's Sui Generis Database Right' 205, 215 in Susy Frankel and Daniel Gervais (eds), *The Internet and the Emerging Importance of New Forms of Intellectual Property* (Wolters Kluwer 2016); Matthias Leistner, 'The Protection of Databases' 427, 443-444 in Estelle Derclaye (ed), *Research handbook on the future of EU Copyright* (Edward Elgar 2009) noting that Article 10(3) of the Database Directive should be costrued as referring to the investment effort of the database maker which gives rise to a new sui generis right that may overlap with the pre-existing one. In this case, the author argues that the scope of protection would comprise only the parts of the new database that were the object of the new investment.

258 See Article 7(4) of the Database Directive.

259 Josef Drexl 2016 (n 426) 21.

260 As regards the interpretation of the expression "substantial investment" the CJEU still has to take a stand on the threshold of investment required for a database to merit protection under copyiright law, as noted by P. Bernt Hugenholtz 2016 (n 257) 212

261 See Article 7(4) of the Database Directive.

However, upon closer examination, the assessment of whether the information included in a database can qualify as a trade secret appears more problematic. As discussed in § 1, the cornerstone upon which trade secrets protection is built is precisely its concealed nature. Yet, the rationale underlying the creation of a two-tier regime of protection was to foster the growth and development of a strong database industry in the EU, which ultimately aims at the commercial exploitation of the databases.[262]

Consequently, if the holder of the database makes it available to a large number of market participants under no obligation of confidence, its contents may be considered generally available within a given industry, and accordingly the secrecy requirement may not be satisfied.[263] Likewise, if the database consists of elements in the public domain, even if it is li-

---

262 See Recital 11 of the Database Directive; see further Commission, 'Green Paper on Copyright and Challenge of Technology – Copyright Issues Requiring Immediate Action COM (88) 172, final' [1988] OJ C71, para 6.2.1, where it was noted that "The worldwide turnover of electronic publishing in 1985 amounted to 5 billion U.S. dollars. Of this, the United States were responsible for more than 4/5 of the total turnover, but the value of the total market produced by Germany, France and the United Kingdom represented 350 million dollars. Obstacles to the free flow of information between Member States must be removed *if the Community is to develop a competitive role in the information services market*" (emphasis added); against this background, it should be observed that the Commission concluded that the Database Directive had not managed to boost the database industry in Europe. However, this statement has been criticised by Matthias Leistner 2009 (n 257) 428 who argues that it was based on dubious data.

263 This was the case in the competition judgements rendered by the CJEU in Joined Cases C-241/91 P and C-242/91 *Radio Telefis Eireann (RTE) and Independent Television Publications (ITP) v Commission of the European Communities* [1995] ECR I-00743 (know as "*Magill*"), which concerned the refusal to license a database comprising a weekly TV guide in the territories of Ireland and Northern Ireland, where no comprehensive TV guide existed at that time. Each of the three television stations that broadcasted in these territories published their own guide covering their own programs and licensed the contents of their databases to newspapers on a free-of charge basis. The defendant, Magill TV Guide Ltd intended to publish a weekly comprehensive guide compiling the data of the three TV stations, but was sued by them on the basis of an infringement of their copyright over said compilations of data. In the first instance, the court granted an injunction preventing Magill from publishing the program listings. Subsequently, Magill lodged a complaint before the European Commission, on the basis of an abuse of market dominance by the TV station, by virtue of which the Commission ruled that there had been a breach of Article 102 of the TUE (ex Article 86 of the EEC). Upon appeal, the GCEU (then Court of First Instance) questioned whether copyright protection should be afforded to the TV pro-

censed under confidentiality obligations, the content of the database will not be regarded as secret, unless the selection and arrangement result in a discrete entity protectable as a combination secret.[264] The mere expenditure of time and money to gather known information into a searchable database does not automatically confer the database or the individual data trade secrets protection.[265] Equally, if a competitor of an electronic database maker duplicates the contents of the protected database in an unauthorised manner, for instance through so-called "screen-scraping practices",[266] and uploads the content to an Internet website for a substantial period of time, the database holder will not be able to claim trade secrets protection against the general public who accessed the website in good faith. Enforcement will only be available against the party that acquired and uploaded the information without authorisation.

Notwithstanding the aforementioned, in the three scenarios mentioned above, the original database maker could still rely on the sui generis right to file a claim against unauthorised extraction or re-utilisation of the database contents. Indeed, one of the main justifications presented by the European legislator for the creation of the sui generis database right was that the creation of databases required large investments of money and effort, but the unauthorised access and copy could be carried out at a much lower price.[267] From a copyright perspective, if the structure of the database meets the "author's own intellectual creation" originality thresh-

---

gramme listings, as they "were not in themselves secret, innovative or related to research. On the contrary, they were mere factual information in which no copyright could therefore subsist". (as reported in Case T–76/98 *Independent Television Publications Ltd v Commission* [1991] ECR II-575, para 29). However, such considerations were not taken into account in the decision rendered by the CJEU.

264 On the protection of combination secrets see chapter 4 § 4 C) II. 5.

265 Sharon K. Sandeen, 'A Contract by Another Name is Still a Contract: Examining the Effectiveness of Trade Secrets Clauses to Protect Database' [2005] 45 IDEA 119, 134.

266 The term 'screen scrapping, n' is defined in the Oxford English Dictionary as "The action of using a computer program to copy data from a website" (*OED Online*, OUP June 2013) <https://en.oxforddictionaries.com/definition/screen_scraping> accessed 15 September 2018.

267 See Recital 7 of the Database Directive. However, it should be noted that such a justification has been highly contested in the light of the findings of the Commission, in 'DG Internal Market and Services Working Paper. First evaluation of Directive 96/9/EC on the legal protection of databases,' where it was stated that "The economic impact of the "sui generis" right on database production is unproven". Indeed data from the Gale Directory of Databases, the largest exist-

old, the author shall have the exclusive right to prevent the unauthorised reproduction, translation, adaptation, arrangement and alteration of its expression, as well as any form of distribution to the public of its expression.[268]

In the legal analysis of the interplay between trade secrets protection and database protection, the mandatory limitation set out in Article 8(1) of the Database Directive plays a central role. Pursuant to this provision, the database maker cannot prevent the *lawful user*[269] of a database from *extracting* and/or *re-utilising insubstantial* parts of its contents (for any purposes). Any agreement to the contrary by the parties will be null and void, as per the wording of Article 15 of the Directive. Thus, contractual confidentiality obligations cannot override such a mandatory limitation. Consequently, if the "insubstantial" data are subsequently re-utilised and as a result disclosed to third parties, the assessment of secrecy with respect to that specific data may be compromised. Yet, the legal issue lies in determining when the extraction and reutilisation of data is to be considered "insubstantial", and therefore, whether the entire dataset can be considered readily ascertainable for the purposes of trade secrets protection, particularly as the Database Directive does not provide any interpretative guidance on how to measure the threshold of insubstantial extraction and re-utilisation.[270]

2. The problem of protecting created data under the sui generis database right and the possibility of resorting to contractual protection

Since its adoption, the Database Directive has garnered substantial criticism among legal commentators, as it was perceived that the introduction of such a new exclusive right would create a monopoly over the compiled

---

ing database directory at that time and which contained statistics indicating the growth of the global database industry since the 1970s showed that the production of database in the EU in 2004 had receaded to pre-Directive levels.

268 See Article 5 of the Database Directive.

269 A detailed account of the meaning of "lawful user" in the context of Article 8 and 9 of the Directive is provided by Estelle Derclaye, *The legal protection of Databases* (Edward Elgar 2008) 120-126, where the author concludes that the term "lawful user" should be interpreted as referring to the user "with a contract of lawful acquirement". However, the author concludes that the interplay between Article 7(5) and Article 8(1) renders the concept of *lawful user* superfluous, as pursuant to Article 7(5) "anyone (lawful user or not) is authorised to extract and re-utilize insubstantial parts".

270 P. Bernt Hugenholtz 2016 (n 257) 213-214.

information, thereby hampering freedom of information and competition, particularly as regards the development of secondary markets.[271] A major area of concern was so-called "sole-source databases", in which the information is created as a by-product in the course of other business activities and, consequently, it is only available from such unique sources.[272]

In 2004 the CJEU shed some light on the scope of protection of sole-source databases by rendering a series of decisions in which it clarified that the sui generis database right does not cover the investment made in the *creation* of data, but only the investment made in the *obtention* of data.[273] Thereby, the CJEU introduced the so-called "Spin-off Doctrine",[274] initially developed by Dutch courts in the interpretation of the EU sui geneis database legal regime, and ruled, among other things, that the investment made in fixtures lists for English and Scottish football did not require an investment "independent of that required for the creation of the data contained in that list".[275] Accordingly, for an investment to be eligible for protection under the sui generis right it has to "refer to the resources used to seek out existing independent materials and collect them in a database".[276] Following the CJEU's view, the reason for such a division is that the Database Directive was created to incentivise the creation of processing and storage mechanisms for pre-existing data, not the creation of data as such.[277] On a more abstract level, by introducing such a limitation, the CJEU intended to prevent the creation of an exclusive right on informa-

271 Matthias Leistner 2009 (n 257) 427.

272 Matthias Leistner 2009 (n 257) 434.

273 See Case C–444/02 *Fixtures Marketing Ltd v Organismos prognostikon agonon podosfairou AE (OPAP) 1* [2004] ECR I-10549; Case C–46/02 *Fixtures Marketing Ltd v Oy Veikkaus Ab* [2004] ECR I-10396; Case C–203/02 *The British Horseracing Board Ltd v William Hill Organization Ltd* [2004] ECR I-10415 and Case C–338/02 *Fixtures Marketing v Svenska Spel AB* [2004] ECR I-10497.

274 The application of the Dutch spin-off doctrine by the CJEU is discussed further by Mark J. Davison and P. Bernt Hugenholtz, 'Football fixtures, horse races and spin-offs: the ECJ domesticates the database right' [2005] 27 EIPR 113, 114-115.

275 Case C–46/02 *Fixtures Marketing Ltd v Oy Veikkaus Ab* [2004] ECR I-10396, para 44.

276 Case C–203/02 *The British Horseracing Board Ltd v. William Hill Organization Ltd* [2004] ECR I-10415, para 42; however Mark J. Davis and P. Bernt Hugenholtz, 'Football fixtures, horseraces and spin-offs: The ECJ domesticates the database right' [2005] 27 EIPR 113-118 note that the distinction between synthetic data and observed data is not self-evident.

277 Case C–203/02 *The British Horseracing Board Ltd v William Hill Organization Ltd* [2004] ECR I-10415, para 36.

tion that would not be available otherwise.[278] However, such a distinction has been criticised by many academics for not being as "self-evident" as the court initially argued.[279] Indeed, in the application of the Spin-off Doctrine held by the CJEU in *Football Dataco*, the Court of Appeal of England and Wales noted that such a distinction does not apply to *observed* data, such as the goals scored in the course of a football match, which according to the court should not be regarded as *created* data for the purposes of database protection.[280]

In the context of trade secrets, such a distinction inevitably leads to the question of whether, in the event that neither copyright nor sui generis protection are available for a specific database, it would still be possible to rely on trade secrets protection through contractual clauses, such as non-disclosure agreements ("NDAs"). The interplay between the Database Directive and inter partes contractual provisions was clarified by the CJEU in the context of a "screen scraping" case in 2015 (*Ryanair Ltd v PR Aviation)*.[281] According to the decision, Ryanair brought legal actions against PR Aviation, the operator of a website that allowed users to search for flights and compare prices, for an infringement of Ryanair's "rights relating to its data set"[282] and the breach of the terms and conditions applicable to its website. As a preliminary remark, it should be noted that the data displayed on PR Aviation website's was acquired from Ryanair's website upon acceptance of Ryanair's terms and conditions, which was not contested throughout the proceedings. Indeed, pursuant to the said terms and conditions, the website could only be used for private non-commercial purposes and the obtention of data through screen scraping practices was prohibited.[283]

---

278 Herbert Zech, 'Data as a Tradable Commodity' 51, 73 in Alberto De Franceschi (ed), *European Contract Law and the Digital Single Market – The Implications of the Digital Revolution* (Insertia 2016).

279 P. Bernt Hugenholtz, 'Data Property: Unwelcome Guest in the House of IP' (2017), 8 <https://www.ivir.nl/publicaties/download/Data_property_Muenster.pdf> accessed 15 September 2018.

280 *Football Dataco & Others v Stan James Plc & Others and Sportradar GmbH & Other* [2013] EWCA Civ 27 (CA).

281 Gintare Surblyte, 'Data as a Digital Resource' (2016) Max Planck Institute for Innovation and Competition Research Paper No. 16-12, 19-22 <https://dx.doi.org/10.2139/ssrn.2849303> accessed 15 September 2018; Case C–30/14 *Ryanair Ltd v PR Aviation BV* (CJEU, 15 January 2015).

282 Case C–30/14 *Ryanair Ltd v PR Aviation BV* (CJEU, 15 January 2015), para 17.

283 Case C–30/14 *Ryanair Ltd v PR Aviation BV* (CJEU, 15 January 2015), para 16: "the use of automated systems or software to extract data from this website or of

Upon appeal, the Dutch Supreme Court submitted a preliminary question to the CJEU, asking whether the use of a database that does not qualify either for copyright or sui generis protection can be contractually limited, in view of the unwaivable nature of the limitations set out in Article 6(1) and Article 8 of the Databases Directive, as per Article 15. In its legal reasoning, the CJEU concluded that any contractual agreements regulating the use of a database that does not qualify for protection under either of the two harmonised regimes (sui generis or copyright) should be admissible, as the unwaivable nature of the limitations provided for in Article 15 is only applicable to those databases that are eligible for protection under the harmonised framework created by the Database Directive.[284]

Drawing on the above, it is submitted that in practice NDAs may play a central role in the protection of databases that do not satisfy the requirements of protection of either of the two legal regimes set out in the Database Directive, provided that their diffusion within a given industry is rather limited (i.e. that the holder retains control over the use and disclosure of the information). However, such an outcome seems rather paradoxical considering the lawful user limitation laid down in Article 8(1) of the Database Directive. Whereas the maker of a database protected under the sui generis right shall always allow the extraction and re-utilisation of insubstantial parts of its database, such a possibility can be contractually excluded for those databases that do not satisfy the requirements of protection laid down under the harmonised system. Consequently, the limitations introduced by the European legislator in the scope of protection of the two-tier harmonised database regime to avoid the creation of information monopolies are not applicable with regard to those databases that present a lower threshold of originality and investment or even sole-source databases, where information is not accessible in any other possible manner. This may in fact lead to the creation of the facto information monopolies on pre-existing data.[285]

As a final note, it should be underscored that the distinction between *generated* data as opposed to *obtained* data is of utmost importance in the

---

www.bookryanair.com for commercial purposes "screen scraping" is prohibited unless the third party has directly concluded a written licensing agreement with Ryanair in which permits access to Ryanair's price, flight and timetable for the sole purpose of price comparison".

284 Case C–30/14 *Ryanair Ltd v PR Aviation BV* (CJEU, 15 January 2015), para 39.

285 Gintare Surblyte 2016 (n 281) 23-25 highlighting the competition law implications of contractual clauses that prohibit screen-scrapping.

wake of the Data Economy.[286] As noted by Drexl, the inclusion of sensors in smart products (for example in connected cars) that *collect* data or the performance of Big Data analysis that results in the *creation* of new data are not investments relevant to the obtention of data in the sense of Article 7(1) of the Database Directive. Therefore, these data sets do not qualify for protection under the sui generis database right.[287] In the same vein, the possibility of relying on copyright protection seems unlikely, as to benefit from such protection the selection and arrangement of the contents of the database have to reflect the author's "personal stamp" and, in the Data Economy, big data sets are usually generated automatically by machines and consequently there is no "human intellectual achievement".[288] Another hurdle in the application of the sui generis legal regime to large datasets is the lack of *extraction* of data in the course of big data analysis, where "the code comes to the data" thus precluding any actionable conduct under the Database Directive.[289]

It is precisely for the aforementioned reasons that several commentators have contended that the EU framework for the protection of databases was drafted on the basis of outdated technology and that the limitations as to its scope of protection and subject matter are not applicable to the protection of large data sets created in the context of the Data Economy.[290]

---

286 For a terminological clarification of these terms see chapter 4 § 4 F) 1.

287 Josef Drexl 2016 (n 426) 21; against this background, Andreas Wiebe, 'Protection of industrial data – a new property right for the digital economy?' [2016] GRUR Int 877, 879 argues that in order to accommodate the sui generis database regime to the Data Economy, the CJEU should abandon the Spin-off Doctrine and afford protection to the data generated by the database maker; in this regard, P. Bernt Hugenholtz 2017 (n 279) 8 supports a more nuanced approach by noting that the distinction between *created* data and *observed* data is of utmost importance in the context of protection of industrial data "as, sensor data produced by a radar system or observation satellite are likely to qualify as data 'observed', and concomitant investments may thus be taken into account when applying the database right. Conversely, computer-generated airline schedule data squarely falls under the rubric of 'created' data excluded by the European Court".

288 Herbert Zech 2016 (n 278) 70 ; a survey of the main views of selected Data Protection Authorities on the issue of Big Data is provided by Bart van der Sloot and Sascha van van Schendel, 'Ten Questions for Future Regulation of Big Data: A Comparative and Empirical Legal Study' [2016] 7 JIPITEC 110.

289 Josef Drexl 2016 (n 426) 22.

290 Josef Drexl 2016 (n 426) 22.

V. Conclusion on the relationship between trade secrets and IPRs

As a whole, the picture that emerges from the analysis conducted in the previous section is that there are strong synergies between trade secrets and formal IPRs (particularly patents, but also copyright and the sui generis database right). Indeed, the similarities and overlaps between the two appropriation regimes are so strong that many view trade secrets as a species of IPRs.[291]

A central element in the protection of IPRs is their exclusive erga omnes nature. In this regard, it is worth noting that in the case of trade secrets, exclusivity is achieved ex ante through the adoption of de facto physical or legal measures that conceal information from third parties. However, protection is only afforded against unlawful acquisition, use and revelation of the information.

Against this background, the fact that trade secrets confer a certain degree of exclusivity has been viewed by some commentators as an indicator that trade secrets constitute a species of IPRs. The implications of adopting such an approach are elaborated in the following section from a comparative law perspective, from which a number of considerations are drawn.

B) Trade secrets as the object of intellectual property law: considerations for Europe

Traditionally, intellectual property was considered as the best mode to incentivise creation and innovation.[292] This assumption stems from the non-exclusive and non-rival nature of intangible goods and the difficulties associated with their exploitation. As outlined above, if the creator is not able to recoup the investment made in the development of an invention or creative work, the incentives to engage in creative and innovate activities may disappear, leading to a suboptimal level of innovation in the market.[293]

Against this background, and in order to overcome the market failure inherent to the exploitation of any intangible good, exclusive rights are

---

291 See for instance Christoph Ann, 'Know-how- Stiefkind des Geistiges Eigentums?'[2007] GRUR 39; Mark A. Lemley 2008 (n 15) 311-353.

292 Suzanne Scotchmer 2004 (n 41) 8 "Neoclassical economics has established the traditional view that intellectual property (rights) are the best mode to incentivise creative and innovative activity".

293 Séverine Dusollier 2013 (n 107) 258-259.

granted so as to allow the inventor (or creator) to recover the exclusivity and non-rivalry over his innovations (or creations). Following the systematic division of goods into three levels (consumption, production and innovation), the creation of property rights at one level yields the development of market competition at the next level. Thus, IPRs are conceived as a necessary competitive restriction at the production level to enhance competition at the innovation level.[294] However, concerns have also been raised as to whether attaching the traditional proprietarian consequences to IPRs may be detrimental to lawful "free-riding uses" and lead to the overcompensation of creators.[295]

As regards trade secrets, the application of the exclusivity paradigm to their protection has been widely discussed. The root of the discussion revolves around the fact that exclusivity is obtained through factual secrecy and no qualitative threshold has to be met, unlike formal IPRs, where protection is conditioned upon meeting a certain degree of originality (copyright), novelty and inventiveness (patent law) or being able to distinguish the source of the goods and services (trade mark law). For the purposes of answering one of the research questions that guide the present thesis (i.e. whether trade secrets should be regarded as the object of an IPR), in the first place, the similarities and differences that emerge from conducting a comparative law analysis are reviewed (section I). Next, the implications of considering information as property are discussed (section II). Finally some insights and perspectives are presented on the basis of the foregoing analysis for the application of the TSD by national legislators and the judiciary (section III).

294 Michael Lehmann, 'The Theory of Property Rights and the Protection of Intellectual and Industrial Property' [1985] IIC 525, 537-540.

295 In this context, Mark A. Lemley 2004 (n 109) 1046-1050 identifies the following most salient costs of overcompensating creators: (i) the distortion of competition in the market which creates static efficiencies; (ii) the impairment of further creation and innovation; (iii) rent seeking behaviour is also favoured by the expectation of achieving IPRs protection; (iv) administrative costs derived from the enforcement of IPRs and (v) overinvestment in research and development.

I. Comparative legal analysis

1. International intellectual property convention system

The PC does not include any explicit reference to the protection of trade secrets. It only clarifies that the repression of unfair competition is one of the objects of industrial property (Article 1(2) PC), which in turn leads to the question of whether trade secrets protection falls within the scope of unfair competition.[296] Similarly, the WIPO Treaty, in its definition of intellectual property, does not mention either trade secrets or confidential information.[297]

At the international level, undisclosed information was only first explicitly accorded protection in Article 39 TRIPs.[298] However, the agreement addresses the issue of whether trade secrets are property in a rather open-ended manner. On the one hand, TRIPs anchors the protection of trade secrets on unfair competition provisions by referring to Article 10bis PC. On the other hand, Article 1(2) TRIPs regards undisclosed information as one of the "categories of intellectual property" laid down in the agreement.[299] Such an inconsistent regulation derives from the conflicting views of the negotiating parties, which, pursuant to Article 32 VCLT, constitute "supplementary means of interpretation" of international treaties.[300] Developing countries purported that one of the defining features of IPRs is the disclosure of the information protected, whereas trade secrets, as their name implies, are defined by their confidential nature.[301] At the other end of the

296 This issue is discussed in detail in chapter 2 § 1 A) III.

297 See Article 2 (VIII) of the Convention Establishing the World Intellectual Property Organisation (signed on 14 July 1967 and amended on 28 September 1979).

298 Markus Peter and Andreas Wiebe, 'Art. 39' Rdn 3 in Jan Busche and Tobias Stoll (eds), *TRIPs* (Carl Heymanns 2013).

299 Article 1 (2) TRIPs: "For the purposes of this Agreement, the term "intellectual property" refers to all categories of intellectual property that are the subject of Sections 1 through 7 of Part II"; in this regard, it is particularly noteworthy that Section 7 of Part II deals with the protection of undisclosed information.

300 Article 32 of the Vienna Convention on the Law of Treaties (adopted 23 May 1969) 1155 UNTS 331 (VCLT).

301 The Peruvian, Indian and Brazilian delegations were particularly belligerent in this regard. The Indian position can be found in the following documents: India made clear its position in GATT Doc. MTN.GNG/NG11/14; Brazil formally objected to the protection of trade secrets as IPRs in an official communication dated 11 December.1989 (GATT Doc. MTN.GNG./NG11/W/57, para 48); simi-

spectrum, industrialised countries led by the US[302] and the Swiss[303] delegations were of the opinion that undisclosed information is to be regarded as an IPR that confers exclusive rights in order to protect the intellectual efforts necessary for its creation.[304]

A review of the academic literature on this matter sheds little light.[305] Some commentators are of the opinion that the express reference to unfair competition rules enshrined in Article 39(1) TRIPs, along with the fact that the wording of Article 1(2) TRIPs mentions "categories of intellectual property" and not just IPRs, are clear indicators that no proprietary exclusive right on trade secrets exists.[306] In this context, it is noted that the terminology used to draft Article 39 is distinctly different to that used in connection to other IPRs such as trade marks and patents. In some ways, it seems that TRIPs has deliberately avoided the use of proprietary language.[307] For instance, trade secrets holders are referred to as the persons who have the information "lawfully within their control", and not the "owners" of information. What is more, Article 39 does not confer the right to exclude the alleged infringer, but simply "the possibility of preventing information (…) from being disclosed to, acquired by, or used by others".[308] Even though at first glance this may appear trivial, such a distinction entails an important legal nuance. Pursuant to Article 39 TRIPs, it does not matter what the title in the trade secret is; what matters is that the alleged holder possesses the information, that is, that the secret informa-

---

larly, Peru expressed a similar view in its official communication (GATT Doc. MTN.GNG/NG11/W/45, para 10).

302 The U.S. position is reflected in GATT Doc. MTN.GNG/NG11/9, 6, para 11.

303 The Swiss delegation formally expressed its view on the proprietary regime for trade secrets during the course of the Uruguay Round in a number of documents, such as GATT Doc. MTN.GNG/NG11/W/38/Add.1.

304 Markus Peter and Andreas Wiebe, 'Art. 39' Rdn 4 in Jan Busche and Tobias Stoll (eds), *TRIPs* (Carl Heymanns 2007).

305 The lack of a clear-cut answer at the international level is highlighted in Michael Dorner, *Know-how Schutz im Umbruch* (Carls Heymanns 2013) 306-307.

306 Carlos Correa, *Trade Related Aspects of Intellectual Property Rights, A commentary on the TRIPs Agreement* (OUP 2007) 366-367; Tanya Aplin, 'Right to Property and Trade Secrets' 421, 429-431 in Christophe Geiger (ed), *Research Handbook on Human Rights and Intellectual Property* (Edward Elgar 2015).

307 Lionel Bently, 'Trade Secrets Intellectual Property but not property?' 60, 91 in Helena R. Howe and Jonathan Griffiths (eds), *Concepts of property in Intellectual Property Law* (CUP 2013).

308 Lionel Bently 2013 (n 307) 91.

tion is lawfully under his physical control.[309] Similarly, the fact that the negotiating parties agreed on the expression "undisclosed information" rather than the more common terms trade secret or know-how is understood as an attempt to avoid the proprietary connotation of the latter.[310]

More importantly, the fact that Article 39(1) TRIPs premises the protection of trade secrets upon an unfair competition provision, namely Article10bis PC, makes clear that trade secrets are not property in the sense that they do not create an exclusive right.[311] In this context, Wadlow argues that Article 10 PC protects a right that is in essence completely different to a property right. As argued in chapter 2 below, the scope of this provision is confined to protection against unfair conduct by a competitor. As a result, the assessment of the "fairness" of a specific behaviour should be conducted on a case-by-case basis, taking into consideration the individual circumstances of each instance.[312]

By contrast, a more literal interpretation of the TRIPs provisions that govern trade secrets protection has also been supported by legal scholars. Such an approach suggests that trade secrets are to be regarded as IPRs under the legal framework created by the TRIPs Agreement mainly for two reasons. In the first place, any interpretation that, contrary to the wording of Article 1(2), does not regard undisclosed information as IPRs is to be rejected, as the WTO Appellate Body has consistently stated that treaties should be construed so as to avoid conflicts (principle of effective interpretation).[313]

Furthermore, pursuant to Article 31(1) of the VCLT "a treaty shall be interpreted in good faith in accordance with the *ordinary meaning* to be given

309 Nuno Pires de Carvalho, *The TRIPs Regime of Antitrust and Undisclosed Information* (Wolters Kluwer 2007) para 39.2.38.

310 Carlos Correa 2007 (n 306) 368; see also GATT Doc. MTN.GNG/NG11/20.

311 Tanya Aplin 2015 (n 306) 429 noting that "(…) By linking the protection of trade secrets to unfair competition it seems that while trade secrets may be "industrial property" or even "intellectual property" this does not require a focus on property protection".

312 Christopher Wadlow, 'Regulatory data protection under TRIPs Article 39(3) and Article 10bis of the Paris Convention: Is there a doctor in the house?' [2008] IPQ 355, 397.

313 See WTO, *Argentina – Footwear (EC)*, WTO Appellate Body Report, WT/DS121/AB/R (14 December 1999) para 81 and footnote 72 thereto; see also WTO, *United States –Upland Cotton,* WTO Appellate Body Report, WT/DS267/AB/ (2 March 2005); a more detailed account on the interpretation of treaties by the WTO Appellate Body is provided by Isabelle Van Damme, 'Treaty Interpretation by the WTO Appellate Body' [2010] 21 EJIL 605-648.

to the terms of the treaty in their context and in view of its object and purpose".[314] Accordingly, in line with this guiding principle, if trade secrets are not regarded as an IPR, the enforcement provisions set forth in Part III of TRIPs should not be applied in connection to undisclosed information. Yet, such an interpretation would again violate the principle of effective interpretation, especially in connection to Article 41(1) TRIPS, which sets forth that the enforcement provisions (in Part III of TRIPs) should be applied to any act of infringement of IPRs that falls under the scope of TRIPs, including Article 39. Similarly, it would also clash with the special provisions on the safeguarding of confidential information embedded in Articles 42 and 43(1) TRIPs.[315]

In this regard, it is worth noting that a number of bilateral agreements have also included undisclosed information within the scope of intellectual property. For instance, the Euro-Mediterranean Agreement between the EC and Egypt in the Joint Declaration on Article 37 and Annex VI stated that:

> For the purpose of this Agreement, intellectual property includes, in particular, copyright, including copyright in computer programmes, and neighbouring rights, patents, industrial designs, geographical indications, including appellations of origin, trademarks and service marks, topographies of integrated circuits, as well as the protection against unfair competition as referred to in Article 10 bis of the Paris Convention for the Protection of Industrial Property (Stockholm Act, 1967) and *protection of undisclosed information on 'know-how'* (emphasis added).[316]

Drawing on the above, it seems that the obligation to protect undisclosed information enshrined in Article 39 TRIPs was specifically tailored so as to leave open the possibility of its protection at the national level through

314 Article 31 VCLT.

315 Marco Bronckers and Natalie McNelis, 'Is the EU Obliged to improve the Protection of Trade Secrets? An Inquiry into TRIPS, the European Convention on Human Rights and the EU Charter of Fundamental Rights' [2013] 34 EIPR 673, 677.

316 See Euro-Mediterranean Agreement establishing an Association between the European Communities and their Member States, of the one part, and the Arab Republic of Egypt, of the other part [2004] OJ L304; similar provisions can be found in Article 10. 2 (2) of the of the Free Trade Agreement between the European Union and its Member States, of the one part, and the Republic of Korea, of the other part [2010] OJ L127/6.

non-proprietary means. Bently goes even further and suggests that "TRIPs seems to have deliberately preserved the very possibility that confidential information might be intellectual property but not property".[317] This author takes the view that intellectual property is becoming a genus different from property rights, as is traditionally understood.[318] As a whole, the two-fold approach of TRIPs seems to highlight the hybrid legal nature of trade secrets. The rules that govern infringing conduct are tailored according to unfair competition principles, whereas their enforcement follows the traditional remedies structure available in intellectual property law.

2. Common law approach

a) England

Traditionally, English Courts have rejected the idea that information can be protected through a property right. It is generally agreed that the House of Lords settled the proprietary debate in the *Boardman v Phipps* ruling,[319] which concerned the violation of an equitable fiduciary obligation. The defendant, Mr Boardman, was the solicitor of a trust and in the course of his duties acquired information regarding the value and performance of one of the undertakings held by the trust. He later used it for his own benefit. The plaintiff, a beneficiary who came to know that Mr Boardman had used the data for his own advantage, brought an action, arguing among other things that the information was actually the property of the trust. When giving the judgement, the majority expressed their opposition to conceptualising information as property and argued that:

> in general, information is not property at all. It is normally open to all who have eyes to read the real and ears to hear. The true test is to determine in what circumstances the information has been acquired. If it has been acquired in such circumstances that it would be a breach of confidence to disclose it to another then courts of equity will restrain the receipt from communicating it to another. (…) *But in the end the real truth is that it (confidential information) is not property in any normal*

317 Lionel Bently 2013 (n 307) 91.
318 Lionel Bently 2013 (n 307) 91.
319 *Boardman v Phipps* [1967] 2 AC 46 (HL).

> *sense, but equity will restrain its transmission to another if in breach of some confidential relationship* (emphasis added).[320]

Likewise, in a more recent decision by the Court of Appeal, *Douglas v Hello!*,[321] Lord Phillips expressly rejected such a possibility, stating that "confidential or private information, which is capable of commercial exploitation but which is only protected by the law of confidence, does not fall to be treated as property that can be owned and transferred".[322] In Lord Phillips' view, if confidential information were to be regarded as property, such a right could in turn be enforced against third parties, irrespective of whether the recipient of the information was aware of its private or confidential condition. Thus, he concluded that "the right depends upon the effect on the third party's conscience of the third party's knowledge of the nature of the information and the circumstances in which it was obtained".[323]

In the same vein, the legal scholarship has repeatedly expressed its reluctance to treat confidential information as property, mostly for the same reasons put forward by in *Douglas v Hello!*, i.e. it would allow for restraining third parties and accidental acquirers, regardless of whether they should have been aware that the information was confidential.[324] Aplin, Bently, Johnson and Malynic have argued that, in most cases, confidential information is described as property merely in a metaphorical sense, simply to refer to "ownership" of confidential information or "the confider's right in contract and equity".[325] A similar view has been taken by most commentators[326] and the Law Commission Report on Breach of Confidence, where it is argued that "the nature of confidential information is such as to place it in a category of its own, distinct from that of property".[327]

---

320 *Boardman v Phipps* [1967] 2 AC 46 (HL), 127 F-128A.

321 *Douglas v Hello! Ltd and others* [2007] UKHL 21.

322 *Douglas v Hello! Ltd and others* [2007] UKHL 21, [119].

323 *Douglas v Hello! Ltd and others* [2007] UKHL 21, [126].

324 Tanya Aplin and others 2012 (n 22) para 4.108 by confidential acquired it should be understood "those who accidentally find confidential information".

325 Tanya Aplin and others 2012 (n 22) para 4.74.

326 See William Cornish, David Llewellyn and Tanya Aplin 2013 (n 209) paras 8-50-8-54; see also Roger M. Toulson and Charles M. Phipps, *Confidentiality* (3rd edn, Sweet&Maxwell 2012) paras 2-025-061.

327 Law Commission, *Law Commission Report on Breach of Confidence* (Law Com No 110, 1981) 9 notwithstanding, in *Voila ES Nottinghamshire Ltd and Nottinghamshire County Council v Dowen* [2010] EWCA Civ 1214 (CA), the Court of Ap-

Notwithstanding the aforesaid, the English Courts have recently regarded trade secrets (as opposed to the broader notion of confidential information)[328] as the object of an IPR for the purposes of the European Union's Intellectual Property Rights Enforcement Directive ("Enforcement Directive").[329] In particular, the Court of Appeal in *Vestergaard v Bestnet*[330] stressed that the proportionality of the enforcement measures principle spelt out in Article 3(2) of the concerned Directive was also applicable to a trade secrets claim. It further concluded that "it is accepted that a claim for misuse of technical trade secrets such as the present is a claim to enforce an intellectual property right".[331] Indeed, there are a number of provisions in UK statutes that regard confidential information as Intellectual Property, such as the Atomic Energy Authority Act,[332] the Building Societies Act[333] and the Corporation Tax Act 2009.[334] This doctrinal position has led some commentators to argue that confidential information falls within the scope of intellectual property, but not property as such.[335]

---

peal concluded that possession of confidential commercial information can be protected on the basis of Article 1 of the First Protocol to the European Convention of Human Rights; a more detailed legal analysis of this decisions and its consequences is provided in Tanya Aplin,'Confidential Information as property?' [2013] 24 King's LJ 172–201.

328 The conceptual distinction is clarified further in chapter 3 § 3 B) below.

329 Directive of the European Parliament and the Council 2004/48/EC of 29 April 2004 on the enforcement of intellectual property rights [2004] OJ L195/16 (Enforcement Directive).

330 *Vestergaard Frandsen A/S v Bestnet Europe Ltd* [2011] EWCA Civ 424 (CA). The case at hand concerned the misappropriation of a trade secret regarding the manufacturing of anti-mosquito nets by two departing employees.

331 *Vestergaard Frandsen A/S v Bestnet Europe Ltd* [2011] EWCA Civ 424 (CA), [56]; for a critical debate on this decision, see Tanya Aplin and others 2012 (n 22) para 17.05 noting that the expansion of the Enforcement Directive to protect trade secrets was left for Member States, particularly in the light of the Commission, 'Commission Statement on Directive 2004/48/EC' [2005] OJ L94/37.

332 See Atomic Energy Authority Act 1986, s 8.

333 The Building Societies Act 1997, s 92A(3).

334 The Corporation Tax Act 2009, s 712 (3).

335 Lionel Bently 2013 (n 307) 91.

b) U.S.

In the United States, the property debate has been at the core of the legal discussion since the XIX century.[336] Until recently, an analysis of the most relevant legal sources provided no definitive answer.[337] Yet, this debate now seems to be settled with the adoption of the Defend Trade Secrets Act of 2016 ("DTSA").[338] Pursuant to Sec. 1 amending § 1836 on Civil proceedings:

> APPLICABILITY TO OTHER LAWS .—This section and the amendments made by this section shall not be construed to be a law pertaining to intellectual property for purposes of any other Act of Congress.

According to the above reproduced provision, it seems that trade secrets shall not be regarded as a species of IPR. Yet, upon closer examination, the expression "for the purposes of any other Act of Congress" appears to have been drafted to establish a hierarchy of norms in order to avoid any potential overlap with other IPRs regulated under Federal Law (i.e. patents and copyright), rather than to clarify the legal nature of trade secrets protection and the implications derived from it. In this regard, it has been suggested that such a categorisation intended to preserve the safe harbour of online intermediaries in the event that a user unlawfully discloses a trade secret, as per § 230 of the Communications Decency Act,[339] which is not applicable for intellectual property law infringements.[340] It is most likely that in

---

336 For a detailed account of the evolution of the history of the law of trade secrets in the United States as regards the property theory see Robert G. Bone 2011 (n 15) 46.

337 Charles Tait Graves, 'Trade Secrets as property: Theory and Consequences' [2007] 15 JIPL 39, 62; in the commentary to the Restatement (First) of Torts § 757 (Am. Law Inst. 1939) it was expressly noted that the proprietarian approach had been frequently advanced and rejected, as "good faith" was the prevailing underlying policy justification. Notwithstanding this, the UTSA and the Restatement (third) of Unfair Competition do not take a clear stand. Only in the Restatement (Third) of Unfair Competition it is mentioned that the term property is still frequently applied and that the legal nature debate has had a rather limited effect in practice.

338 Defend Trade Secrets Act of 2016, Pub. L. No. 114-153, 130 Stat. 376 (2016) (codified at 18 U.S.C. § 1831, et seq.) (DTSA).

339 Communications Decency Act of 1996, Pub. L. No. 104-104, 110 Stat. 133-145 (1996) (codified as amended at 47 U.S.C. § 223 (1934).

340 As per 47 U.S.C. § 230(e)(2) which provides that "Nothing in this section shall be construed to limit or expand any law pertaining to intellectual property"; this argument is submitted by Eric Goldman, 'The Defend Trade Secrets Act

the near future the wording and implications of such a provision will be the object of a comprehensive and in-depth analysis by courts and academia.

Indeed, commentators in the U.S. are divided between those who assert the property nature of trade secrets[341] and those who deny it and are in favour of affording protection to confidential information through liability rules.[342] A minority supports a middle ground approach, regarding trade secrets as comprising a bundle of rights.[343]

A review of the Supreme Court case law on this matter sheds little light on the controversy. On the one hand, in *E.I. DuPont de Nemours Powder Co. v. Masland*, which concerned the misappropriation of confidential information by a departing employee the court noted that:

> The word property, as applied to trademarks and trade secrets is an unanalysed expression of certain secondary consequences of the factor that the law makes some rudimentary requirements of good faith. Whether the plaintiffs have any valuable secret or not the defendant knows the facts, whatever they are, through a special confidence that he has accepted. *The property may be denied but the confidence cannot be*. Therefore, the starting point for the present matter is not property or

---

Isn't an "Intellectual Property " Law' [2017] 33 Santa Clara High Technology LJ 541, 542-546.

341 Roger M. Milgrim 2014 (n 160) § 2.01[2] highlights that the rights in a trade secrets are intangible intellectual property. Those rights include the right to use information, to disclose it to others (for instance the employees, licensees and other persons subjected to a confidential relationship) and seek redress in the event of unauthorised user or disclosure to third parties; a similar position is adopted by Mark A. Lemley 2008 (n 15) 311-353.

342 William Landes and Richard Posner 2003 (n 38) 355 noting that "a trade secret is not property in the same sense that real and personal property and even copyrights and patents are because it is not something that the possessor has the (more or less) exclusive right to enjoy it"; see further Pamela Samuelson, 'Information as Property: Do Ruckelshaus and Monsanto Carpenter Signal a Changing Direction in Intellectual Property Law' [1988] 38 Catholic University LR 365, 375 noting that "It is simply unnecessary to call trade secrets "property" to enforce confidences and penalize those who use improper means to obtain valuable secret"; the same author in a later article notes that "Although trade secret law is sometimes clustered for the sake of convenience under the general rubric of 'intellectual property' rights, this does not alter the essential nature of trade secrets as a form of unfair competition" Pamela Samuelson, 'Principles for Resolving Conflicts Between Trade Secrets and the First Amendment' [2007] 58 Hastings LJ 777, 807.

343 This case is reported by Michael Risch 2007 (n 15) 23-26.

> due process of law, but that the defendant stood in confidential relations with the plaintiffs, or one of them (emphasis added).[344]

As is apparent from the above reproduced paragraph, Justice Holmes suggested that trade secrets should be afforded protection on the basis of the general concepts of fair and equitable conduct, not property.[345] This statement is usually cited by those who believe that the breach of a duty of confidence is central to any misappropriation claim, the so-called "Confidential Relationship School",[346] and has been followed by courts both at the state level and in the Federal Circuit.[347]

Conversely, those who argue that the bundle of rights that the trade secret holder claims on his secrets is best labelled as property rely on another landmark decision from the U.S. Supreme Court: *Rueckelhaus v. Monsanto* Co.[348] In this ruling from 1984 the court took a different view on the property debate, which was more in line with the so-called "Property School".[349] The facts of the case are as follows. Monsanto submitted research data on a pesticide in order to obtain marketing approval from the Environmental Protection Agency ("EPA"), which was subsequently used and disclosed by the agency for the purposes of assessing a competitor's application on the basis of the Federal Insecticide and Rodenticide Act ("FIFRA"). Thereafter, Monsanto filed a lawsuit arguing that the FIFRA provisions on the use and disclosure of data submitted for obtaining marketing approval constituted a taking of property that violated the Fifth Amendment of the U.S. Constitution.[350] Upon appeal to the Supreme

---

344 *E.I. DuPont de Nemours Powder Co. v. Masland*, 244 U.S. 100, 102 (1917).

345 Pamela Samuelson 1988 (n 341) 374-375.

346 James Pooley 2002 (n 66) 1.02[8] 1-16, 1-17.

347 In the Federal Circuit see for example *Servo Corp. of Am. v. General Electric Co*., 393 F.2d 551, 555 (4th Cir. 1968) where the court held that "the gravamen in a trade secrets case is a breach of confidence, rather than an infringement in a property right; hence, reliance on innocent sources of information involving no breach of duty, is an essential element of the defence that the secrets were previously disclosed" and *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1060 (7th Cir. 1973) noting that "A trade secret, unlike a patent or copyright, has no proprietary dimension. A suit to redress the theft of the secret is one grounded in tort, with the act of theft comprising the misfeasance against which the law protects".

348 *Ruckelshaus v. Monsanto Co*., 467 U.S. 986 (1984).

349 James Pooley 2002 (n 66) § 1.02[8] 1-18, 1-19.

350 The Fifth Amendment provides that "No person shall be (…) deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation".

Court, it was held that owing to the intangible nature of trade secrets, the property right conferred by them is defined by the "extent to which the owner of the trade secret protects his interest from disclosure to others".[351] In the course of its legal reasoning, the court further noted that trade secrets share many of the features of other forms of tangible property, as they can be assigned or constitute the object of a trust.[352] Consequently, the court concluded that the provisions of the FIFRA resulted in the taking of property that was not supported under the Fifth Amendment of the U.S. Constitution.[353]

The previous analysis further highlights the tension arising from the hybrid nature of trade secrets, which safeguard confidential information on the basis of liability rules akin to what in continental law is referred to as unfair competition, while also presenting some of the features of property rights. It appears that common law jurisdictions have adopted an "integrated approach", whereby the holder of secret information has a bundle of rights over such information and a number of these rights present the characteristics of property.[354] Against this background, it seems that the root of the discrepancies as to the legal nature of trade secrets derives from the "flexibility" of the property notion in common law jurisdictions and the many purposes for which it is applied.[355]

---

351 *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986 (1984) 1002.

352 *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986 (1984) 1002.

353 After *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986 (1984) a number of decisions have followed the "Property School", such as the Supreme Court of Hawaii in the context of a marriage separation *Teller v. Teller*, 53 P.3d 240, 247-249 (Haw. 2002); against this background, Roger M. Milgrim 2014 (n 160) 61, § 2.01[1]-[2] notes that "practically all jurisdictions have recognized that a trade secret is property, or, stated more precisely, that the possessor of a trade secret has a property right in it that permits the possessor to restrict use and disclosure of it in many situations".

354 James Pooley 2002 (n 66)§ 1.02[8] 1-20, 1-21.

355 This argument is raised by William Cornish, David Llewellyn and Tanya Aplin 2013 (n 209) para 8-50 with resepect to the English conceptualisation of property, due to the fact that common law jurisdictions in general understand the term property in a more flexible manner than civil law countries; see chapter 1 § 3 B).

3. Civil law approach

European civil law jurisdictions do not provide a uniform answer as to the legal nature of trade secrets. This section explores the different solutions followed in two of the EU jurisdictions where this topic has been more widely discussed, namely Italy and Germany.

a) Italy

In recent years, the proprietary debate in Italy has attracted substantial attention from European academics, particularly since the enactment of the Industrial Property Code in 2005. Pursuant to Article 1, trade secrets (or more accurately secret information) are regarded as a species of IPRs.[356] In the original version of the Code (Article 99), which was later amended, the protection of secret information was envisaged against mere acquisition, use and disclosure.[357] This gave rise to widespread criticism, as it was perceived that the new Italian regulation had created an "exclusive and absolute (erga omnes) proprietary regime".[358] Under the first version of the new Code, a trade secret holder would be entitled to prevent use or disclosure resulting from independent creation or reverse engineering, regardless of the breach of a confidentiality obligation or the unlawfulness of the behaviour. Thus, when the Code was amended in 2010, Article 99 was modified such that in order to find infringement there had to be evidence of

356 Article 1.1 of the Italian Industrial Property Code (Decreto legisltaivo 10 febbraio 2005, n. 30 1 Codice della proprietà industriale, a norma dell'articolo 15 della legge 12 dicembre 2002, n. 273, aggiornato a seguito del decreto legislativo di correzione 13 agosto 2010, n. 13) sets forth that: "For the purposes of this Code, the expression industrial property comprises trademarks and other distinctive signs, geographical indications, designations of origin, designs, inventions, utility models, topographies of semiconductors, confidential commercial information and new planet varieties" (translation by the author).

357 Giorgio Floridia and others, *Diritto Industriale Proprietà Intellettuale e concorrenza* (4th edn, Giappichelli Editore 2012) 207.

358 Gustavo Ghidini and Valeria Falce, 'Trade secrets as intellectual property rights: a disgraceful upgrading – Notes on an Italian reform' 140 in Rochelle C. Dreyfuss and Katherine J. Strandburg (eds), *The Law and Theory of Trade Secrecy: A Handbook of Contemporary Research* (Edward Elgar 2011).

abusive conduct by the alleged infringer.[359] Despite the new wording, commentators remain sceptical about the new regime enshrined in Article 99. Some contend that the new code has strengthened the protection of trade secrets, which have now become the object of an autonomous IPR, because under the newest version of Article 99 the behaviour is unfair in itself, as in most cases the parties are aware that the information belongs to a third party.[360]

Interestingly, it has been pointed out that the establishment of such enhanced protection responds to the structure of Italy's industrial landscape, which is mostly made up of SMEs. It is generally believed that firms of this type usually regard the patent system as being too costly and in most cases prefer to resort to secrecy as a means of appropriating returns from innovation.[361] Thus, Article 99 was tailored so as to meet the needs of Italy's SMEs. This, however, begs the question of whether the trade-off imposed by the patent system has been in some way bypassed.[362]

b) Germany

The legal nature of trade secrets has also been extensively examined in Germany, particularly in connection to the relevant provisions of the German Civil Code ("BGB") applicable to their enforcement.[363] Indeed, the discussion is not only a doctrinal one. If trade secrets are considered an IPR, they should be protected pursuant to the property guarantee of the German Constitution (Article 14) and §§ 823 I, 812 I, and 687 II BGB.[364] However, only a few judicial decisions from the 1950s have actually dealt with the issue. In 1955, in the context of a bankruptcy case, the Supreme Court of

359 Article 99(1) of the Italian Industrial Property Code provides that: "Without prejudice to unfair competition law, the rightful holder of the information and the experiences set forth in Article 98, shall be entitled to prevent third parties not having his consent from acquiring, using and disclosing the information in an abusive manner , unless acquired independently by the third party" (translation by the author).

360 Giorgio Floridia and others, *Diritto Industriale Proprietà Intellettuale e concorrenza* (4th edn, G Giappichelli Editore 2012) 207.

361 Gustavo Ghidini and Valeria Falce 2011(n 358) 149-150.

362 Gustavo Ghidini and Valeria Falce 2011(n 358) 149-150.

363 Bürgerliches Gesetzbuch in der Fassung der Bekanntmachung vom 2. Januar 2002 (BGBl. I S. 42, 2909; 2003 I S. 738), das zuletzt durch Artikel 6 des Gesetzes vom 12. Juli 2018 (BGBl. I S. 1151) geändert worden ist.

364 Ansgar Ohly 2014 (n 100) 3.

the Republic of Germany held that the holder of a secret process had an exclusive right in it ("*Auschlussrecht*").[365] Notwithstanding this, some months later, the same court stated in another case dealing with technical undisclosed information that the holder did *not* have an *absolute exclusive* and *prohibitory right* in the information and that the applicable laws were the relevant provisions of the BGB and the Act Against Unfair Competition ("UWG").[366]

From an academic perspective, the debate remains unsettled. While some view trade secrets as an absolute IPR,[367] others reject such a categorisation.[368] In this regard, Drexl suggests that trade secrets lack one of the features common to all IPRs, i.e. their exclusive nature. As a result, they cannot be considered as one of the rights that fall under the broader umbrella of intellectual property. He convincingly argues that IPRs afford erga omnes protection to their right holders against use by any third parties in the manner set forth in the relevant statutes.[369] Trade secrets, instead, are only protected against unlawful acquisition, use and disclosure. According to Drexl, this difference is an essential one, as it renders trade secrets protection a tort law ("*Deliktsrecht*") resulting from the unlawfulness of the behaviour.[370]

In a similar vein, Beyerbach concludes that the undisclosed character of trade secrets precludes their inclusion within the IPRs spectrum. Crucially, any trade secret holder achieves protection without publicising the information, and hence does not participate in the trade-off between the holder and the general public envisaged by the intellectual property system.[371]

---

365 BGH GRUR 1955, 388, 389 – *Dücko.*

366 Gesetz gegen den unlauteren Wettbewerb in der Fassung der Bekanntmachung vom 3. März 2010 (BGBl. I S. 254), das zuletzt durch Artikel 4 des Gesetzes vom 17. Februar 2016 (BGBl. I S. 233) geändert worden ist (UWG); BGH GRUR 1955, 468, 472 – *Schwermetall-Kokillenguß.*

367 Christoph Ann, 'Know-how- Stiefkind des Geistiges Eigentums?' [2007] GRUR 39, 42 highlighting the economic dimension of know-how as an IPR.

368 Hans-Jürgen Ahrens and Mary-Rose McGuire, *Modellgesetz für Geistiges Eigentum, Normtext und Begründung* (GRUR 2012) 50; Mary-Rose Mcguire, 'Know-how:Stiefkind, Störenfried oder Sorgenkind?' [2015] GRUR 424, 426.

369 Josef Drexl, 'Die Verweigerung der Offenlegung von Unternehmensgeheimnissen als Missbrauch marktbeherrschender Stellung' 437, 449 in Reto Hilty and others (eds), *Schutz von Kreativität und Wettbewerb* (C.H. Beck 2009).

370 Josef Drexl 2009 (n 369) 449; Gintare Surblyte 2011(n 182) 59-60.

371 Hannes Beyerbach, *Die geheime Unternehmensinformation* (Mohr Siebeck 2012) 222.

Dorner is also wary of categorising trade secrets as property rights, as he believes that this amounts to an "Hypertrophy of IPRs".[372] In the case of trade secrets, this is achieved by expanding the subject matter protected, rather than creating a sui generis right.[373] He illustrates this by referring to the broad scope of paragraph 2 of § 17(2) UWG, the simultaneous protection of software through copyright and trade secrets and the protection of confidential information through procedural law.[374]

A middle ground approach is purported, among others, by Ohly, who is of the opinion that trade secrets protection appears to fall somewhere between one of the market behaviour rules set forth in the UWG and an IPR.[375] Following this viewpoint, trade secrets are regarded as an "imperfect intellectual property right" ("*unvollkommenes Immaterialgüterrecht*"), owing to the fact that they share some of the features of traditional IPRs and others of the market behaviour rules enshrined in the UWG.[376] From a dogmatic perspective, Ohly suggests that not every IPR confers upon its holder the right to enforce it without taking into account the lawfulness of the alleged infringer's conduct, as in the case of patent rights.[377] This is best illustrated by referring to trade marks and copyright. The infringement of the former is usually conditioned upon unfair behaviour such as the creation of likelihood of confusion or taking unfair advantage

372 Michael Dorner 2013 (n 305) 315-318; the concept of Hypertrophy of IPRs is further developed by Brigitte Zypries, 'Hypertrophie der Schutzrechte?' [2004] GRUR 977, 980.

373 William Cornish, 'The Expansion of Intellectual Property Rights' 9 in Gerhard Schricker, Thomas Dreier and Annette Kur (eds), *Geistiges Eigentum im Dienst der Innovation* (Nomos 2001).

374 Michael Dorner 2013 (n 305) 315-318.

375 Ansgar Ohly 2014 (n 100) 3.

376 Ansgar Ohly 2014 (n 100) 4; a similar view is expressed by Hans-Jürgen Ahrens and Mary-Rose McGuire 2012 (n 366) where trade secrets are conceptualised as a special protection position ("*sonstige Schutzposition*"); this argument is further developed by Mary-Rose McGuire 2015 (n 368) 424, where the author suggests that the system articulated by §§ 17-19 UWG together with § 823 II BGB does not afford absolute protection to the secret holder. Rather, it confers subjective right against unlawful acquisition, use and disclosure. Hence, the author purports that the legal nature debate results from the different ways in which the concept intellectual property is understood. For some, IPRs confer an absolute right to the holder of the intangible good, while others view it as a set of rules that regulate different types of extisting conduct ("*Lebenssachverhalten*"); see further *Harte-Bavendamm*/Henning-Bodewig, *Gesetz gegen den unlauteren Wettbewerb (UWG)*(4th edn, C.H. Beck 2016) '§§ 17-19' Rdn 2.

377 Ansgar Ohly 2014 (n 100) 4.

of the distinctive character and reputation of the mark.[378] Similarly, copyright does not afford protection against independently created works. Hence, he concludes that IPRs constitute a bundle of rights, some of which are tighter laced than others. It is in this context that he submits that trade secrets can be regarded as an "imperfect species of IPRs". However, this dogmatic characterisation should not lead to enhancing the material limits laid down in the protection of trade secrets, particularly vis-à-vis bona fide third party acquirers, as the right in a trade secret is not a right in rem with erga omnes effects.[379] In the following section, it is argued that such a conceptualisation should be extended to the interpretation of the TSD. Indeed, this seems to be the approach adopted by the German legislature in the implementation of the TSD, as noted in the comments to § 3 of the Proposed Trade Secrets Act.[380]

4. European Union approach

As outlined in the previous sections, EU Member States have different views on whether trade secrets should be considered a species of IPRs or a set of unfair competition rules. Interestingly, there is not a single provision of the acquis communautaire that expressly addresses this issue and even the wording of the TSD appears unclear.

The Technology Transfer Block Exemption Regulation, in force until the end of April 2014, defined IPRs as including "industrial property rights, know-how, copyright and neighbouring rights".[381] However, in its newest version, IPRs are defined as "industrial property rights, in particu-

---

378 See Article 10(2)(c) TMD.

379 Ansgar Ohly 2014 (n 100) 4.

380 See § 3 of the Proposed Trade Secrets Act: "(...) es sich bei Geschäftsgeheimnissen zwar in gewisser Weise um Immaterialgüterrechte handelt, aber anders als bei Patenten, Marken und Urheberrechten keine subjektiven Ausschließlichkeits- und Ausschließungsrechte vorliegen können, weil der rechtliche Schutz allein von der Geheimhaltung der Information abhängt und nicht von anderen Voraussetzungen wie einer Eintragung oder einer besonderen Schöpfungshöhe. Um Innnovation und Wettbewerb weiterhin zu ermöglichen, werden daher Geschäftsgeheimnisse nicht völlig der Gemeinfreiheit entzogen und ihrem Inhaber mit Wirkung gegenüber jedermann zugeordnet, sondern es wird lediglich ein bestehender Zustand rechtlich abgesichert".

381 See Article 1 (1)(g) of the Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81 (3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11.

lar patents and trade marks, copyright and neighbouring rights".[382] Thus, the latter version has omitted any reference to know-how.

More recently, the EU legislator has adopted an ambiguous wording when addressing the legal nature of trade secrets in the TSD. On the one hand, it incorporates the "honest commercial practices" benchmark contained in the PC in the assessment of the types of conduct that are deemed unlawful and the exceptions and limitations thereto.[383] The non-proprietary nature of trade secrets is reinforced by the language used in Article 2(2), which refers to trade secrets holders instead of trade secrets owners.[384] In the same vein, the Impact Assessment notes that the application of the Enforcement Directive to trade secrets was declined because "trade secrets are not intellectual property rights" and that regarding them as an IPR would add confusion.[385] However, on the other hand, Recital 16 expressly mentions that the provisions of the Directive shall not create an *exclusive right* on the information they protect, but notably no reference to intellectual property is made.[386]

In the light of the above, it is submitted that the Directive does not require Member States to protect trade secrets as IPRs.[387] Instead, the legislature has opted to emphasise the unfair competition nature of the relevant

382 Commission Regulation (EU) No 316/2014 of 21 March on the application of Article 101 (3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements [2014] OJ L93/17 (TTBER).

383 Annette Kur, Reto Hilty and Roland Knaak, 'Comments of the Max Planck Institute for Innovation and Competition of 3 June 214 on the Proposal of the European Commission for a Directive on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) Against Their Unlawful Acquisition, Use and Disclosure of 28 November 2013, COM(2013) 813 Final' [2014] IIC 45, para 11 (MPI Comments).

384 As noted by Tanya Aplin, 'A critical evaluation of the proposed Trade Secrets Directive' [2014] IPQ 257, 260-261.

385 Commission, 'Impact Assessment accompanying the document proposal for a Directive of the European Parliament and of the Council on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure' SWD(2013) 471 final, 267-268; Tanya Aplin 2014 (n 384) 260 further refers to the fact that Recital 1 of the TSD views trade secrets protection as a compliment or alternative to IPRs.

386 Recital 16 TSD: "In the interest of innovation and to foster competition, the provisions of this Directive should not create any exclusive right to know-how or information protected as trade secrets".

387 Tanya Aplin 2014 (n 384) 260-261 is of the opinion that the wording used in the Directive is so flexible that it even allows for a certain degree of leeway in terms of whether it is mandatory to implement unfair competition provisions.

liability conduct. Yet, it does not mandate either that Member States that do protect trade secrets as IPRs amend their legislation and regulate trade secret protection only by reference to unfair competition rules.[388] This would disregard the overall functioning of the intellectual property system, where unfair competition rules regularly supplement the protection afforded by IPRs, such as trade marks or design rights.[389]

Against this background, it should be borne in mind that there is also a constitutional dimension to the property debate vis-à-vis trade secrets in the EU. Article 17(2) of the ChFREU mandates Member States to protect intellectual property under the general property clause. However, so far, the CJEU has not ruled on whether trade secrets fall within the scope of protection of this provision and the implications that such a categorisation may entail with respect to the rights conferred by national trade secrets legal regimes. In addition, according to the constitutional approach, confidential information should also be afforded protection pursuant to the general freedom to conduct a business laid down in Article 16 of the ChFREU. This provision encompasses all economic and business activities of a company, as well as the competitive position of all of the economic actors.[390]

A number of commentators have expressed scepticism regarding the possibility of considering trade secrets as a form of intellectual property rights in the context of the TSD because they understand that this would lead to higher standards of protection to the advantage of corporate actors. In particular, it is argued that this would (i) result in the application of stricter liability principles (in particular with respect to third party liability); (ii) narrow the manner in which exceptions and limitations are construed (with respect to reverse engineering and independent creation); and (iii) impose stringent enforcement remedies.[391] Furthermore, it has been suggested that the minimum harmonisation approach adopted in the Directive seems problematic, as in its implementation, Member States may adopt higher standards of protection.[392] Consequently, it is submitted that

388 This would be, for instance, the case of Italy.

389 Ansgar Ohly 2014 (n 100) 4.

390 Hannes Beyerbach, *Die geheime Unternehmensinformation* (Mohr Siebeck 2012) 305.

391 Tanya Aplin 2015 (n 306) 432 noting that "in the context of the EU, it is argued that classification as 'possessions' and 'intellectual property' within Article 17 Charter is likely to create pressure to increase the scope of protection".

392 Valeria Falce, 'Looking for (Full) Harmonization in the Innovation Union' [2015] IIC 940, 959.

the maximum standards laid down in Article 1(1) TSD, which safeguard the exceptions and lawful means of acquiring, using and disclosing secret information, are essential to ensure a proper balance between the interests of trade secrets holders and the intellectual property system.[393]

Drawing on the above, it is concluded that the emphasis in the implementation by Member States should not lie in the specific label under which trade secrets are categorised (either as unfair competition rules or imperfect intellectual property rights), but rather in their material limits. As convincingly argued by Ohly, the protection conferred to a trade secret holder should not be enhanced in the event that they are in fact regarded as an imperfect form of IPRs by the national legislators, particularly with respect to the application of the exceptions and limitations and the liability of bona fide third party acquirers. The right in a trade secret should not be viewed as an absolute erga omnes right (such as patent rights) and its enforcement should always be conditioned upon the appraisal of the fairness in the acquisition, use and disclosure of the information concerned.[394]

II. Considering information as the object of property rights

1. Preliminary remarks: the problematic conceptualisation of information as such as the object of IPRs

Ultimately, the property debate in the context of trade secrets leads to the question of whether information as such should be regarded as the object of property rights and whether it should be protected within the scope of IPRs. Indeed, information and information relationships are regulated by multiple fields such as contract law, tort law, data protection, administrative law and even environment law, to name some.[395] Intellectual property is among those fields, as the grant of exclusive rights unquestionably limits the free access to and flow of information. However, a historical analysis shows that one of the goals of the intellectual property regime in the EU

393 See chapter 6 § 2.

394 Ansgar Ohly 2014 (n 100) 4.

395 Thomas Dreier, 'Regulating information: Some thoughts on a perhaps not quite so new way of looking to intellectual property' 35, 42 in Josef Drexl and others (eds), *Technology and Competition, Contributions in Honour of Hanns Ullrich* (Larcier 2009); Hannes Beyerbach, *Die geheime Unternehmensinformation* (Mohr Siebeck 2012) 5-6.

has been to promote the dissemination of information and knowledge, rather than to limit its access through the creation of property rights.[396]

To be sure, IPRs are granted for a restricted period of time, limited in scope and only for those inventions and creations that meet a certain qualitative threshold.[397] For this reason, intellectual property intends to afford the lowest level of protection necessary to encourage innovation and creation.[398] Notwithstanding this, in the information society, information as such has become a very valuable commodity, which some consider is worth protecting.[399]

However, characterising information as the object of property rights is difficult for a number of reasons. In the first place, as noted above, there is no uniform definition of information,[400] which allows for distinguishing it

396 In the Communication from the Commission, 'Europe 2020: a strategy for smart, sustainable and inclusive growth, Brussels,' COM(2010) 2020 final, 11-14, the Commission established three priorities within the framework of the Europe 2020 Strategy, namely, (i) smart growth, (ii) sustainable growth and (iii) inclusive growth. Particularly, the second pillar, smart growth, intends to enhance the role of knowledge and innovation as drivers for growth in the EU. According to the Commission, this calls for an improvement of the quality of education and research performance, as well as promoting the transfer of innovation and knowledge within the common market.

397 Séverine Dusollier, 'Pruning the European intellectual property tree: in search of common principles and roots' 24, 37 in Christophe Geiger (ed), *Constructing European intellectual property* (Edward Elgar 2013). The author identifies a continuum of four levels, which to some extent are present in the requirements of protection of every IPR, even though not at the same time. These are creation-novelty-adequacy-investment. The creation requirement refers to the intellectual intervention of the author. Novelty is conceptualised as an objective threshold that looks into the prior existence of the intellectual object now produced. Adequacy indicates that the object of protection serves the purpose of the IP for which it is applied. Finally, investment refers to the financial investment in the creation of the object.

398 Mark A. Lemley 2004 (n 109) 1031.

399 Pamela Samuelson 1988 (n 341) 367.

400 Thomas Dreier 2009 (n 395) 42; Thomas Hoeren, 'Zur Einführung: Informationsrecht' [2002] JuS 947, 947 notes that "Niemand weiß, was Information ist"; in a similar vein, Hannes Beyerbach, *Die geheime Unternehmensinformation* (Mohr Siebeck 2012) 5 refers to information as a "definiens indefiniblis".

from other concepts such as knowledge[401] or data.[402] Most famously, it has been stated that "information is information, not matter or energy".[403] Dreier notes that information has been defined, as a message, pattern, sensory input or even a property in physics (etc.). He further adds that none of these explanations share a common ground and in some instances they contradict each other. Furthermore, the intangible nature and inherent leakiness of information make it very difficult for the possessor to maintain a certain degree of exclusivity in its use.[404] Consequently, information presents the same non-rivalrous and non-exclusive nature, which is common to other forms of intangible assets that are afforded protection under the general umbrella of IPRs.

In the light of the above, trade secrets law seems tailored to protect certain categories of information that fall outside the traditional realm of IPRs,[405] such as incremental innovations that are considered obvious by the patent office, business models or compilations of data that are not eligible for protection under the Database Directive but are maintained undisclosed. Yet, this in turn may have a negative impact on access to information, innovation and market competition.

The following sections further explore the legal problems surrounding the categorisation of information as such as the object of an IPR and its consequences for trade secrets law. First, section 2 starts by analysing the leading case in the U.S. on this topic ; then, some additional arguments following a semiotics approach are presented in section 3; next, in section 4, the sui generis "data producer's right" proposed by the Commission is used as an example case to illustrate the problems of creating exclusive rights on information as such; finally section 5 concludes.

401 In the Oxford English Dictionary, 'knowledge, n' is defined as "Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject" (*OED Online*, OUP June 2013) <https://en.oxforddictionaries.com/definition/knowledge> accessed 15 September 2018.

402 For the purposes of the present research, 'data, n' will be tentatively defined as "Facts and statistics collected together for reference or analysis" (*OED Online*, OUP June 2013) <https://en.oxforddictionaries.com/definition/data> accessed 15 September 2018.

403 Thomas Dreier 2009 (n 395) 42 (as cited in N. Wiener, *Cybernetics, or control and communication in animal and machine* (2nd edn, MIT Press 1961) 132).

404 Pamela Samuelson 1988 (n 341) 368-369.

405 Michael Risch 2011 (n 113) 175.

2. The debate in the U.S.: INS v. Associated Press and its influential dissent

The proprietary debate reached the U.S. Supreme Court in the famous *INS v. Associated Press* case, where the court recognised a quasi-property right in a specific kind of information, news items.[406] In the case at hand, the parties competed in the distribution of news throughout the U.S. during the First World War. Associated Press ("AP") filed a lawsuit against International News Service ("INS"), owned by the newsprint magnate Randolph Hearst, for appropriating its news, after the defendant was barred from using the allied lines.[407] In effect, despite the ban, INS continued to report news to the west coast, leveraging the time difference. Crucially, the news was lawfully acquired from bulletin boards and early editions of the newspapers on the east coast and subsequently telegraphed to INS customers on the west coast.[408]

In the ratio decidendi, the U.S. Supreme Court first noted that no copyright protection was available on the reported news items based on two factors: firstly, most of the news was rewritten and copyright law only affords protection to expression, not ideas; and secondly, the news described daily ordinary matters and as such lacked originality and did not qualify for copyright protection.[409] Hence, upon their publication, the news items were deemed to be part of the public domain. Notwithstanding this, Justice Pitney recognised that a property interest subsisted between the parties, which was nevertheless not enforceable against the public in general.[410] Such a property right was derived from the amount of time, money

406 *INS v. Associated Press*, 248 U.S. 215 (1918).

407 The news on First World War was reported using the Allies telegraph lines. Due to the critical reports of the Allies' performance by INS, the company was denied use of the allied lines; this was reported by the New York Times in 'News Pirating Case in Supreme Court' *The New York Times* (New York, 3 May 1918) 14.

408 In addition, INS bribed AN's employees in order to receive the information before the publication of the newspapers and induced them to breach their confidentiality obligations. However, these types of conduct were not the object of the appeal before the U.S. Supreme Court.

409 *INS v. Associated Press*, 248 U.S. 215, 234 (1918).

410 *INS v. Associated Press*, 248 U.S. 215, 235 (1918): "Regarding the news, therefore, as but the material out of which both parties are seeking to make profits at the same time and in the same field, we hardly can fail to recognize that for this purpose, and as between them, it must be regarded as quasi-property, irrespective of the rights of either against the public".

and labour that AP had invested in gathering the news and the value that those without knowledge of the news were willing to pay. As a result, the court granted an injunction on the grounds that the competitor had misappropriated the plaintiff's investment in an enterprise. Next, the majority spelt out four factors that have become central to any misappropriation action in the United States.[411] In the first place, there must have been a substantial investment in the production of an article with market value. Second, the defendant must be in direct competition with the plaintiff. Furthermore, there must be some free-riding (reaping without sowing) on his investment. Fourth, the act of misappropriation must result in a substantial reduction in the incentive to yield the goods and services misappropriated.[412]

The line of reasoning explained above was contested by Justice Brandeis in his famous dissent, where he called into question the extension of property rights in news items based on two arguments. In the first place, he expressed concern about the creation of a new private right that may allow anyone who had invested labour, skill and money in something to claim a semi-property right in it, against third parties.[413] In the words of Justice Brandeis:

> The plaintiff has no absolute right to the protection of his production; he has merely the qualified right to be protected against the defendant's acts, because of the special relation in which the latter stands, or the wrongful method or means employed in acquiring the knowledge, or the manner in which it is then used.[414]

411 Matthias Leistner, 'The Legacy of International News Service v Associated Press (USA)' 33, 34 in Christopher Heath and Anselm Kamperman Sanders (eds), *Landmark Intellectual Property Cases and Their Legacy* (Kluwer Law International 2010).

412 Matthias Leistner 2010 (n 411) 34; at 39-41 the author further notes that later in time the INS test for misappropriation was substantially narrowed down by the U.S. Court of Appeal for the Second Circuit in *National Basketball Association (BA) v. Motorola Inc.* 105 F.3d 841 (2d Cir. 1997). In its legal reasoning, the court noted that a central element in the INS case was the time-sensitivity of news items. Hence, the court argued that the misappropriation action as tailored in INS was only applicable to misappropriation of hot news.

413 *INS v. Associated Press*, 248 U.S. 215, 262-263 (1918).

414 *INS v. Associated Press*, 248 U.S. 215, 251 (1918).

Next, he argued that this situation would result in a limitation of the right to use general knowledge and ideas.[415] Against this backdrop, Justice Brandeis considered that in order to reconcile the private right with the public interest, such a right may only be created by the legislature and based on articulate and clear limitations.[416]

This dissent was very influential in the following years, as it explored for the first time the implications of expanding the intellectual property regime to the mere protection of information based on the cost, time and labour devoted to garnering it.[417] Most notably, it drew special attention to one of the cornerstones of the intellectual property system, according to which abstract ideas should not be protected by law, but should remain free:[418]

> The general rule of law is, that the noblest of human productions-knowledge, truths, ascertained, conceptions, and ideas became, after voluntary communication to others, free as the air to common use.[419]

This general principle is most clearly stated in copyright law under the idea/expression dichotomy: only the expression, not the underlying idea, is protected by copyright.[420] Similarly, patent law only protects technical features. This can be inferred from the exclusion list set forth in Article 52(2) EPC and the fact that inventions must be susceptible of industrial application (Article 57 EPC). As regards trade marks, the CJEU clarified in *Dyson v Registrar of Trade Marks* that a trade mark application consisting of all of the conceivable appearances of a product in a non-specific manner cannot be regarded as a sign under the TMD. Otherwise, the holder of the trade mark would obtain a competitive advantage that may limit competition in the market.[421]

---

415 *INS v. Associated Press*, 248 U.S. 215, 240 (1918); and also at page 250 (Brandeis Dissent).

416 *INS v. Associated. Press*, 248 U.S. 215, 263 (1918).

417 Matthias Leistner 2010 (n 411) 37-38.

418 Séverine Dussollier 2012 (n 397) 35-37.

419 *INS v. Associated Press*, 248 U.S. 215, 250 (1918).

420 The idea/expression dichotomy is one of the general principles enshrined in most national copyright systems. At the international level, it has been explicitly codified in Article 9(2) of TRIPs and Article 2 of the WCT. Yet, at the EU level, it is only referred to in Article 1(2) of the Software Directive; see Mireille van Eechoud and others, *Harmonizing European Copyright Law* (Kluwer Law International 2009) 34-35.

421 In Case C–321/03 *Dyson Ltd v Registrar of Trademarks* [2007] ECR I-687 the CJEU dealt with the refusal to register as a trade mark all conceivable shapes of

3. Semiotics approach to the property debate

The legal analysis of *International News Service v. Associated Press*[422] underscores that information can be separated from its physical carrier,[423] in the same way that a text and the book in which it is embedded are two distinct objects.[424] Accordingly, this may lead to the distinction of three different layers when addressing information as an object: (i) the semantic level, as regards the meaning of the information; (ii) the syntactic level, as regards the signs and their interrelation; and (iii) the physical level, as regards the carrier. Against this background, semiotics doctrines have identified three types of information that correlate with the previous sequence of levels: semantic information, syntactic information and structural information.[425] Following this rationale, the story told in a book is semantic information, whereas the text of the book, understood as a sequence of letters and words devoid of any meaning, is syntactic information and the book as such is the physical carrier (real property) and, therefore, structural information.[426]

The creation of IPRs confers exclusivity over certain types of information. For instance, patent rights confer exclusivity over specific technical information, which relates to semantic information, whereas copyright and design rights provide exclusivity over syntactic information.[427] Indeed, as outlined in the previous section, pursuant to Article 9(2) TRIPs copyright protection extends only to the expression (syntactic information) of ideas, which are semantic information. Likewise, design rights are only protected against their reproduction in a physical embodiment, which is also syntactical information.[428]

The case of trade secrets is a particular one, as the object of protection is semantic information, but unlike patent rights, exclusivity is not achieved

---

a transparent collecting bin forming part of the external surface of a vacuum cleaner.

422 *INS v. Associated Press*, 248 U.S. 215 (1918).

423 Herbert Zech, 'Information as Property' [2015] 6 JIPITEC 192 para 9.

424 Herbert Zech 2015 (n 423) para 9.

425 Herbert Zech 2015 (n 423) para 14.

426 This example is presented by Josef Drexl, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access' (2016) Max Planck Institute for Innovation & Competition Research Paper No. 16-13, 12 <https://ssrn.com/abstract=2862975> accessed 15 September 2018.

427 Herbert Zech 2015 (n 423) paras 25-28.

428 Herbert Zech 2015 (n 423) para 28.

by conferring exclusive rights over the said semantic information. Instead, exclusivity is a pre-condition that derives from the factual condition of secrecy.[429] Therefore, trade secrets law merely protects factual exclusivity against the unauthorised acquisition, use and disclosure of semantic information that has commercial value due to its secret nature and has been subject to reasonable efforts under the circumstances to protect its concealed nature. Crucially, the protection conferred by trade secrets does not extend to information acquired through independent creation or reverse engineering (unless the parties have contractually agreed to the contrary). Consequently, semantic information is not protected as such, only against specific tortious conduct. Such a distinction is of the greatest importance, because conferring exclusive rights over semantic information vests the holder of the right with greater powers than creating rights over syntactic information. As a result, the reduction of the public domain is also substantially larger in the former case.[430]

In the light of the above, it is submitted that the "honest commercial practices" benchmark should remain at the centre of the appraisal of the lawfulness of the alleged infringing types of conduct in order to avoid the creation of a right in rem over semantic information. Following this line of reasoning, the limitations laid down with respect to trade secrets protection should also always be observed in their enforcement. Otherwise, trade secrets protection would have a disruptive effect within the overall IPRs legal framework.

A similar rationale speaks against the introduction of the data producer's right contemplated by the Commission in the context of the Building a European Data Economy,[431] as analysed in the following section.

429 Herbert Zech 2015 (n 423) para 26.

430 In this context, Herbert Zech 2015 (n 423) para 31 notes that the creation of property rights over semantic information calls for a stronger justification than establishing property rights over syntactic information. Hence, copyright becomes more problematic if the protection of works protected under copyright law extends not only to its expression, but also its content.

431 See Commission, 'Building a European Data Economy Initiative' COM(2017) 9 final.

4. Example case: data producer's right

In the context of the Digital Single Market initiative and mostly owing to the increasing role of data as a driver for innovation,[432] the Commission evaluated the possibility of introducing a new EU-wide novel sui generis right for the protection of so-called "machine-generated data"[433] (also referred to as "industrial data" or "non personal data")[434] with a potentially erga omnes effect.[435] This debate was spurred for the most part by the automotive industry[436] and has been particularly intense among German authors, who are divided between those that support the need to create a sui generis right that allocates ownership rights on raw data,[437] and those that argue that the existing liability regimes (such as tort law, criminal and trade secrets law) are applicable to the emerging data markets and are wary of the consequences for innovation and competition that the creation of such a new right would entail.[438]

As a result of this debate, in January 10, 2017, the Commission announced that it was considering the possibility of introducing a new sui

---

432 OECD, 'Data-Driven Innovation: Big Data for Growth and Well-Being' (OECD Publishing 2015) 4 <http://dx.doi.org/10.1787/9789264229358-en> accessed 15 September 2018.

433 Herbert Zech 2016 (n 278) 53 and 74 defines data as "machine-readable encoded information". However, in the context of the sui generis right, the author suggests that the subject matter of protection should be limited to "machine-readable coded information that is defined only by its representative characters (bits) irrespective of its content (data delimited on the syntactic level)".

434 See Andreas Wiebe 2016 (n 287); in the following, the term "industrial data" will be used.

435 P. Bernt Hugenholtz 2017 (n 279) 5; Commission, 'Building a European Data Economy Initiative' COM(2017) 9 final, 13 and more specifically Commission, 'Commission Staff Working Document on the free flow of data and emerging issues of the European data economy' SWD(2017) 2 final, 33-38.

436 P. Bernt Hugenholtz 2017 (n 279) 1-2.

437 Herbert Zech 2016 (n 278) 51-79; Michael Lehmann, 'European Market for Digital Goods' 111-126 in Alberto de Franceschi (ed), *European Contract Law and the Digital Single Market – the Implications of the Digital Revolution* (Intersentia 2016).

438 Josef Drexl and others, 'Position Statement of the Max Planck Institute for Innovation and Competition of 26 April 2017 on the European Commission's Public consultation on Building the European Data Economy' (2017) Max Planck Institute for Innovation & Competition Research Paper No. 17-08 <https://ssrn.com/abstract=2959924> accessed 15 September 2018.

generis right for industrial data[439] in order to foster "the tradability of non-personal or anonymised machine-generated data as an economic good".[440] The contours of the right were not precisely defined, even though in the Building a European Data Economy Communication it was noted that it related to the "right to use and authorise the use of non-personal data", which would be vested on the "data producer", which could be either the *owner* or *long-term user* (i.e. the lessee) of the device concerned.[441] This would allow for unlocking machine-generated data controlled de facto by the manufacturer of the device.[442] According to the Working Document, two possibilities were considered:

(i) the introduction of a right in rem allowing the data producer to enforce it against third parties with erga omnes effect, including the right to assign and license such a right, or
(ii) the creation of a defensive right of a tortious nature imposing liability in case of misappropriation, similar to the liability regime laid down in the TSD.

The proposal garnered substantial criticism among academics and stakeholders, as it was perceived that the creation of such a right was not well founded and was alien to the general IPRs system, particularly if the EU legislator opted to introduce an in rem right with erga omnes effects.[443]

From an economic perspective, it was argued that neither of the two utilitarian justifications most frequently invoked for IPRs were applicable in the context of industrial data, namely (i) the incentives to innovate theory, and (ii) the prospect theory. In connection to the former, it was noted that the Commission had not provided sufficient evidence regarding the need to confer exclusivity to data producers in order to provide additional incentives to generate and collect data.[444] Indeed, in the Data Economy sheer amounts of data were already being generated as by-products of most of the services provided therewith, such as platforms, or in the context of

439 Commission, 'Building a European Data Economy Initiative' COM(2017) 9 final, 12.
440 Commission, 'Commission Staff Working Document on the free flow of data and emerging issues of the European data economy' SWD(2017) 2 final, 5.
441 Commission, 'Building a European Data Economy Initiative' COM(2017) 9 final, 13.
442 Josef Drexl and others 2016 (n 438) para 9.
443 P. Bernt Hugenholtz 2017 (n 279) 5; Josef Drexl and others 2017 (n 442) paras 8-19.
444 Josef Drexl 2016 (n 426) 30-33.

the Internet of Things ("IoT").[445] In other words, there was no "public good problem" to be solved.[446] The prospect theory submits that IPRs are justified because they provide additional incentives to commercialise the subject matter of protection.[447] Yet again, the Commission failed to provide evidence of whether data producers and data holders were in fact facing difficulties in the commercialisation of their data.[448]

From a legal perspective, the introduction of a new data producer's right in the acquis communautaire also encountered criticism, mainly on the grounds that it would lead to "disruptive overlaps" with existing IPRs, generate legal uncertainty and hinder the free flow of information.[449] In particular, Hugenholtz holds that if a property right is recognised over machine-generated data, tension will arise with existing copyright rules, leading to "competing claims of ownership in the same content".[450] He illustrates this in a very convincing manner by reference to the protection afforded by copyright to cinematographic works. If a sui generis right over digital data were introduced, a picture shot with a digital camera would be protected both under copyright and under the sui generis data producer's right. Furthermore, in such a context, the owner of the camera could claim ownership of the digital images, along with the competing ownership

445 P. Bernt Hugenholtz 2017 (n 279) 4; for the purposes of the present analysis, the broad definition of Internet of Things ("IoT") outlined by the OECD, 'Digital Economy Outlook' (OECD Publishing 2015) 61 <http://dx.doi.org/10.1787/9789264232440-en> accessed 15 September 2018 will be followed. According to this definition, the IoT encompasses "all devices and objects whose state can be read or altered via the Internet, with or without the active involvement of individuals. This includes laptops, routers, servers, tablets and smartphones, all of which are often considered to form part of the "traditional Internet". However, as these devices are integral to operating, reading and analysing the state of IoT devices, they are included here. The IoT consists of a series of components of equal importance – machine-to-machine communication, cloud computing, big data analysis, and sensors and actuators. Their combination, however, engenders machine learning, remote control, and eventually autonomous machines and systems, which will learn to adapt and optimise themselves".

446 An overview of the public good problem is provided by Wolfgang Kerber, 'A New (Intellectual) Property Right for Non-Personal Data? An Economic Analysis' [2016] GRUR Int 989, 997.

447 The prospect theory was developed by Edmund Kitch, 'The Nature and the Function of the Patent System' [1977] 20 Journal of Law and Economics 265; Josef Drexl 2016 (n 426) 33-34.

448 Wolfgang Kerber 2016 (n 446) 998.

449 P. Bernt Hugenholtz 2017 (n 279) 10.

450 P. Bernt Hugenholtz 2017 (n 279) 10-11.

claim by the authors of the film (music composer, producer, director and scriptwriter).[451] In turn, this would affect the exceptions and limitations under copyright law and the sui generis database right, unless similar exceptions and limitations were introduced for the sui generis data producer's right.[452] For instance, the right to extract and use insubstantial parts of a database by the lawful user regulated under Article 8(1) of the Database Directive could be undermined by the operation of the data producer's right in the individual data. As a final note, Hugenholtz convincingly argues that the fact that the Commission claimed that the subject matter of protection under the new sui generis right only covers syntactic information (not semantic information) would not prevent disruptive overlaps, because in many instances the reproduction of the semantic layer (for example, a film) requires the use of the syntactic layer (such as the digital file in which the film is embedded).[453]

Similar criticism was echoed by stakeholders in the context of the Consultation on the Building a European Data Economy Initiative, where most of the respondents noted that the investment made in the collection of data was sufficiently protected "through the Database and Trade Secrets Protection Directives, requiring no additional regulation".[454] In the same document, it was noted that the majority had submitted that the crucial issue was not to vest ownership rights in raw data, but rather to promote access to the said data.[455]

As a result, in a more recent communication, "Towards a common European data space" the Commission acknowledged the respondent's view and proposed a number of principles that should inform contractual practices in order to ensure "fair and competitive markets for the IoT objects and for products and services that rely on non-personal machine-generated data created by such objects".[456] The five principles that were spelt out refer to: (i) transparency in the access and sharing of data; (ii) the shared value of industrial data; (iii) the need to respect the commercial interests of data holders and data users; (iv) the need to ensure undistorted

451 P. Bernt Hugenholtz 2017 (n 279) 10-11.
452 P. Bernt Hugenholtz 2017 (n 279) 12.
453 P. Bernt Hugenholtz 2017 (n 279) 11-12.
454 Commission, 'Synopsis Report on the Consultation on the Building a European Data Economy Initiative,' 5.
455 Commission, 'Synopsis Report on the Consultation on the Building a European Data Economy Initiative,' 5.
456 Commission, 'Towards a common European data space' COM(2018) 232 final, 9-10.

competition and (v) the need to minimise data-lock in.[457] In addition, due to the dynamic nature of the emerging data markets, further consultations with stakeholders and sectorial measures were announced.[458]

5. Concluding remarks on the treatment of information as property

The analysis conducted above underscores the disruptive effects that the creation of a new IPR covering information as such (raw data at the syntactic level) would have on the protection of information at the semantic level.

IPRs are granted not only as a reward for creators and innovators. One of the main objectives of the intellectual property system is to incentivise the dissemination of information and allow its use for subsequent innovation and creation and, at the same time, foster competition in the market. However, affording protection to abstract ideas and information as such runs counter to the disclosure function[459] and may also have a negative impact on market competition and follow-on innovation. If access to information is essential in order to enter a given market, monopolisation may occur if the law affords protection against such access. As a result, it is crucial that the protection of information and access to it is not regulated in a restrictive manner.[460]

Ultimately, regarding information as the object of a property right may also affect fundamental freedoms such as the freedom of expression and information laid down under Article 10 ECHR and Article 11 of the ChFREU. Even though the ECtHR has stated that the protection afforded under these provisions to commercial speech is less than for political discourse,[461] states cannot impose information restrictions, for instance, by

457 Commission, 'Towards a common European data space' COM(2018) 232 final, 9-10.

458 Commission, 'Towards a common European data space' COM(2018) 232 final, 10-11.

459 Similar criticism has been raised in connection to the sui generis right in the EU created by the Database Directive. In this regard see Estelle Derclaye, 'Intellectual Property Rights on Information and Market Power- Comparing European and American Protection of Database' [2007] IIC 275, 297.

460 Josef Drexl 2011 (n 50) 183.

461 See *Hertel v Switzerland* (1998) 28 EHHR 534.

introducing property rights over information, unless this is mandated by law and appears necessary in the context of a democratic society.[462]

In the light of the above considerations, it appears necessary to find a suitable definition of information vis-à-vis intellectual property and establish clear boundaries between protectable and non-protectable types of information.[463] Indeed, an adequate definition of information should always be contextualised and tailored according to the problem it intends to solve.[464] This is particularly relevant in order to avoid the creation of an exclusive right over semantic information, if none of the utilitarian rationales for intellectual property apply.

In this context, it seems advisable to include a general provision within the acquis communautaire where it is specifically mentioned that abstract ideas and general principles should be free for everyone to use, in order to limit the ever-extending trend of granting proprietary rights over intangible assets without sound justifications.[465] This is also consistent with one of the governing principles of unfair competition, whereby beyond the realm of exclusivity afforded by intellectual property law, any achievement that provides a competitive advantage to its users should be free for everyone to enjoy. In fact, it is a well-established principle that unfair competition is not concerned with valuable achievements, but rather looks into the appraisal of a conduct.[466] Yet again, this raises the issue of defining whether an idea is sufficiently abstract and whether a conduct is contrary to honest commercial practices.

Similar concerns would apply in the event that trade secrets were regarded as the object of an IPR *with exclusive erga omnes* effects. In such a case, the protection of subject matter explicitly excluded by other types of IPRs, such as incremental innovations that do not meet the inventive step test or databases that do not qualify for protection under the two-tier harmonised system of protection, may end up enshrined within the intellectual property system for the mere fact of being kept undisclosed.[467] With these considerations in mind, some of the implications of the interplay between intellectual property and unfair competition in the realm of trade secrets are presented in the following section, in the wake of the TSD.

---

462 P. Bernt Hugenholtz 2017 (n 279) 13-14; in this regard see *Ashby Donald and Others v France* App no 36769/08 (ECtHR, 10 January 2013).
463 Pamela Samuelson 1988 (n 341) 398.
464 Thomas Dreier 2009 (n 395) 37.
465 Also suggested by Séverine Dussollier 2012 (n 397) 35-37.
466 Annette Kur 2014 (n 27) 16.
467 See chapter 1 § 3 B) II. 1.

III. Dissecting the proprietary debate in the light of the harmonised framework created by the TSD

The examination conducted throughout this chapter shows that there is lack of consensus concerning the legal nature of trade secrets. Drawing on the previous analysis, this section outlines some policy considerations regarding the relevance and consequences of characterising trade secrets as a species of IPRs. Even though this debate is mostly of an academic nature, it has important practical implications, particularly as regards the application of the Enforcement Directive and the relevant provisions under the Rome II Regulation.[468] The first topic is discussed in greater detail in chapter 3, where the TSD is analysed. At this point, it suffices to note that only a few EU Member States apply the Enforcement Directive in connection to trade secrets[469] and that the TDS does not clarify its relationship with the Directive already in force.

From a private international law perspective, it is noteworthy that if the protection of trade secrets is regarded as an act of unfair competition, the law applicable to such obligations should be governed by Article 6(2) (together with Article 4) of the Rome II Regulation (i.e. the law of the country where the damage occurs). If, in contrast, trade secrets are deemed to be one of the categories of IPRs, Article 8(1) should be applied (i.e. the law of the country in which protection is sought).[470] The guiding principle pursuant to the Commission's Proposal of July 2003, is that industrial espionage, breach of contract and disclosure of business secrets fall within the categories of bilateral unfair commercial practices regulated in Article 6(2) of the Rome II Regulation, which refers to Article 4 of the same Regu-

468 Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II) [2007] OJ L199/40.

469 Pursuant to the Baker McKenzie, 'Study on Trade Secrets and Confidential Business Information in the Internal Market' (MARKT/2011/128/D) (2013), 26 <http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=8269> accessed 15 September 2018 these countries are Italy, Portugal (to the extent the law implementing the Enforcement Directive is applicable to unfair competition), the Slovak Republic, Romania and arguably also the UK according to *Vestergaard Frandsen A/S v Bestnet Europe Ltd* [2011] EWCA Civ 424 (CA), [56].

470 Annette Kur, Reto Hilty and Roland Knaak 2014 (n 383) para 17.

lation.[471] Following the latter provision, the applicable law is that of the place where the damage occurs (*lex loci damni*) (Article 4(1)).[472] Yet, if the parties have a common residence, the law of that country shall be applicable (Article 4(2)), whereas Article 4(3) introduces a so-called "escape clause" to the previous paragraphs and deems applicable the law of the country that has manifestly the closest connection to the misappropriation of the confidential information.

From a dogmatic perspective, trade secrets present some features that are similar to those of an IPR and at the same time others that are fundamentally different and seem closer to those of unfair competition.[473] Turning first to the similarities, both trade secrets and IPRs protect non-rival and non-exclusive intangible goods. In practice, this may lead to an overlap between the two regimes of protection, as examined in previous sections.[474] For instance, as noted above, copyright and trade secrets overlap in regard to the protection of source code.[475] Also, secrecy can protect technical in-

471 Commission, 'Proposal for a Regulation of the European Parliament and the Council on the Law Applicable to non-contractual obligations ("ROME II")' COM (2003) 427 final, 16; the Proposal notes that even though industrial espionage, breach of contract and disclosure of business secrets may have a negative impact on a particular market, these cases should be regarded as bilateral and not as falling under the more general conflict of law norm laid down in Article 6(1).

472 Christopher Wadlow, 'Trade secrets and the Rome II Regulation on the law applicable to non-contractual obligations' 30 EIPR [2008] 309-319; Valeria Falce 2015 (n 392) 960.

473 Ansgar Ohly 2013 (n 13) 35; Matthias Leistner, 'Unfair Competition and Freedoms of Movement', *Max Planck Encyclopaedia of European Private Law* (OUP 2012) 1718 provides a very illustrative first approximation to the concept of unfair competition. He notes that: "from a European Perspective, 'unfair competition' does not exist as a clearly defined, unitary concept. However, despite all the differences in the scope and characterization, all Member States have developed instruments based on the principle of fairness to control Commercial activities. A common feature of all these mechanisms is the condition that the regulated activities or practices must be of commercial nature. Thus, unfair competition law regulates market behaviour. Beyond this common starting point, a clear-cut demarcation of unfair competition from other fields of law as well as common identification of the objectives of the law of unfair competition can hardly be achieved, given the wide variety of statutes and case law in the Member States".

474 See chapter 1 § 3 A); a detailed account of the overlap between trade secrets and IPRs is provided in Estelle Derclaye and Matthias Leistner, *Intellectual Property Overlaps* (Hart 2011) 21.

475 See chapter 1 § 3 A) II.

formation that actually meets the patentability standards, but for competitive reasons is kept undisclosed. In favour of their characterisation as IPRs, it should be noted that trade secrets can be the object of a licensing agreement and that they can also be sold and assigned.[476] In effect, trade secrets are a very valuable asset for their holders, just like any other IPR.[477] The remedies available in most jurisdictions are similar to those available in the event of IPR infringement.[478] As a final remark, it should be noted that trade secrets protection, just like any other IPR, is subject to limitations. The most widely accepted ones are reverse engineering and independent creation.[479]

Yet, there are also substantial differences. Undisclosed information need not be novel and inventive (as in patent law) or meet a certain originality threshold (as in copyright).[480] Its protection depends to a large extent on the factual assessment of whether the secrecy requirement is fulfilled. Central to the protection of trade secrets in every jurisdiction is that once information becomes generally known it falls into the public domain and thus ceases to be eligible for protection[481] and that secret information must derive independent value from its undisclosed nature, which is frequently expressed in terms of the cost of creation.[482] Crucially, trade secrets do not afford any sort of protection against the independent generation of information.[483] As a result, two competitors may possess the same secret and in both instances be worthy of protection. Information remains free. In contrast, patent law protects against independent creation or reverse engineering of the patented invention. Similarly, copyright protects against the reproduction of the same exact expression, while trade marks preclude the use of identical or similar signs for identical or similar goods and services.

In this regard, it has been suggested that trade secrets are fundamentally different to IPRs, which, by definition, have an exclusive nature. The latter

476 Stanisław Sołtysiński 1986 (n 111) 332 noting that this is the case at least in Switzerland and Germany.
477 *Harte-Bavendamm/*Henning-Bodewig (n 376) §§ 17–19 UWG Rdn 2.
478 A detailed account of the relationship between Enforcement Directive and the TSD is provided in chapter 3 § 5 C) II. 1.
479 Mark A. Lemley 2008 (n 15) 138 purports that conceptualizing trade secrets as IPRs draws attention to the requirements and limitations of trade secrecy law.
480 See chapter 4 § 4 E) II.
481 Ansgar Ohly 2014 (n 100) 3; Tanya Aplin and others 2012 (n 22) chapter 5 on the attributes if confidentiality; also James Pooley 2002 (n 66) § 4.04.
482 Michael Risch 2011 (n 113) 175.
483 This is developed further in chapter 6 § 2 A).

afford absolute erga omnes proprietary rights to their holders if the relevant liability conditions are fulfilled.[484] Indeed, exclusivity is one of the pillars upon which the intellectual property system is built. This is best illustrated by taking the case of patent law, where direct infringement is found irrespective of whether the defendant knew that his behaviour amounted to the violation of a patent right.[485] However, it is also true that other formal IPRs require unlawful action by the defendant as a precondition for finding liability. This is the case in trade mark law, where infringement is subject to creating likelihood confusion by the conflicting sign or taking unfair advantage of the reputation of the registered mark.[486] To be sure, secrecy encourages some degree of exclusivity, as it confers upon its holder the right to restrict others from using the information concerned until it becomes public.[487]

The characterisation of trade secrets as intellectual property ultimately begs the question of whether there is a *numerus clausus* of IPRs, meaning that they must be statutorily recognised, as in the case of property law.[488] In this regard, it is worth noting that intellectual property attempts to strike a balance between two conflicting interests: the interest of holders in protecting their intangible goods, and the interest of the general public in accessing information.[489] From a dogmatic perspective, it has been suggested that case law can ascertain the intellectual property nature of certain legal positions ("*Rechtsposition*") even if these are not statutorily defined, as in the case of trade secrets (or know-how).[490] Yet, access to information can be hindered by the recognition of such new rights. This, in turn may run counter to the general principle that propounds the freedom to imi-

484 Josef Drexl 2009 (n 369) 449.

485 Lionel Bently and Brad Sherman 2014 (n 125) 610; conversely, indirect infringement requires, among others, knowledge by the defendant that the supplied items are suitable and intended for the infringement. For an overview of the requirements for finding indirect patent infringement in Germany see Peter Mes, 'Indirect Patent Infringement' [1999] IIC 531, 535; Neils Holder and Josef Schmidt, 'Indirect patent infringement – latest developments in Germany' [2006] 28 EIPR 480-484.

486 Ansgar Ohly 2014 (n 100) 3.

487 See Mark A. Lemley 2008 (n 15) 122.

488 Ansgar Ohly, 'Gibt es einen Numerus clausus der Immaterialgüterrechte?' 105 in Ansgar Ohly and others (eds), *Perspektiven des Geistiges Eigentums und Wettbewerbsrechts* (C.H. Beck 2005).

489 Ansgar Ohly 2005 (n 488) 107.

490 Ansgar Ohly 2005 (n 488) 114.

tate products in the market, unless covered by an IPR.[491] To avoid such a conflict, Ohly indicates that it is essential that in those areas with legal lacunae, courts weigh the conflicting interests against each other and, only when appropriate, accord legal protection akin to that of IPRs. He is of the opinion that such a judicial practice would allow for delineating in a more precise manner the contours of permitted and forbidden acts of imitation, rather than restricting in general the possibility of copying in the market.[492]

With respect to the consequences of expanding the scope of intellectual property rights, many have propounded that in recent decades we have witnessed a hypertrophy of IPRs.[493] Most notably, at the turn of the century, Cornish warned that "the expansion of IPRs is not an automatic good".[494] Property rights confer upon their owners broad exclusivity to realise the "economic potential" of the protected good and enforce it against third parties, without the limitations posed by unfair competition and equity rules.[495] In this context, characterising trade secrets as an IPR may amount to an expansion of intellectual property law by expanding the scope of the subject matter covered by IPRs, as in the case of the protection of databases through copyright law. Such an expansion may further lead to restricting lawful uses of confidential information.[496]

On the contrary, some commentators have purported that including trade secrets within the realm of IPRs would in practice constrain, rather than expand, the scope of protection, by attaching sound limitations to the exercise of the rights conferred, such as reverse engineering, independent discovery or whistle-blowing.[497] In this regard, Bently argues that from a taxonomic perspective, "intellectual property" has become a separate category, different to property as such. Owing to its novel status, its contours are imprecise, as are the consequences that derive from attaching such a label, which are different to those derived from traditional property rights. He thus concludes that trade secrets are intellectual property, but not property.[498]

---

491 Michael Dorner 2013 (n 305) 313-314.
492 Ansgar Ohly 2005 (n 488) 121.
493 Michael Dorner 2013 (n 305) 313-318.
494 William Cornish 2001 (n 373) 21.
495 William Cornish 2001 (n 373) 16-17.
496 Michael Dorner 2013 (n 305) 313-314, 317.
497 Lionel Bently 2013 (n 307) 92; also Mark A. Lemley 2008 (n 15) 353; Charles Tait Graves 2007 (n 337) 45.
498 Lionel Bently 2013 (n 307) 89-91.

On the basis of the foregoing analysis several conclusions can be drawn. First, applying the metaphor of property to trade secrets is a complex matter, mainly due to the broad meaning and flexible interpretations that the different jurisdictions give to the concept. Finding a universal consensus on the legal nature issue appears rather implausible.[499] It is submitted that trade secrets regimes are bound to sit on the fence between unfair competition and intellectual property law. Ohly refers to the entitlement of a trade secret "as an imperfect form of intellectual property".[500] After all, the TRIPs Agreements conceptualises undisclosed information as one of the "categories of intellectual property" that fall under their scope of protection. Thus, it seems advisable and consistent with the TSD that no legal consequences derive from the characterisation of trade secrets either as the object of an IRR or as protected under unfair competition rules.[501] In the former case, trade secrets protection should not be enhanced by those Member States that adopt a property-oriented approach, particularly in the assessment of the lawfulness of the means used to acquire, use and disclose the information concerned and the liability of third party acquirers and employees. By the same token, the existing limitations to the rights conferred by a trade secret should always be observed.[502] Otherwise, the balance of interests struck by the patent system (and also the general intellectual property legal framework) will be negatively affected to the detriment of the general interest in accessing information.[503]

§ 4 Conclusion

The starting point in the examination of the optimal scope of secrecy is to understand the extent to which valuable information merits protection for the mere fact of being kept secret. To this end, § 2 has underscored that both deontological and utilitarian explanations justify trade secrets legal regimes. Yet, it is submitted that utilitarian rationales provide more convincing grounds, particularly with regard to the configuration of the rights conferred. As noted by the Commission, "every IPR starts with a secret".[504]

499 This was best illustrated during the negotiation of the TRIPs Agreement.
500 Ansgar Ohly 2013 (n 13) 35.
501 Ansgar Ohly 2013 (n 13) 35.
502 Ansgar Ohly 2014 (n 100) 4.
503 Tanya Aplin 2015 (n 306) 435-436.
504 Commission, 'Proposal for a Directive of the European Parliament and of the Council on the protection of undisclosed know-how and business information

Drawing on the statement above, § 3 has looked into the legal nature of trade secrets following a two-tier approach. On the one hand, the relationship between trade secrets and formal IPRs has been examined with regard to patents, copyright and the database right. The results of this enquiry highlight that the former supplement the patent system in a number of ways and are crucial not only in early-stage inventions (the so-called "Laboratory Zone"), but also when innovations can be protected simultaneously by informal and formal means. Yet, the assessment of the interplay between patents (but also copyright and the database right) and trade secrets appears more problematic when they are mutually exclusive. Indeed, data shows that secrecy is the preferred option to appropriate returns on innovation, together with other informal means of protection, such as lead time advantage or product configuration. Hence, throughout chapter 1, it has been argued that resorting to secrecy for the protection of patentable subject matter may have a negative effect on the disclosure function on which the patent system (and in general the intellectual property system) is built, and may lead to a wasteful duplication of efforts, hinder the competitive process in the market and ultimately affect negatively follow-on innovation. Against this background, it has been suggested that trade secrets protection should not extend to mere abstract ideas, in line with the limitations set forth in the realm of formal IPRs.

Bearing the above in mind and following the analysis of the legal nature of trade secrets, this chapter has looked into the suitability of characterising trade secrets as pure IPRs or rather as falling into the realm of unfair competition rules and the implications that such a characterisation may have on the appropriate scope of secrecy. The better view, it is submitted, is that the legal system for the protection of trade secrets has an inherently hybrid nature. The relevant liability rules appear to be drafted as unfair competition norms, whereas their enforcement resembles that of IPRs. In this vein, it is argued that no legal consequences should derive from characterising trade secrets protection as one or the other, i.e. the scope of protection should not be enhanced if trade secrets are regarded as IPRs.

On the basis of the foregoing analysis, chapter 2 first looks into the minimum standards of protection set forth in the applicable multilateral international treaties (i.e. the TRIPs Agreement and the soft law WIPO Model Provisions) and then examines the main features of the U.S. legal regime, which has had a great influence on the development of trade secrets pro-

(trade secrets) against their unlawful acquisition, use and disclosure' COM (2013) 813 final, 2 (Explanatory Memorandum).

tection in most EU jurisdictions and, in particular, in the configuration of the minimum standards of protection set forth by the TSD.