# Study on Trade Secrets and Confidential Business Information in the Internal Market

**Final Study**

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## Executive Summary

### 1. Scope of work

This Study investigates the legal and economic structure of trade secrets protection in the European Union. Extensive surveys of the economic literature and of the legal framework in Member States are matched by a comparative analysis with advanced economies representing different economic, legal and political models, namely Switzerland, the United States of America and Japan. Our research is complemented by a statistical on-the-field survey on the perceived needs of European businesses, stratified across industry sectors and business dimensions. Based on the results of this combined analysis, the Study describes the current fragmented scenario, its commonly perceived weaknesses and the widespread appetite for a harmonized approach. The final recommendations advocate for legislative initiative on trade secrets protection at the EU level and highlight the areas where intervention would be most beneficial in terms of balanced economic growth and competitiveness for the Internal Market.

### 2. Trade secrets from an economic perspective

#### 2.1 Trade secrets crucial for innovation

The protection of trade secrets is a well established concept[1], functionally related to the impact of innovation in the evolution of the economy. Starting from the 19th century[2], the industrial revolution urged law makers to shape the notion of trade secrets as a specific asset deserving legal protection. Over the decades and until the emergence of the new economy, the different sensitivity of legislators determined a heterogeneous and patchy evolutionary path mirroring the local economic context. Not surprisingly, the rise of the global information society has given a new boost to the role of trade secrets and has generated the demand for a uniform standard of protection across national boundaries.

In today's economy, information and know-how - representing the result of R&D investments, creativity and business initiative - have become the key factors for developing and maintaining competitive advantage. One of the peculiar features of trade secrets is their high degree of pervasiveness, in the sense of being potentially relevant for virtually all businesses. Firms use trade secrets regardless of their business sector or size, often not even being themselves aware of their reliance on such intangibles. In this scenario, a very large number of firms across all industry sectors adopt pragmatically the oldest, and apparently simplest, mechanism to protect such strategic assets: that is, they keep them secret.

Probably the peculiarity of trade secrets is that they are the most intangible among intangible assets. Considered as an ancillary part of, or excluded from, traditional intellectual property (IP) rights, trade secrets are not easy to categorize because they result from the combination of different types of technical and commercial information. Technical secrets may include drawings and designs, prototypes, manufacturing processes, not patentable or not patented inventions, know-how, formulae or recipes, genetic materials and fragrances; whereas commercial secrets may consist of customer and supplier lists, business methods and strategies, and cost and price information.

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[1] Some authors root the first legislative provision in the Roman period: see A. Arthur Schiller, "*Trade Secrets and the Roman Law: The Actio Servi Corrupti*" 30 Colum. L. Rev. 837 (1930). *Contra*: Prof. A. Watson, University of Georgia Law School "*Trade Secrets and Roman Law: the Myth Exploded*" (1996). *Scholarly Works.* Paper 476.

[2] See in 1817, England - *Newbery* v. *James*, 35 Eng. Rep. 1011 (Ch. 1817); and in 1837, the United States - *Vickery v. Welch*, 36 Mass. (19 Pick.) 523 (1837).

Although difficult to frame within a rigid definition, the recurrence of certain elements identifies the object of protection: trade secrets include any information that has an economic value, *i.e.* in which the owner has a reasonable exploitation interest, that is kept confidential and protected through proper measures.

2.2 Economic literature review

Trade secrets are valuable business assets to both innovative and non-innovative firms. As valuable business assets, trade secrets play an important role in economic growth and fostering innovation.

The economic studies summarised in our survey indicate that innovative firms, rather than relying exclusively on patents and other formal IP rights, often choose to protect innovations (and the returns to innovation) using trade secrecy. Trade secrets protection is perceived as both complementary and supplementary to the protection available through other means. A consensus among economists has emerged that trade secrets play an important role in protecting the returns to innovation and that trade secret protection is an integral and important part of the overall system of protection available to EU firms to protect their intangible assets, like patents and copyrights.

The economic literature that we surveyed for this Study found empirical support for the view that trade secrets are important to most, if not all, industries. However, the importance of trade secrets compared to patents, copyrights and other, less formal, market strategies varies by industry sector.

The bulk of the available empirical evidence relates to the manufacturing sector, where economists have conducted numerous surveys of firms regarding the importance of trade secrets in appropriating the returns to innovation investments. Secrets are ranked as better protection mechanisms than patents, in particular with regard to process innovations. Although more limited in depth and scope, economists' analyses suggest that trade secrets are also important to service sectors, particularly business services such as advertising and marketing, business consulting, financial services, and other miscellaneous business and consumer services. Empirical evidence prompts, in addition, that trade secrets are important to both wholesale and retail trade as well.

Trade secrecy plays a key role in a variety of innovation environments, including market conditions where technology evolves quickly, where inventions may (and do) occur simultaneously, where innovations occur in a cumulative manner, where combinations of trade secrets, patents, and other forms of intellectual property are embedded in "complex" products, or in circumstances where patent rights are considered weak. With specific focus on small and medium-sized enterprises (SMEs), trade secrets appear of particular importance because innovation in this segment tends to be more incremental in nature and of core significance to firm value and performance. The higher perceived cost of patent ownership and the material impact that disclosure may have on SME firm value and performance encourage use of secrecy as a protection mechanism.

Although trade secrets law may appear to encourage an excessively proprietary approach and the creation of barriers resulting in market inefficiency, commentators argue that effective legal protection encourages efficiency and circulation of innovative information. Policy objectives are accomplished through at least two separate channels: (1) trade secrets law serves as a partial substitute for excessive investments in physical security; and (2) trade secrets law facilitates disclosure in contract negotiations over the use or sale of know-how that otherwise would not occur in the absence of such protection.

The obligation of firms to take reasonable steps to protect trade secrets is an integral part of the trade secret protection scheme. Although economists have not performed

extensive studies of the costs incurred by firms to protect trade secrets, the measures required to firms to prevent disclosure of trade secrets, such as sophisticated IT controls, investments in physical security, management of employee contract arrangements, etc., are undoubtedly costly and distract management from the day-to-day operation of the business. Trade secret protection policies that help to reduce the resources expended by firms on such controls assist firms in maximising the returns to innovation investments. Considered in this light, trade secret protection plays an important role in innovative efficiency and encouraging the disclosure and dissemination of inventions beyond levels that would not be overcome were this protection not available.

The conference organised on 29 June 2012 in Brussels by the European Commission - DG Internal Market and Services - on "*Trade secrets: Supporting innovation, protecting know-how*" represented a useful exercise of consultation with the industry on the issue of protection and value of trade secrets. The results of this active interaction with the stakeholders have confirmed most of the issues that have come up from our literature review.

Based on the surveyed economic literature and public consultation, we conclude that there are clear economic justifications for granting legal protection to trade secrets and confidential business information. A sound legal environment to protect trade secrets would contribute to fostering innovation by EU firms. Trade secrets and their protection appear to be important to all business sectors, reflecting their pervasiveness and importance to virtually all firms in EU Member States, regardless of their size, as relevance of trade secrets is acknowledged with the same level of importance by large as well as medium and small firms. Trade secrets protection both complements and supplements the protections offered by patents, copyrights and other protection mechanisms.

## 3. Trade Secrets from a Legal Perspective

### 3.1 Civil Law, Unfair Competition, IP and Commercial Law

#### *Lack of a uniform legal regime within the European Union*

As a consequence of historical evolution, the current situation at the EU level is that the legal protection afforded by Member States to trade secrets varies significantly notwithstanding legal instruments already in place at the international level to foster uniform standards of protection. The World Trade Organisation's 1994 TRIPS Agreement aims at reducing distortions and impediments to international trade by providing adequate standards and principles concerning the availability, scope and use of trade-related intellectual property rights as well as effective and appropriate means for their enforcement. To this effect Article 39 of TRIPS sets out minimum levels of protection for intellectual property rights of WTO Members and Article 39.2 represents the pillar for the protection of trade secrets internationally providing a definition of trade secrets, together with a range of enforcement mechanisms and remedies[3]. However, this potentially

[3] Remedies include: (i) measures to obtain and preserve evidence (Article 43); (ii) injunctions prohibiting infringements and, inter alia preventing the entry into the channels of commerce in their jurisdiction of imported goods (Article 44); (iii) award of damages and payment of the plaintiff's expenses (Article 45); (iv) disposition of infringing goods outside the channels of commerce or their destruction (Article 46); (v) the right to obtain information from the infringer on the identity of third persons involved in the production and distribution of the infringing goods or services and of their channels of distribution (Article 47) and (vi) provisional measures, in particular those aimed at preventing the entering of infringing goods in the channels of commerce including imported goods immediately after customs clearance (Article 50).

common benchmark does not effectively serve the purpose of fostering uniformity because it has not been fully adopted, or has been adopted with different specifications and implementation details. Except for France and Romania, there is currently no proposal for new legislation on trade secrets in any Member State.

In order to identify the best way to a common legal platform, this Study analyses the different approaches to trade secrets protection in each Member State.

*Legal protection models: dedicated vs. general legislation*

Within the EU, Sweden deserves a specific mention as the only country with *ad hoc* legislation on trade secrets. All the other Member States offer protection to trade secrets through different pieces of civil and criminal legislation. Countries such as Austria, Germany, Poland and Spain strongly rely on unfair competition law, while Italy and Portugal have specific provisions on the protection of trade secrets included in their respective Codes of Industrial Property. France has specific provisions on the protection of manufacturing trade secrets also included in its Code of Industrial Property. Tort law is also widely used to protect trade secrets, and particularly in the Netherlands and Luxemburg represents a preferred option. Tort law principles usually assist for purposes of quantification of damages in the form of *damnum emergens* and *lucrum cessans*. In common law countries such as the UK and Ireland, lacking any specific legislation, trade secrets are effectively protected by the common law of confidence and by contract law. This is the case also for Malta.

Most Member States - with the exception of Cyprus, the Czech Republic, the Republic of Ireland, Luxemburg, Malta and the UK - have specific provisions on trade secrets in national labour laws or in their Civil Codes. Indeed, misappropriation by disaffected employees is widely recognized as a critical area for trade secrets protection. The minimum common standard is prevention of trade secrets and confidential business information disclosure by employees (at least) during the employment relationship.

The key role played by trade secrets is confirmed by the circumstance that Member States without specifically dedicated provisions on trade secrets felt anyway the need to rule and protect them through alternative legal tools. In fact, most jurisdictions involved in this Study show a propensity to grant protection to trade secrets, more or less extensively and through the use of a variety of legal tools. But, notwithstanding the availability of protection on a country by country basis, fragmentation is negative *per se*. From the right-holders' perspective, the uncertain and uneven legal regime makes trade secrets management and enforcement on an EU scale opaque and costly to handle. Even before evaluating the legal remedies possibly available, just identifying what is protectable as a trade secret in one or another Member State may present a difficult task. From the policymaker perspective, this directly impacts on the propensity to invest in innovation in a Single Market dimension.

*No uniform definition of trade secrets*

The first and most immediate consequence of the lack of a common legal framework is that no uniform definition of "trade secrets" exists within the European Union. Indeed, even Member States that have specific provisions on civil redress and protection against misappropriation of trade secrets, fail to provide a definition of what information may be protected as a trade secret (only ten among Member States having specific legislation/provisions on protection of trade secrets also captured a definition of trade secrets). As a result, each jurisdiction has adopted different eligibility standards for information to qualify as trade secrets. In addition, even within the same jurisdiction, definitions are often spread over different pieces of legislation, which makes it more difficult to reconcile them in a unique and clear concept.

Specific statutory definitions can only be found in the Swedish trade secrets law, in the Italian and Portuguese Codes of Intellectual Property and in the unfair competition laws of the Bulgaria, Czech Republic, Greece, Poland and the Slovak Republic. In Hungary and Lithuania, the statutory definition is set out in their respective Civil Codes. In Slovenia, a definition is included in the Companies Act. Where a formal definition of trade secrets is not provided, the notion is derived from case law and jurisprudence: this is the case in Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, The Netherland, the Republic of Ireland, Latvia, Luxemburg, Malta, Romania, Spain and the UK.

Despite the lack of a uniform definition, the review of the different notions adopted in the Member States has shown the recurrence of certain common requirements to qualify information as trade secrets, *i.e.* (i) it is technical or commercial information related to the business; (ii) it is secret in the sense that it is not generally known or easily accessible; (iii) it has economic value consisting of conferring a competitive advantage to its owner; and (iv) it is subject to reasonable steps to keep it secret.

However, alongside such common denominator, definitions present divergences and require particular constitutive elements. While most Member States make a reference to the need of information to have a commercial or economic value, some other Member States have instead a reference to the interest of the trade secret holder. Bulgaria requires that "*the secrecy serves the interests of the parties concerned*"; while in Hungary publication, acquisition or use of a trade secret by an unauthorized person is prohibited if this violates or imperils the financial, economic or market interests of the owner. The Swedish Trade Secrets Act requires damage, adding up its qualification as "competitive" damage. By contrast, the definition in the Slovak Commercial Code contains no reference to the damages element. In Slovenia, information is deemed to be a trade secret if qualified as such by a corporate written resolution. The Lithuanian Civil Code includes in the definition a peculiar specification stating that "*the information that cannot be considered commercial(industrial) secret shall be determined by law*".

*Actions and remedies available*

A second material consequence of the absence of a common legal framework is that actions available in case of trade secrets violations, as well as the related prerequisites, vary in each Member State. Generally, in order to successfully bring a civil action for violation of trade secrets, evidence must be provided of: (i) the existence of a protectable secret; (ii) the infringement of the same; and (iii) the unlawful nature of the misappropriation or use by the defendant. Additional requirements may need to be fulfilled, depending on the nature of the action. Where actions are brought in tort, the plaintiff must prove the defendant's fault, the damage suffered by virtue of the infringement and the causal link between infringement and damage. In case of an unfair competition action, the plaintiff is usually required to provide evidence of the infringer's intention to compete with the owner of the secret information. If the action is based on breach of contract, the plaintiff must quite obviously demonstrate the existence of an actionable contractual obligation and its breach.

Other requirements may apply depending on the individual capacity of the person targeted by the action, *e.g.* current and former employees, licensees and contractual partners, competitors, or third party recipients in good faith ("innocent recipients") or bad faith (e.g. in case of industrial espionage). In this regard, we noted again that there is no consistency among Member States' laws: in some countries[4], an action can be brought against anyone who obtained the information, even if in good faith (although

[4] Austria, Czech Republic, Denmark, Estonia, Finland, Germany, Republic of Ireland, Latvia, Lithuania and Portugal.

damages are unlikely to be awarded in this event); elsewhere[5], the trade secrets owner is able to take legal action only for breach of contractual obligations.

A point to be underlined is that there is no clear answer as to whether trade secrets are considered as intellectual property under national legislation. It must be noted that such qualification triggers application of the IPR Enforcement Directive (EC/2004/48), but this does not automatically entail the creation of a uniform remedial system due to the different forms of implementation adopted in Member States. Even where remedies for trade secrets infringement under national laws are similar to those applicable for ranked IP rights under the Directive, Courts are reportedly less inclined to apply them if no ranked IP right is violated. Thus, qualification of trade secrets as IP seems to make a practical difference (in this respect, see below the discussion on *Factors impairing enforcement*) even if it does not represent *per se* a comprehensive solution.

Available remedies include injunctive relief, return/seizure/withdrawal/destruction of infringing goods or materials embedding trade secrets, restraint orders, penalties and damages. Publication of the decision is also available in most Member States[6]. Out of this list, the remedies most commonly applied in Member States Courts' practice are injunctions and damages. Return, destruction, seizure or withdrawal seem to be rarely ordered by Courts. All such remedies are usually available at the interim stage of legal proceedings, but rarely granted *ex parte* (*i.e.* without first summoning the adverse party) due to a very high burden of proof. Indeed, proving infringement is reportedly one of the main hindrances that the trade secrets owner faces in seeking protection; hence, lack of evidence is the usual reason for case dismissal.

Despite common features, when treating trade secrets fragmentation is the key word also regarding remedies. In Bulgaria, Cyprus, Estonia, Finland, Luxemburg and Malta the only remedies are injunctions and damages: return/destruction/withdrawal/seizure of infringing goods are not available. Restraint measures and penalties are not foreseen in Denmark, Estonia, Germany, Hungary, Republic of Ireland, Latvia, Malta, Portugal, Romania, Slovakia, Slovenia, Spain and the UK. Measures to secure evidence - like *ex parte* search orders for premises and IT systems, or disclosure orders - are available in only some countries (Austria, Bulgaria, Cyprus, Finland, France, Germany, Greece, the Republic of Ireland, Latvia, Lithuania, Luxemburg, the Netherlands, the Slovak Republic, Slovenia, Spain, Sweden and the UK) and often not accompanied by effective coercive powers to force the defendant to comply.

*Factors impairing enforcement*

The main factor that hinders enforcement of trade secrets in Court derives from the lack of adequate measures to avoid trade secrets leakage in legal proceedings. This issue is key, because typically the plaintiff must substantiate its claim by disclosing the allegedly infringed trade secret[7]. Civil proceedings in all Member States are public and national procedural laws include provisions which allow courts to exclude the public from the hearing only for reasons relating to security, public order and decency. The right for a party to request that the entire proceeding or a part thereof be heard in private to

[5] Malta.

[6] Exceptions are Austria, Cyprus, Estonia, Germany, Greece, Republic of Ireland, Latvia, Lithuania, Malta, Slovenia and Sweden. Only in Italy, Belgium and France is publication of the decision also admitted in interim relief proceedings.

[7] The fear of losing control of trade secrets in the course of Court proceedings has been reported in particular by firms operating in the pharmaceutical, automotive, IT and chemical sectors. These are also the industries where companies appear more sensitive and reactive to trade secret misappropriation.

preserve confidentiality of the trade secrets exists only in a few jurisdictions (Bulgaria, Estonia, Hungary, Germany, the Netherlands, Poland, Romania, Slovakia, Slovenia). But even where this possibility theoretically exists, it is seldom applied in practice and no case law is reported on this point. Only Hungary (through *in camera* proceedings), Germany (through the so-called "Düsseldorf procedure") and the UK (by means of specific agreement between the parties limiting the duty of disclosure) seem to have in place effective procedural measures to prevent disclosure of trade secrets in the course of civil proceedings.

Another factor impairing enforcement – again, strictly related to the fact that trade secrets are not ranked as IP rights – is the general impossibility of enforcing a trade secret against a third party who obtains the information in good faith, unless the third party has acquired or used the secret information negligently (*i.e.* in breach of the ordinary duty of care). As a general rule, a key requirement to bring a civil action for trade secret infringement is indeed misappropriation or unlawful use of the secret information, or at least the knowledge that the information is confidential[8]. In most Member States the owner of a trade secret has no action at all against third parties acting in good faith; exceptions are limited to Austria, the Czech Republic, Denmark, Estonia, Finland, Germany, the Republic of Ireland, Latvia, Lithuania and Portugal, where remedies are potentially available regardless of the recipient's good or bad faith.

The foregoing considerations give a sense of how difficult may be the position of a trade secrets owner intending to enforce its trade secrets. The inherent difficulty of building a case against the relevant adverse party in terms of qualification of right and burden of proof is aggrieved by the risk of losing control over trade secrets for lack of efficient protection during the court proceeding. The perceived weakness of the protection offered by the EU legal system at large is confirmed by the disinclination of trade secrets owners to resort to Courts. Evidence of this emerged from our survey on the relevant European case law from a twofold perspective: limited trade secrets cases reported throughout the Member States and the virtual absence of cross-border litigation[9].

3.2 Criminal Law

Criminal law plays an important role in the protection of trade secrets. Although almost all the legal systems analysed establish provisions in this respect, due to the lack of a common EU framework criminal protection differs among Member States on several levels. Likewise civil law, the first factor of divergence is the lack of a common definition of trade secrets: as a consequence, the extent to which violations of trade secrets are criminalized varies significantly.

In Member States that do not have criminal provisions on trade secrets infringement - specifically, Bulgaria, the Republic of Ireland, Malta and the UK - general criminal offences such as those against theft, misappropriation and unauthorised access may be applied. Most Member States (Austria, Cyprus, the Czech Republic, Denmark, Finland, France, Germany Greece, Portugal, Romania, Spain and Sweden) provide for an extensive criminal framework specifically devoted to trade secrets violations, including against disclosure, misappropriation, use or other infringement. Criminal penalties for

[8] In Italy the owner of the trade secret may launch proceedings for trade secret infringement and unfair competition only if the recipient was aware of the misappropriation. In the United Kingdom a duty of confidentiality may be implied by the circumstances, but a person who innocently receives confidential information will not be under a duty of confidentiality until he is made aware that the information is confidential.

[9] Among the companies interviewed (537 respondents in total), out of 57 companies which have been able to obtain an injunction order, 26 started a cross-border enforcement and only 10 were successful in all Member States involved.

trade secrets protection are set forth also under unfair competition law in Austria, Cyprus, the Czech Republic, Denmark, Germany, Greece, Poland and Romania.

Regardless of the existence of rules dedicated to trade secrets infringement, the conduct of the offender may also fall under the remit of other offences. Of course, application of general offences may not fit specifically to trade secrets protection and may result less effective. In Belgium, Bulgaria, Cyprus, France, Germany, Greece, Hungary, Italy, the Netherlands, Portugal and Romania certain criminal provisions also punish infringements of specific categories of secrets, *e.g.* office secrets that are connected to the specific qualification of the offender or to the nature of the information that is covered by secrecy. Even though such offences do not directly refer to trade secrets, they are part of a wider legal framework applicable under certain circumstances.

Member States' common legal basis to punish trade secrets infringement with criminal sanctions lays in the protection of the following legitimate interests: protection of the owner's right to exploit the confidential information and to gain, as a result, an advantage over competitors, the company's "right to privacy", and the proper functioning of the market.

In general, criminal provisions on trade secrets violation do not pose as a prerequisite that the owner had specifically identified the information as confidential. In all Member States application of criminal protection is afforded subject to an objective test *i.e.* the secret information must be such that the owner has a reasonable and objective interest to exploit in an exclusive way in order to gain a competitive advantage in the relevant market.

Trade secrets misappropriation is in general punished under criminal law with fines and imprisonment. Such penalties may apply jointly or alternatively, except that Hungary, Italy, Lithuania, Slovakia and Slovenia only provide for imprisonment of the offender, whereas in the Czech Republic only monetary penalties and, where possible, forfeiture of property apply.

Within Member States imprisonment normally lasts up to two or three years, but the span of applicable imprisonment sanctions is fairly wide and ranges from months (e.g. one in Poland; three in Greece) to years (four years in Spain, five years in Slovenia, seven years in Romania, the latest for information known as a result of previous employment).

As to monetary penalties, the relevant amount widely varies from case to case. In some countries (Austria, Cyprus, Germany and Slovenia) claims for compensation cannot be filed within criminal proceedings.

Criminal court proceedings present a certain degree of consistency in Member States, in line with the more uniform legal background existing in criminal procedure. However, differences exist for trade secrets misappropriation: proceedings can be initiated *ex officio* by the public prosecutor in Belgium, Bulgaria, the Czech Republic, Cyprus, Estonia, France, Hungary, Lithuania, Slovakia, Slovenia and Sweden; while in others commencement of criminal proceeding is *ex parte* by the aggrieved person e.g. Austria, Denmark, Finland, Germany, Greece, Italy, the Netherlands, Poland, Portugal, Romania and Spain.

In certain cases, if the public prosecutor dismisses the case, private prosecution may be pursued. Differences among Member States are minimal. Czech Republic, Lithuania, Poland and Slovakia provide for thresholds on the damages caused as a condition for criminal prosecution.

When a trial is commenced, reportedly the public prosecutor is not subject to special requirements regarding the type of evidence brought before the Court to prove the offence. In some jurisdictions (Cyprus, Finland, Italy, Lithuania, Malta, Sweden and the UK), general principles of criminal procedure require the prosecutor to bring evidence to the Court that the offender committed a trade secret violation "beyond any reasonable doubt". It is for the prosecutor to provide evidence to demonstrate that an offence occurred. Thus, injunctions and orders to seize or search are widely available to the prosecutor in the course of the proceedings, except that precautionary measures are not available in Austria, Latvia and Romania. Only a few jurisdictions (Bulgaria, Greece, Poland, Portugal and Slovakia) provide the aggrieved person with the power to apply for an *ex parte* order in this respect, as criminal proceedings are generally understood as a matter of public policy where the participation of individuals is limited.

Another point of uniformity is that under criminal provisions of most Member States, there is no reference to specific qualifying features for the infringer's conduct. In addition, parties handling the information (such as employees of a company) need not to be subject to a duty of confidentiality. However, most of the provisions establishing criminal penalties require that the offender acted with intent, while negligent conduct, on the contrary, does not amount to a criminal offence and its relevance is limited to exceptional cases - this is for example the case in Belgium, Estonia and France.

It should be mentioned that Member States' criminal laws aimed at protecting trade secrets usually extend to cover also the attempt to infringe trade secrets, which is therefore punished as such. An attempt, based on the commonly acknowledged notion, includes any act that does not constitute an actual infringement because the advantage pursued by the offender is not achieved, but that is nevertheless such to "put at risk" the confidentiality of the information. Attempts are criminalised in the same manner as actual infringements, even if applicable penalties are normally reduced.

Several Member States (Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Hungary, Latvia, Luxembourg, the Netherlands, Poland, Romania, Slovenia, Spain and the UK) provide for corporate criminal liability for trade secret violation committed on behalf or for the benefit of a company.
Penalties for companies include fines, the amount of which depends on how serious is the breach and/or the value of the advantage gained/damage caused. In Belgium, Hungary, Latvia, Luxembourg, Romania, Slovenia and Spain disqualification penalties may apply, such as the liquidation of a company, confiscation of property, or ineligibility for certain activities.

Since the misappropriation of a trade secret is normally aimed at the subsequent exploitation of the same by someone other than the perpetrator (a company), the characterization of the offence (also) as an "economic crime" is key to preventing competitors from obtaining an advantage on the relevant market. Without prejudice to other civil remedies, the existence of divergences among Member States' legislation has a critical (negative) impact and harmonization would provide an immediate beneficial effect in this context.

### 3.3 Competition Law

Our country reports indicate that there are no substantive provisions specifically referring to trade secrets in Member States' competition laws. At EU level, the Transfer of Technology Block Exemption Regulation EC/772/2004 and the Research and Development Block Exemption Regulation EC/1217/2010, both recognize the relevance of trade secrets. The licensing of trade secrets - unless the licence agreement contains classic cartel provisions such as price fixing, allocation of markets and output limitations - is generally pro-competitive as it helps to disseminate innovation. However, the analysis of the EU legal framework shows that competition law may come into play

whenever the use of trade secrets is likely to generate anticompetitive effects. Such cases would normally not involve the use of legal mechanisms to redress misappropriation, but rather practices such as a refusal to deal or discriminatory contracting policies by the trade secrets owner. In particular, an issue under competition law may arise when access to the trade secrets is crucial to market entry and the trade secret holder is in a dominant position. Having said that, the number of decisions adopted by National Competition Authorities in relation to trade secrets is very limited. This suggests that only in very exceptional cases are trade secrets considered the cause of serious competition problems.

It should be however noted that due to the lack of uniform standards of trade secrets protection and of a generally accepted concept of trade secrets within Member States, certain interactions between competition law and trade secrets remain opaque and may generate confusion for market players. This applies in particular to unilateral practices implemented by dominant undertakings: undertakings have no clear indication as to the conditions under which a refusal to provide access to a trade secret might be deemed illicit (if at all) under competition law rules. The question of what exactly is the standard of competition law intervention in relation to unilateral practices involving trade secrets - and in particular whether this standard has to mirror the test elaborated for cases involving refusal to licence intellectual property rights, which is considered abusive only in very specific circumstances - is still open, since the existing decisions dealing with competition law issues involving trade secrets have not sufficiently clarified this aspect.

Legal certainty is harmed by this lack of clarity, since National Competition Authorities may apply different tests to similar cases. Indeed, it can not be excluded that undertakings enjoying a dominant position (possibly because of their innovations) and protecting innovations through trade secrecy may be forced to disclose their trade secrets to other companies, even in circumstances where the disclosure of IP rights would not be requested by competition Authorities. Such a situation certainly impacts on the propensity of firms to invest in R&D and innovation resulting in trade secrets. In this respect further clarity on the standard of intervention for competition law in cases involving trade secrets, particularly in refusal to supply cases, is needed. A common notion of trade secrets, and a clear indication of whether they constitute intellectual property rights, would clarify the issue of antitrust interference and the room for intervention by Competition Authorities in cases where access to trade secrets operates as a decisive factor of market access.

## 4. Legal framework outside the EU: USA, Japan and Switzerland

Stepping outside the boundaries of the European Union, this Study analyses how trade secrets are governed and ruled in Switzerland, the United States and Japan.

### 4.1 IP and Commercial Law

The US has a specific law on trade secrets, adopted by almost all the States[10], while Japan and Switzerland rely on specific provisions contained in their respective unfair competition laws.

The US Uniform Trade Secrets Act[11] and the Japanese Unfair Competition Prevention Act[12] contain a statutory definition of trade secrets and expressly attach to trade secrets

[10] In 1979, the National Conference of Commissioners on Uniform State Laws proposed a uniform law on trade secrets, the Uniform Trade Secrets Act. Almost all States, the District of Columbia, Puerto Rico, and the US Virgin Islands have adopted the Act. At the time of writing, the States of New York and Texas have not enacted the UTSA but rely on common law.

the nature of IP rights. US and Japanese statutes also provide a detailed description of the conduct which amounts to trade secrets misappropriation and/or unfair competition.

On the contrary, Switzerland does not consider trade secrets as IP rights and has no statutory definition; however, a certain degree of uniformity is ensured by case law and scholars based on the identification criteria set forth under Article 39.2 of TRIPS.

The existence of such specific legal frameworks in the US, Japan and, to a more limited extent, Switzerland is accompanied by greater clarity - as compared to the generality of Member States - on the civil remedies available to a trade secret owner. Besides the common remedies of injunctions to cease infringement and damages, US trade secrets owners are also entitled to seek temporary restraining orders from Courts with the purpose of preserving the status quo and preventing irreparable harm during the time necessary to hold a hearing. However, temporary restraining orders are not designed to procure misappropriated data for the plaintiff or locate the whereabouts of information. The US system also provides an administrative remedy consisting of the possibility to file a complaint with the US International Trade Commission to prevent importation of products made using misappropriated trade secrets.

As in most EU Member States, in the US and Japan plaintiffs do not generally have a claim for trade secret misappropriation against a third party who innocently obtains trade secrets, as long as the third party discontinues its use of the information once made aware of the infringement. On the other hand, Switzerland allows actions for trade secrets misappropriation regardless of the good or bad faith of the third party, but damages are unlikely to be awarded in such cases.

4.2 Criminal Law

From a criminal law perspective, all of the US, Japan and Switzerland impose criminal sanctions with respect to trade secrets infringement. While in Japan the relevant provisions are contained in unfair competition laws, in Switzerland both the Criminal Code and competition laws provide for criminal penalties. In the US, criminal sanctions are prescribed by federal law, and some States (such as California and Texas) have also adopted criminal statutes regarding trade secrets violation. In addition to the specific offence of trade secrets misappropriation, in the US and Switzerland, as in most Member States, other more general criminal provisions may apply in case of trade secrets infringements when certain conditions are met (for instance, in case of theft).

Compared to the European scenario, Japan and the US provide for more severe punishment for trade secrets misappropriation, including imprisonment up to ten years, while Switzerland is more aligned with the average standard applied in Member States as it envisages punishment up to three years. In Japan and Switzerland monetary penalties may also apply.

Like in most Member States, the criminal provisions of Japan, Switzerland and the US do not require the conduct of the offender to meet special requirements and to be carried

[11] To the extent the Uniform Trade Secrets Act has been transposed into state legislation: "*Trade secret means information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy*".

[12] Article 2 of the Japanese Unfair Competition Prevention Act states: "*The term 'trade secret' as used in this Act means technical or business information useful for commercial activities such as manufacturing or marketing methods that is kept secret and is not publicly known*".

out under specific circumstances, but they apply only if the offender has acted with intent; indeed, negligence in handling confidential business information does not trigger criminal consequences.

Prosecution rules are different in Switzerland, Japan and the US. In Japan and Switzerland a criminal proceeding may be started only upon a criminal complaint, whereas in the US criminal prosecution may normally be commenced *ex officio.* In Japan, different from Switzerland and the US, the aggrieved person cannot file a claim for damages within the criminal proceeding. Court orders for seizures or searches are available to the public prosecutor in the US and Switzerland.

Similarly to some Member States, Japan, Switzerland and the US also provide for corporate criminal liability with respect to trade secrets infringement. Punishment is by fines only, while the applicability of disqualification penalties has not been reported.

4.3 Competition law

Considering the non-EU scenario from a competition law perspective, no material differences have emerged in comparison to Member States' legal framework. Like in the EU, Switzerland, Japan and the US have no substantive competition law provisions specifically referring to trade secrets. Comparatively, one significant difference should be mentioned regarding US antitrust law. Unlike EU precedents, the rule has been stressed on various occasions that a company is not generally mandated to disclose its technology to rivals to enable them to make products compatible with the disclosing company's technology. Moreover, no cases have considered the refusal to disclose or to licence trade secrets as illicit from an antitrust perspective. Accordingly, interference of competition law rules with trade secrecy in the US appears less likely than in the EU.

## 5. Results of Internal Market Survey

5.1 Results

The economic and legal significance of trade secrets to European companies and industries, and to the overall growth and performance of European economies, is confirmed by the results of the survey of European companies administered as part of this project. As part of the Study objectives, the Commission requested performance of a survey of a representative sample of trade associations and business firms across the EU, including SMEs specifically, regarding issues of trade secret use and protection. The survey was prepared and conducted according to the specifications of the Commission on a stratified sample encompassing large, medium and small size firms belonging to a wide range of business sectors. Overall, a total of 537 responses to the survey were received from EU firms. Major highlights from the survey results are as follows:

- Overall, 75% of the survey respondents ranked trade secrets as strategically important to their company's growth, competitiveness and innovative performance.

- The most highly-valued types of trade secrets relate to "Commercial bids and contracts, contractual terms", followed by "Customer or supplier lists and related data", and "Financial information and business planning". Trade secrets related to "R&D data", "Process know how and technology", "Formulae and recipes", "Product technology", and "Marketing data and planning" were also ranked as highly valuable.

- The most important reason identified by survey respondents for relying upon trade secrets rather than other forms of IP concerns the preference to avoid disclosure of valuable information (52% positive responses).

- Approximately 60% of survey respondents stated that they shared trade secrets regularly or occasionally with third parties. The reasons why companies decide not to share trade secrets with third parties include: strategic reasons (49% positive responses) and concerns over losing confidentiality of information (39% positive responses).

- Industrial espionage is a matter of special concern in the motor vehicle and pharmaceutical industries.

- The risk of trade secrets misappropriation stems from a variety of sources, including current and former employees, competitors and suppliers. In the telecommunications and financial sectors, former employees are considered of special concern, whereas in the pharmaceutical, publishing, and financial sectors, competitors are of greatest concern. Leaks from regulatory agencies are also of concern to the pharmaceutical sector.

- The perception that the risk of misappropriation has increased over the last 10 years is particularly strong in the chemical and pharmaceutical sectors.

- A large share of companies report that, when trading in more than one EU country, they apply different trade secrets protection measures depending on the country in question. Figures vary across industries and countries (41.5% of the survey respondents in Germany apply different trade secrets protection measures, only 8.1% of Italian companies apply different measures).

- Over the last 10 years, about one in five respondents has suffered at least one attempt at misappropriation within EU countries and nearly two in five (38% affirmative responses) feel that the risk has increased during the same period. Companies experiencing such acts are found mainly in the chemical, motor vehicle, and pharmaceutical sectors.

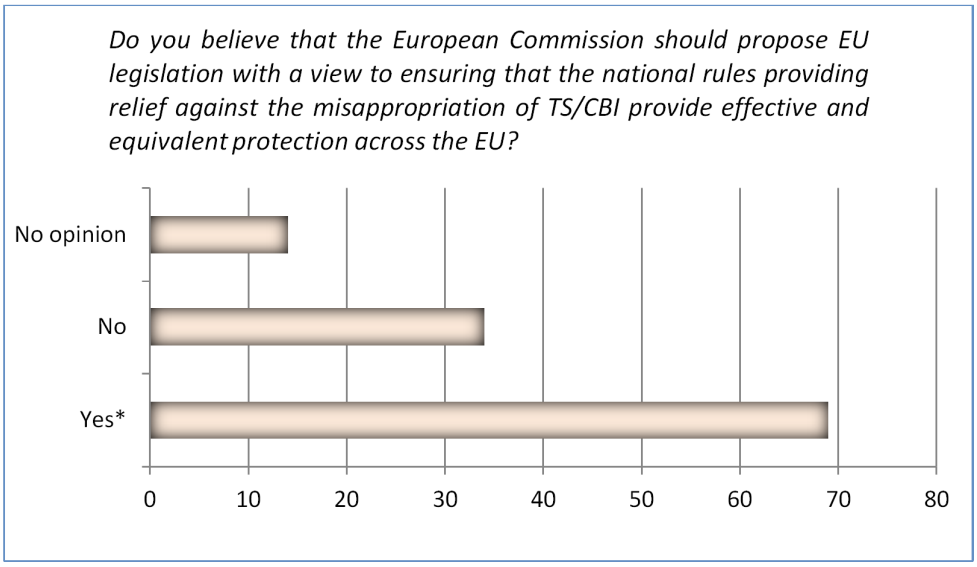
- The parties identified as being primarily responsible for the attempts or acts of misappropriation are competitors (53%), former employees (45%), and customers (31%).

- Successful or attempted trade secret misappropriation has resulted in loss of sales (56%); costs for internal investigation (44%); increased expenditure for protection (35%); costs for negotiating settlements (34%); and costs for prosecuting and litigating (31%).

- Of the 140 companies that reported attempts at or acts of misappropriation, only 57 (40.7% of responses) sought remedies in EU courts. The reasons *not* to seek a legal remedy include the difficulty in collecting evidence (43%); reputation (30%) and litigation costs (30%).

5.2 Policy intervention

The section of the survey devoted to policy issues included a question on whether companies believe that the European Commission should propose EU legislation on trade secrets (with a view to ensuring that national rules providing relief against misappropriation of trade secrets provide effective and equivalent protection across the EU). Significantly, a vast majority of respondents indicated support for an EU legislative proposal.




5.3 Benefits and costs

The final survey questions seek to identify potential costs and benefits of EU common rules with respect to the protection of trade secrets.

On the benefit side, companies regard deterrence as the most important factor (49% of positive responses), followed by greater legal certainty (43%). Somewhat less importance is attached to better opportunities to cooperate (24%), less resources on company-specific protection measures (22%), higher investment in R&D and innovation (20%), greater returns from sharing, licensing or transferring know-how (18%), and better conditions for accessing funding (15%).

On the cost side, nearly one in four companies believes that "Competing trade secret holders could try to raise market barriers by carrying out abusive/intimidating litigation or similar behaviour". A smaller fraction of companies think that EU common rules will make it difficult to carry out incremental innovation (17%), that there will be duplicative research (15%), and that there will be less labour mobility (6%).

Regarding the type of intervention, survey responses indicate that companies would derive a variety of benefits from EU legislation establishing common rules on the following points:

- Clarifying what trade secrets is to be protected (55%)

- Prohibition of acts of misappropriation of trade secrets and a definition of such acts (45%)

- Criminal sanctions (35.6%)

- Ensuring that the confidentiality of trade secrets is kept during court proceedings (35.2%)

- Calculation of damages (34.6%)

- Uniform contractual rules for employees on non-compete and non-disclosure clauses (34.3%)

- National injunctions applicable in the whole EU (32.4%)

- National Court orders stopping at customs goods produced thanks to misappropriation (27.9%).

To sum up, survey respondents indicate that the strongest reason in favour of common EU rules on misappropriation of trade secrets is the deterrent effect that such common rules would imply and the consequent creation of a safer environment for innovation investments. Needs cited by a substantial number of companies include clarifying what information is protected, the definition of misappropriation and the rules for damage calculations. Uniform contractual rules on non-compete and non-disclosure clauses between trade secret owners and employees are also reported as highly desirable. Many companies perceive the direct positive effect of greater legal certainty resulting from enhanced and harmonized legal rules. Significantly, companies do not see substantial negative effects from the adoption of common rules regarding trade secret protection in the EU. In conclusion, our survey provided clear empirical evidence that firms across the EU support a legislative proposal in this area.

## 6. Conclusions

This Study aims at assessing the potential gains of a legislative initiative at EU level in the field of trade secrets. The results of our exercise support the working hypothesis that new harmonized legislation directed at trade secrets would have a significant impact fostering innovation and economic growth, by removing currently existing obstacles to the smooth functioning of the Internal Market for know-how such as the high transaction costs and the higher risks associated with an inadequate legal framework throughout the Union. As a result, the EU would qualify as a safe harbor for firms to develop, exchange and use innovative knowledge. This would result in a competitive advantage for the EU economic system at large in its global challenge with aggressively competing areas.

Our research confirms the key role of trade secrets with respect to such objectives. Optimization of intangible assets protection and the creation of an efficient system to secure the results of R&D is a precondition for businesses to innovate. The flexibility of trade secrets protection fits very well with the way innovation usually works in today's business environment, i.e. on one hand, constant incremental change as opposed to discontinuous leaps and, on the other hand, the open model, where several players cooperate to create innovation, which requires a safe environment for know-how flows.

In this respect, trade secrets effectively fill the gap between copyright and patent protection, the two traditional pillars of intellectual property. Many factors play in favour of the use of trade secrets to protect innovation: they (i) have no limitation in subject matter, (ii) do not require costly and time consuming administrative procedures, (iii) ensure a seamless relationship between practical and legal protection, (iv) are an immediate complement to contractual protection and security measures. All in all, this is an effective and cost efficient tool, particularly useful for those companies that do not

have enough resources to obtain and manage a portfolio of ranked IP rights. In fact, we found empirical evidence that trade secrets are extensively used by enterprises in the EU across industry sectors and firm sizes.

In the light of our findings, we argue that there is sufficient economic justification for harmonization of trade secrets protection. The panorama offered by Member State laws is highly fragmented: this has a significant negative impact, in particular from a cross-border and Internal Market perspective. Circulation and exploitation of information, know-how and technology throughout the EU present unnecessary risks and costs in the current situation of legal uncertainty. Enforcing trade secrets throughout the different Member States can be an expensive and difficult proposition. Uneven levels of protection impact on business decisions – whether to share knowledge, where to locate R&D centres, where to explore for partnerships. The result is that EU companies face hidden but significant costs and are placed at different levels of ability to invest in innovation and enjoy the return on their investment.

Our analysis of non-EU legal systems provides an important point of reference, against which the EU picture should be considered. In particular, comparing the fragmented and inconsistent EU framework with the US legal system - where enterprises enjoy harmonized trade secrets protection in a multistate economy - helps establish that taking initiative on a supra-state level is both feasible and desirable.

The current scenario conflicts with the very logic of the Internal Market, where goods, services, workers, entrepreneurial activities, ideas, knowledge and technology should circulate as easily as possible – as if they were circulating within a national market. Given the proven economic relevance of trade secret protection, differences among Member States legislation should be eliminated or minimized. There is a strong case for designing an harmonised legal framework rightly balanced amongst the various relevant factors: conflicting policies and market players' interests (protect firm innovation *vs*. employee mobility *vs*. free flow of knowledge), use of different legal remedies (civil and criminal), and interference with competition law (abuse of dominant position, entry market barriers). A comparative view on what other advanced legal systems do may concretely help to verify assumptions and identify best solutions.

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## Chapter I. Report of the literature review

### Section 1. Introduction

To perform the legal and economic analysis, we have examined a wide variety of sources of information, such as surveys, studies, articles, literature, professional economics and legal journals and publications, and other materials that are of interest for the legal discipline of trade secrets and confidential business information, retrieved not only from European but also from other international (non-European) sources.

The material analysed has been extracted from different disciplines such as IP and patents, economics, legal material, market and business analysis. It covers not only theoretical investigations but also case studies and applied work including, for the economic assessment, economic theory of trade secret protection as well as applied economic models. With regard to the search approach, this has been based on manual search as well as intelligent electronic search. Appendix 1 contains a comprehensive list of legal and economic references.

### Subsection 1.1. National legal framework and jurisprudence

The analysis of the national legal frameworks and jurisprudence has been performed, taking into account the 27 Member States, the United States and Japan; the latest two as among the most representative business markets for competitiveness and innovation factors.

We also decided to include Switzerland in our assessment, though not part of the scope of the project assigned by the Commission, in light of a twofold rationale. First of all, from a preliminary assessment, we determined that Switzerland has a mature and well-established legislation on trade secrets, which is partially due to the circumstance that Switzerland serves as a geographical basis of most of the companies' headquarters in terms of ownership of IP rights, including trade secrets. Secondly, Swiss legislation is based on law principles and legislative processes that are similar to those adopted in Europe, also for territorial proximity.

With regard to the areas of law covered, we focused on IP and commercial law; competition law; and criminal law. As to methodology, we drafted three different matrix questionnaires, one for each of the three areas of law identified, and each differentiated in terms of specific content (attached as Appendix 2). The IP and commercial law questionnaire contains two subsections focused on national regulatory framework and litigation and enforcement, respectively. The competition law questionnaire addresses first the national regulatory framework; secondly, enforcement issues and lastly civil litigation. The criminal law questionnaire, similarly to the others, begins with the national regulatory framework, which is followed by a section on enforcement and a third part devoted to criminal liabilities of companies.

In this Section A.2, subsections I, II and III contain an overview of the main findings in the three areas of law that we considered, notably IP and commercial law, competition law, and criminal law. Subsection IV reports the country breakdown, notably a summary of the country specificities that we detected in each of these areas of law. Lastly, in Appendices 3.I, 3.II and 3.III, we reported the full questionnaires for each of the countries involved in the Study, and in Appendices 4.I, 4.II and 4.III, we reported different charts summarising in tables and figures the main legal findings for the three areas of law that we covered.

## Section 2. Intellectual Property and Commercial Law - Overview

### Subsection 2.1. Applicable regulatory framework

#### Applicable IP and commercial provisions and scope of protection

At international level, protection of trade secrets is provided by the World Trade Organisation's 1994 TRIPS Agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights). Article 39 of the TRIPS Agreement is specifically dedicated to "undisclosed information" and set forth the minimum requirements that information shall meet to be protected under the Agreement.

Article 39 (Protection of undisclosed information)

*1. In the course of ensuring effective protection against unfair competition as provided in Article 10bis of the Paris Convention (1967), Members shall protect undisclosed information in accordance with paragraph 2 and data submitted to governments or governmental agencies in accordance with paragraph 3.*

*2. Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:*

*(a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;*

*(b) has commercial value because it is secret; and*

*(c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.*

*3. Members, when requiring, as a condition of approving the marketing of pharmaceutical or of agricultural chemical products which utilise new chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against unfair commercial use. In addition, Members shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected against unfair commercial use.*

Article 39 certainly represents a pillar for the protection of trade secrets among signatory countries[13], and thus a potential common benchmark for their respective legislators. Nevertheless, the analysis of the EU legal framework has shown that this provision has not been fully implemented or has been implemented with very different details by Member States.

The study has evidenced that there is no harmonised system for the protection of trade secrets within the European Union, Switzerland, Japan and United States of America. As better explained hereinafter, all the jurisdictions we have analysed do offer, more or less extensively, some form of protection to trade secrets under very different pieces of national legislation.

[13] Signatory countries include all 27 EU Member States, Switzerland, Japan and the United States.

Within the EU Member States, the only Member State which has a specific legislation on trade secrets is **Sweden**[14]**. Italy** and **Portugal** have specific provisions on the protection of trade secrets included in the respective Codes of Industrial Property. However, while in Italy trade secrets are expressly considered to be intellectual property rights and enjoy protection as such (although protection is granted only if the acquisition, disclosure and use of the secret took place in an unlawful manner), Portugal does not attach the status of IP right to trade secrets and the violation of a trade secret amounts to an act of unfair competition punished according to the general principles of the civil code.

By way of an example, Article 98 of the Italian Code of Industrial Property provides:

> "*The business information and the technical-industrial expertise, including the commercial ones, subject to the owner's legitimate control, are protected as long as:*
>
> *a)* ***they are secret****, in the sense that they are not, as a whole or in the exact configuration and combination of their components, generally well-known or easily accessible for experts and operators in the field;*
>
> *b)* ***they have an economic value*** *due to their being secret;*
>
> *c)* ***they are subjected****, by the persons who legitimately control them,* ***to measures which may be deemed reasonably adequate to keep them secret****.*
>
> *2. Data relating to tests or other confidential data the elaboration of which involves a significant effort and the submission of which is a precondition for the authorization to introduce on the market the chemical, pharmaceutical or agricultural products implying the use of new chemical substances, are also protected*."

The following Article 99 reads:

> "*With no prejudice to the provisions on unfair competition, the legitimate owner of the business information and expertise set forth in Article 98 is entitled to prohibit third parties, absent his consent, from acquiring, disclosing to others or using,* ***unlawfully****, such information and expertise, except for cases where they have been achieved autonomously by the third party in question*".

**France** has a specific provision dedicated to manufacturing secrets only, also included in the Intellectual Property Code.

Apart from the above dedicated legislations, in general the most important provisions offering specific protection to trade and business secrets are mainly included under local laws on unfair competition. Countries such as **Austria**, **Germany**, **Poland** and **Spain** strongly rely on unfair competition provisions to protect trade secrets. Almost all jurisdictions (except Cyprus, Czech Republic, Republic of Ireland, Luxembourg, Malta and UK) have general provisions included in labour laws or civil codes to prevent employees disclosing their employer's confidential information and/or trade secrets during the employment relationship[15]. **The Netherlands** (but also **Luxembourg**) mainly relies on

[14] Sweden has adopted since 1990 the Act on the Protection of Trade Secrets, which contains criminal provisions on trade espionage and unlawful dealing with trade secrets, as well as civil provisions on liability for damages arising from unauthorised disclosure and use of trade secrets.

[15] Misappropriation of trade secrets by employees is largely perceived as a common issue throughout Member States and this is also reflected in the (limited) relevant leading case law. Among the few cases involving trade secret infringement brought to courts, the main part

tort law to protect trade secrets and tort law principles often represent the common basis for damages claims. In common law countries such as the **United Kingdom** and **Ireland,** lacking any specific legislation, trade secrets are protected by the common law of confidence and by contracts. In **Malta**, trade secrets are only protected by contract.

Furthermore, all the countries save for Bulgaria, Republic of Ireland, Malta and UK, have criminal sanctions against trade secret infringement. (For more details, please refer to the Criminal Law Section.)

Outside the EU, **Japan** and **Switzerland** mostly rely on unfair competition provisions to protect trade secrets. In particular, Japanese unfair competition law (article 2 of the Unfair Competition Prevention Act) is very detailed and identifies 15 types of conduct amounting to acts of unfair competition, among which six expressly contemplate the violation of trade secrets:

*"The term "unfair competition" as used in this Act means any of the following:*
*[…]*
*(iv) acts of acquiring a trade secret by theft, fraud, duress or other wrongful means (hereinafter referred to as "acts of wrongful acquisition"), or the act of using or disclosing a trade secret so acquired (including the act of disclosing such trade secret in confidence to a specific person or persons; the same shall apply hereinafter);*

*(v) acts of acquiring a trade secret with the knowledge that such trade secret has been acquired through acts of wrongful acquisition or without the knowledge of such matter due to gross negligence, or acts of using or disclosing a trade secret so acquired;*

*(vi) acts of using or disclosing a trade secret after becoming aware or not becoming aware of such matter due to gross negligence;, subsequent to its acquisition, that such trade secret was acquired through wrongful acquisition;*

*(vii) acts of using or disclosing a trade secret, which has been disclosed by the business operator holding such trade secret (hereinafter referred to as the "holder" ), for the purpose of acquiring an illicit gain or causing injury to such holder;*

*(viii) acts of acquiring a trade secret with the knowledge or, without the knowledge due to gross negligence, that there has been an improper disclosure of such trade secret (which means, in the case prescribed in the preceding item, acts of disclosing a trade secret for the purpose prescribed in said item, or acts of disclosing a trade secret in breach of a legal duty to maintain secrecy; the same shall apply hereinafter) or that such trade secret has been acquired through improper disclosure, or acts of using or disclosing a trade secret so acquired;*

*(ix) acts of using or disclosing an acquired trade secret after becoming aware or not being aware of such matter due to gross negligence, subsequent to its acquisition, that there has been improper disclosure of such trade secret or that such trade secret has been acquired through improper disclosure."*

concerns cases of breach of confidentiality and unfair competition arising from the unlawful disclosure of trade secrets by employees or use of said information by former employees to set up their own business in competition with the former employer (for a complete list of leading case law, please refer to the national questionnaires).

The **United States of America**[16], similarly to Sweden, has a specific law on trade secrets, adopted by almost all the federal states**.** Among the states which still have not adopted the law, Texas and New York recognise protection to trade secrets through the principles of the common law of confidence.

The table below summarises the current legislative situation in the 27 Member States, and in Switzerland, Japan and the United States.

[16] In 1979, the National Conference of Commissioners on Uniform State Laws proposed a uniform law on trade secrets, the Uniform Trade Secrets Act. Almost all states, DC, Puerto Rico, and the US Virgin Islands have adopted the Act. At this time, the states of Massachusetts, New York and Texas have not enacted the UTSA but rely on common law, while a bill for adoption was introduced in 2011 in Massachusetts.

*Table A – Legislative Panorama*

| Countries | Specific law on trade secrets | Unfair Competition Law | | IP Law | Civil Code | Labour Law | Contract Law | Criminal Law | Tort Law | Common Law of Confidence | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Civil | Crim. | | | | | | | | |
| Austria | | X | X | X | | X | | X | | | X |
| Belgium | | X | | | X | X | X | X | X | | |
| Bulgaria | | X | | | X | X | | | | | X |
| Cyprus | | | X | | | | X | X | | | X |
| Czech Republic | | X | X | | | | | X | | | |
| Denmark | | X | X | | | X[17] | | X | | | |
| Estonia | | X | | | | X | | X | | | |
| Finland | | X | X | | | X | | X | | | X |
| France | | | | X | X | X | X | X | X | | |
| Germany | | | X | | | X | | X | | | X |
| Greece | | X | X | X | X | X | | X | X | | X |
| Hungary | | X | | X | X | X | X | | | | |
| Republic of Ireland | | | | | | | X | | X | X | |
| Italy | | X | | X | X | X | | X | | | |
| Latvia | | X | X | | | X | | X | X | | X |
| Lithuania | | X | | | X | X | | X | | | |
| Luxembourg | | X | | | | | | X | X | | |
| Malta | | | | | X | | X | | | | |
| Netherlands | | | X | | X | X | | X | X | | |
| Poland | | X | X | | X | X | | X | | | |
| Portugal | | | | X | | X | | X | | | |
| Romania | | X | X | X | X | X | | X | | | X |
| Slovakia | | X | | | | X | | X | | | |
| Slovenia | | X | | | | X | X | X | | | |
| Spain | | X | | X | | X | | X | | | X |
| Sweden | X | | | | | | | X | | | X |
| UK | | | | | | | X | | X | X | |
| Japan | | X | X | X | | | | X | | | |
| Switzerland | | X | X | X | X | X | X | X | X | | X |
| US | X | X | | X | | X | X | X[18] | X | X | |

(X = countries where the law/provision(s) exists)

[17] Only for patents or utility models.

[18] Some states only.

Conclusion: The Study has found that there is no harmonized system for the protection of trade secrets among the EU and legal protection afforded by Member States varies significantly from country to country. Protection of trade secrets throughout Europe, Switzerland, Japan and the United States is indeed recognised under different and not homogeneous pieces of legislation and, save for a few countries (Sweden, Italy, Portugal and US) which have specific laws and provisions, trade secrets are largely protected by making recourse to unfair competition provisions. The absence of a specific law or specific provisions, however, does not seem to necessarily entail a lower level of protection of trade secrets. Information which meets certain requirements is, in principle, protectable in all relevant jurisdictions.

**Definition of Trade Secrets – Type of Trade Secrets - Qualification/protection as IP rights**

The first consequence of the lack of a harmonised system for the protection of trade secrets is the lack of a uniform definition of "trade secrets" within the European Union, Switzerland, Japan and the United States.

The general definition of "trade secrets" is provided by Article 39.2 of the TRIPS Agreement:

> "*Natural and legal persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:*
>
> *(a)* ***is secret*** *in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;*
>
> *(b)* ***has commercial value*** *because it is secret; and*
>
> *(c)* ***has been subject to reasonable steps*** *under the circumstances, by the person lawfully in control of the information,* ***to keep it secret***."

This definition is often acknowledged by the case law of the EU countries which do not have a statutory definition. Nevertheless, the requirements provided therein can indirectly be found in many of the definitions adopted by the other EU jurisdictions.

In **Italy**, **Portugal** and **Sweden,** a statutory definition of trade secrets is provided by the respective specific laws.

By way of an example, the definition of "trade secrets" provided by the Swedish law, included in Section 1 of the Trade Secret Act, reads as follows:

> "*For the purpose of this Act a trade secret means such information*[19] *on business relations or operating conditions of a business in somebody's business which is kept secret and of which the disclosure is aimed at causing damage to the business proprietor from a competition point of view*".

[19] The term "information" means "*information documented in some form, including drawings, model and other similar technical prototypes, as well as the knowledge of single individual about specific circumstances even where it has not been documented in some form*".

A statutory definition of trade secrets is also available in the unfair competition provisions of **Bulgaria**[20], **Czech Republic**[21], **Greece**[22] **Poland**[23] **and the Slovak Republic**[24]. In **Hungary**[25] and **Lithuania**[26], the statutory definition is provided in their respective Civil Code. In **Slovenia,** information is deemed to be a trade secret if so determined by a company in a written resolution.

In all the other EU Member States, where no formal definition of trade secret exists (*i.e.,* Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, The Netherlands, Republic of Ireland, Latvia, Luxembourg, Malta, Romania, Spain and to a certain extent UK[27]), this has been developed by courts and commentators.

The review of the different definitions has shown the presence of some common requirements. In general, a trade secret is defined as:

(i) technical or commercial information related to a business;

(ii) which is not generally known or easily accessible;

---

[20] Section 9 of Supplementary provisions of Law on Protection of Competition does define trade secrets: "*a manufacturing or trade secret is any circumstance, information, decision or data related to a business activity, the secrecy whereof serves the interests of the undertakings concerned and necessary measures to this end have been undertaken*".

[21]Section 17 of the Czech Commercial Code: "*… A trade secret comprises all facts of commercial, manufacturing or technical nature related to an enterprise that have actual or at least potential material or immaterial value, are not commonly available in the relevant business circles, should be maintained in secrecy on basis of the trader's decision and the trader ensures their secrecy adequately*".

[22] Law no. 2290/1995 has transposed into Greek national law TRIPS Agreement and consequently the definition of trade secrets provided by Article 39.2 of the TRIPS.

[23] Article 11(4) of Polish Unfair Competition Law states: "*A company trade secret is understood to include any technical, technological, organizational information, or other information of commercial value, concerning an enterprise, undisclosed to the public, with regard to which an entrepreneur has taken necessary steps to maintain confidentiality*".

[24] Articles 17 of the Slovak Act No. 513/1991 Coll. „Commercial Code" states: „[...] *Trade secrets consist of all business, manufacturing and technological facts related to the enterprise with actual, or at least potential, tangible or intangible value. Trade Secrets are not normally available in the appropriate industry and should not be disclosed without the entrepreneur's consent, providing the entrepreneur adequately ensures such non-disclosure*".

[25] Artcile 81 of the Hungarian Civil Code defines trade secret sas "*all facts, information, solution or data pertaining to economic activities the publication of which, or the acquisition or use of which by unauthorized persons, is likely to violate or imperil the financial, economic or market interests of the owner of such secret, provided the right holder has taken all the necessary steps to keep such information confidential*".

[26] Article 1.116 "Commercial (industrial) and professional secret" within the Lithuanian Civil Code states: "*Information shall be considered to be a commercial (industrial) secret if a real or potential commercial value thereof manifests itself in what is not know to third persons and cannot be freely accessible because of the reasonable efforts of the owner of such information, or of any other person entrusted with that information by the owner, to preserve its confidentiality. The information that cannot be considered commercial (industrial) secret shall be determined by laws*".

[27] Section 43 of the Freedom of Information Act 2000 states: "*… (1) Information is exempt information if it constitutes a trade secret. (2) Information is exempt information if its disclosure under this Act would, or would be likely to, prejudice the commercial interests of any person (including the public authority holding it)*".

(iii) which has economic value (*i.e.,* it confers a competitive advantage to the owner); and

(iv) which disclosure to a competitor, could cause a prejudice to the owner's interest.

The review has also shown that in almost all countries, the (statutory or jurisprudential) definition of trade secrets is very broad and suitable to encompass different types of information. In principle, any type of information is potentially capable of being protected as a trade secret, as long as the above criteria are met. We also noted that often, commentators and courts tend to categorise trade secrets into two main types:

(i) Technical secrets, which include any type of technical information, as manufacturing processes, technical drawings and designs, prototypes, inventions (not patentable or not patented), technical know-how, formula or recipes, genetic materials, fragrances, etc.

(ii) Commercial secrets, which include customers and suppliers list; information on business strategies and plans, business models, cost and price information, other marketing information, etc.

It is worth noting that although the TRIPS Agreement qualifies "undisclosed information" as a type of intellectual property right, and despite a close relationship between trade secrets and intellectual property rights has been pointed out in many countries, most of the EU Member States do not attach the status of intellectual property rights to trade secrets. Exceptions can be found in some EU Member States such as **Italy**, **France**, **Latvia**, **Romania** (only with regards to know-how), **Slovak Republic** and **Spain** (at least formally).

Considering a trade secret as an IP right under national legislation would trigger the application of the remedies provided by the Enforcement Directive for intellectual property rights, however, due to the different form of implementation adopted by Member States, this does not automatically foster the creation of a more uniform legal system. The Enforcement Directive is applicable to trade secrets only in **Italy**, **Portugal** (to the extent the law implementing the Enforcement Directive is applicable to unfair competition conduct), **Slovak Republic** and to a certain extent in **Romania**.

Outside Europe, a statutory definition of "trade secrets" is provided by the **Japanese** Unfair Competition Prevention Act[28] and by the **US** UTSA[29]. **Switzerland** does not have a statutory definition, but case law and scholars have generally accepted the criteria identified by Article 39.2 of TRIPS. Furthermore, in **Japan** and the **United States**, trade secrets are generally considered to be intellectual property rights, but not in **Switzerland**.

Conclusion: The analysis has revealed the lack of a uniform definition and scope of protection of trade secrets throughout the European Union. In most of the countries protection is not specific and provisions dealing with trade secrets are scattered over completely different fields of law. According to the contributing countries' opinion, such a

[28] Article 2 of the Japanese Unfair Competition Prevention Act states: "*The term 'trade secret' as used in this Act means technical or business information useful for commercial activities such as manufacturing or marketing methods that is kept secret and is not publicly known*".

[29] To the extent the Uniform Trade Secrets Act has been transposed into national legislations: "*Trade secret means information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy*".

fragmentation of legislation might entail a risk of inconsistent interpretation of what is protectable as trade secret and consequently, make trade secrets enforcement difficult and costly to handle.

## Subsection 2.2. Litigation and enforcement

### Requirements to commence legal proceeding

The requirements to commence legal proceeding against a trade secret infringement differ from country to country, depending on the type of actions available (unfair competition, tort, contractual, equity, etc). Generally, in order to successfully bring a civil action for violation of trade secrets, the plaintiff is required to provide evidence on:

(a) the existence of a secret (where a definition of trade secret exists and information shall meet certain requirements, the plaintiff must demonstrate that all the requirements are met);

(b) the infringement of the trade secret; and

(c) the unlawfulness of the misappropriation or use of the information by the defendant.

Where actions for trade secret infringement are based on tort[30], to commence a legal proceeding, besides the defendant's fault, the plaintiff is also required to prove the damage he suffered by virtue of the infringement and the causation between the infringement and the damage. Where the action is brought under unfair competition laws[31], the plaintiff is often requested to provide evidence of the infringer's intention to compete with the owner of the secret information. If the action is based on breach of contract[32], the plaintiff is required to demonstrate the existence and the breach of the contract.

Additional requirements may apply depending on the individual capacity of the person against whom action can be taken, for example current or former employees, licensees and other contractual partners, competitors or other independent recipients who received the information with or without knowledge of its secret nature. With regard to this point, we noted that there is no consistency among relevant jurisdictions: in some countries[33] remedies are (potentially) available against anyone who obtained the information, regardless of his bad or good faith (*i.e.,* ignoring the unlawful origin of the information), although in the last case, damage compensation is hardly awarded; in others[34], the right holder can only bring an action if a breach of a contractual confidential obligations has occured.

Defences available to the alleged infringers are strictly connected with the requirements that must be satisfied by the trade secret owner to successfully start legal proceedings.

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[30] Actions based on tort are available in Belgium, Bulgaria, Estonia, Finland, France, Greece, Lithuania, Luxembourg, The Netherlands, and Romania.

[31] Actions based on unfair competition laws are available in Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, Germany, Greece; Hungary, Italy, Japan, Latvia, Lithuania, Luxembourg, Poland, Portugal, Romania, Slovak Republic, Spain, and Switzerland.

[32] Such an action is, in principle, available in all jurisdictions when violation of a trade secret is the consequence of a breach of contract.

[33] Austria, Czech Republic, Denmark, Estonia, Finland, Germany, Republic of Ireland, Latvia, Lithuania, Portugal, and Switzerland.

[34] Malta.

Such defences are generally very similar throughout the different jurisdictions and are primarily based on the lack of the necessary elements of the claim, i.e. (a) the information is not a trade secret (because the information is publicly known, or it is part of the individual's deal of knowledge or it does not meet the necessary requirements of secrecy) and (b) the information was not misappropriated (*e.g.,* the information has been obtained lawfully or was autonomously developed by the defendant).

It is also worth noting that in the majority of jurisdictions, cases involving trade secret infringement are not heard by specialist judges. Dedicated intellectual property specialised courts which also have jurisdiction (although not exclusive) in trade secrets cases have been established only in **Italy**[35], **Greece** and the **United Kingdom**[36]. In other countries (**Latvia**, **Lithuania** and **Romania),** there are dedicated patent sections (not having exclusive jurisdiction on trade secret cases) within commercial courts.

Outside Europe, in **Switzerland** the Federal Patent Court has exclusive jurisdiction in patent cases only; however, trade secret cases could be brought before this court if involving patent issues at the same time. **Japan** has dedicated patent sections within commercial courts. In the **United States,** claims for trade secret misappropriation are filed either in the state court or, if the federal jurisdictional requirements are met, in a US district court.

It must, however, be noted that judges of IP specialised courts/sections have mainly legal rather than technical background (exceptions are judges of the Swiss Federal Patent Court and the English High Court), and cases involving technical trade secrets are often assisted by technical experts.

Conclusion: From the lack of a uniform definition and scope of protection of trade secrets, it follows a lack of uniformity in the actions available to a trade secret owner in case of infringement. Consequently, the requirements to commence legal action for trade secret infringement vary from country to country depending on the type of action available and the individual capacity of the person against whom action can be taken. This may further increase the difficulty a trade secret owner faces to protect its trade secrets and may lead to an inconsistent level of protection of trade secrets among different jurisdictions.

**Available civil remedies, including interim relief**

The TRIPS Agreement[37] provides for certain basic remedies which signatory countries should make available to the owner of an intellectual property right in case of infringement. Such remedies include injunctions, damages and other remedies such as withdrawal of infringing goods from the market and destruction of infringing goods.

In general, the review has shown that remedies potentially available in case of trade secret misappropriation are in most cases very similar to the remedies available to ranked IP rights (also in countries where trade secrets are not ranked IP rights), and include:

- Injunctions

[35] Starting from 24 September 2012, IP specialised sections have been replaced by commercial courts which have a broader competence.

[36] Cases involving breach or confidence relating to trade secrets can be heard either by the English High Court and the Patents County Court. The latter is a relatively new forum designated to deal with lower-value matters involving all forms of intellectual property, and so it may also hear breach-of-confidence matters.

[37] Articles 44 – Injunctions; 45 – Damages; 46 – Other remedies and 47 – Right of Information.

- Return/destruction of trade secrets/infringing goods embedding trade secrets
- Seizure of trade secrets/infringing goods
- Withdrawal from the market of infringing goods embedding trade secrets
- Damages
- Restraint orders (*e.g.,* penalty)
- Publication of the decision

However, in the practice, remedies available in civil proceedings for trade secrets infringement do vary in each Member States and appear to depend on the origin of the action (based on tort, contract or unfair competition law, etc.). While injunctions (cease-and-desist orders) and damages appear to be commonly applied by Courts in most of the relevant jurisdictions (and have been reported as exclusive remedies in Bulgaria, Cyprus, Estonia, Finland, Luxembourg and Malta), this is not the case for other measures as destruction of infringing goods produced by using the protected information or restitution of misappropriated information.

The tables below summarise the remedies, including interim relief, available for each of the Member States and three non-EU jurisdictions.

*Table B (a) – Available Civil Remedies (EU jurisdictions)*

| **EU Countries** | **Injunction (cease and desist orders)** | | **Return/ destruction of trade secrets / infringing goods embedding trade secrets** | | **Seizure of trade secrets/infringing goods** | | **Withdrawal from the market of infringing goods** | |
|---|---|---|---|---|---|---|---|---|
| | **Ordinary action** | **Interim relief** | **Ordinary action** | **Interim relief** | **Ordinary action** | **Interim relief** | **Ordinary action** | **Interim relief** |
| Austria | X | X | X | X | | | | |
| Belgium | X | X | X | X | X | X | X | X |
| Bulgaria | X | X | | | | | | |
| Cyprus | X | X | | | | | | |
| Czech Republic | X | X | X | X | X | X | X | X |
| Denmark | X | X | X | | X | X | X | |
| Estonia | X | | | | | | | |
| Finland | X | X | | | | | | |
| France | X | X | X | X | X | X | X | X |
| Germany | X | X | X | X | | | | |
| Greece | X | X | | | X | X | X | X |
| Hungary | X | X | X | X | X | X | X | X |
| Republic of Ireland | X | X | X | X | | | | |
| Italy | X | X | X | X | X | X | X | X |
| Latvia | X | X | X | X | X | X | X | X |
| Lithuania | X | X | X | | X | | X | |
| Luxembourg | X | X | | | | | | |
| Malta | X | X | | | | | | |
| Netherlands | X | X | X | X | X | X | X | |
| Poland | X | X | X | | X | X | X | |
| Portugal | X | X | X | | X | X | X | X |
| Romania | X | X | X | X | | | X | X |
| Slovakia | X | X | X | | X | X | X | X |
| Slovenia | X | X | X | | X | | | |
| Spain | X | X | X | X | X | X | X | X |
| Sweden | X | X | X | | X | | | |
| UK | X | X | X | X | X | X | | |

| **EU Countries** | **Damages** | **Other compensations** | **Publications of the decision** | | **Restraint measures (*e.g.,* penalty for future breach of the Court's order)** | |
|---|---|---|---|---|---|---|
| | | | **Ordinary** | **Interim** | **Ordinary** | **Interim** |

| | | | action | Relief | action | relief |
|---|---|---|---|---|---|---|
| Austria | X | | | | X | |
| Belgium | X | | X | X | X | X |
| Bulgaria | X | | X | | X | |
| Cyprus | X | | | | X | X |
| Czech Republic | X | | X | | X | X |
| Denmark | X | | X | | | |
| Estonia | X | | | | | |
| Finland | X | | X | | X | X |
| France | X[38] | | X | X | X | X |
| Germany | X | | | | | |
| Greece | X | | | | X | X |
| Hungary | X | X[39] | X | | | |
| Republic of Ireland | X | | | | | |
| Italy | X | | X | X | X | X |
| Latvia | X | | | | | |
| Lithuania | X | | | | X | |
| Luxembourg | X | | X | | X | X |
| Malta | X | | | | | |
| Netherlands | X | | X | | X | |
| Poland | X | X[40] | X | | | |
| Portugal | X | | X | | | |
| Romania | X | | X | | | |
| Slovakia | X | | X | | | |
| Slovenia | X | | | | | |
| Spain | X | | X | | | |
| Sweden | X | | | | X | X |
| UK | X | | X | | | |

(X = countries where the remedy exists)

*Table B (b) – Available Civil Remedies (non-EU jurisdictions)*

| Non-EU Countries | Injunction (cease and desist orders) | | Return/destruction of trade secrets/ infringing goods embedding trade secrets | | Seizure of trade secrets/infringing goods | | Withdrawal from the market of infringing goods | |
|---|---|---|---|---|---|---|---|---|
| | Ordinary action | Interim relief | Ordinary action | Interim relief | Ordinary action | Interim relief | Ordinary action | Interim relief |
| Japan | X | X | X | X | X | X | X | X |
| Switzerland | X | X | X | X | X | X | X | X |
| US | X | X | X | | X | X | X | X |

| Non-EU Countries | Damages | Other compensations | Publications of the decision | | Restraint measures (*e.g.*, penalty for future breach of the Court's order) | |
|---|---|---|---|---|---|---|
| | | | Ordinary action | Interim Relief | Ordinary action | Interim relief |
| Japan | X | X | X | | X | |
| Switzerland | X | | X | X[41] | X | X |
| USA | X | | X | | X | |

[38] Damages in France can also be claimed in *interim* proceedings.

[39] In case the amount of damages is not proportioned to the gravity of the violation, courts may impose an additional fine to be used for public purposes.

[40] If infringement is deliberate, an additional penalty in the form of the payment of an amount of money determined by the court in order to support Polish culture or protect the national heritage.

[41] It is debated if publication can be ordered also during *interim* proceedings.

(X = countries where the remedy exists)

The above remedies are in general all cumulatively available to the trade secret owner, with a few exceptions. For example, in **Belgium**, damages are available but not for cease-and-desist claims brought under the Unfair Competition Act (in the form of expedite action). In **Bulgaria**, final injunctions seem to be not available (at least cease-and-desist orders in the strict sense of the word) while damages are the usual final remedy. In **Latvia,** although potentially available, it is not clear whether remedies provided in the Civil Procedure Code for intellectual property rights apply also to trade secrets (trade secrets are not expressly included among the definition of intellectual property). In **Italy,** damages may only be awarded in ordinary proceedings. In **Luxembourg**, while injunctions are granted by the president of the commercial court, damage claims shall be brought before the District Courts.

Additional remedies include publication of the court's decision and satisfaction by means of (public) apology statements (**Hungary**).

Outside EU, besides the above mentioned remedies, **United States** may count also on an additional remedy consisting in the possibility for the trade secrets owner to prevent importation of products made using misappropriated trade secrets at the US border, by filing a complaint with the US International Trade Commission. Trade secrets owners in the United States are also entitled to seek temporary restraining orders ("TRO") from courts with the purpose of preserving the status quo and preventing irreparable harm during the time necessary to hold a hearing.

**Interim relief remedies**

In all Member States and also in non-EU countries, injunctions (*i.e.,* cease-and-desist orders) are usually available also as *interim* relief remedy (*i.e.,* during preliminary and summary proceedings where the claimant's requests are summarily examined by the court and measures are granted within a very short time limit). Other typical remedies as orders to return/destruction of secret information or goods embedding the secret information, seizure of information/goods containing the information, and withdrawal from the market of goods containing the information are available in *interim* proceedings in certain countries only. For details, please refer to Table B (a) above.

In general, to obtain the *interim* relief remedy, the claimant must show that (i) it has a *prima facie* case, and (ii) there is an actual risk that the enforcement of his right might be frustrated or significantly impaired should the claimant have to resort to ordinary proceedings on the merits. In some countries (**Greece**, **Hungary**, **Italy, Malta, Poland, Portugal, Slovak Republic, Spain** and **Sweden**), *interim* injunctions must be confirmed through an ordinary proceeding on the merits to become final. Failure to start the ordinary proceeding makes the injunctions void and not enforceable.

Final injunctions are in general not time limited, with exceptions for **Belgium**, **Cyprus**, **Denmark**, **Greece**, **The Netherlands**, **Poland** and **Slovenia**, which do not allow unlimited injunctions. In **Belgium**, courts refuse to grant final injunctions because, due to the potential unlimited duration of trade secrets, these would result in a prohibition lasting for an indefinite period. In **Denmark**, although depending on a case-by-case analysis, final injunctions are usually granted for a period of two to three years from the termination of the cooperative relationship. In **Greece** and **The Netherlands**, injunctions are considered temporary in nature. In **Poland** and **Slovenia**, injunctions are strictly related to the duration of the proceeding on the merits and last until the end of said proceeding.

In common law countries (**Republic of Ireland, UK** and **US**), injunctions are equitable remedies and as such courts are free to determine the terms and duration of the restrictions.

Furthermore, the grant of an *interim* injunction, in certain countries (**Bulgaria**, **Czech Republic, Spain and Sweden**) is conditional to the payment of a deposit to compensate potential damages to the defendant.

**Special remedies to obtain and secure evidence**

Special remedies to secure evidence are available in almost all relevant jurisdictions (exceptions are **Belgium**, **Denmark** and **Malta**). Such remedies mainly consist of orders to secure evidence (for example, by seizing specific documents or other pieces of evidence) and to submit documents which are of relevance to the proceeding. A complete list of all the remedies available in each EU Member States as well as in the three non-EU jurisdictions is set out in the tables below.

*Table C (a) - Available Remedies to secure evidence (EU jurisdictions)*

| **EU Countries** | **Measures to obtain/preserve evidence** | | | | | **Duty of disclosure** |
|---|---|---|---|---|---|---|
| | **Description (order to enter premises to describe the allegedly infringing information/goods)** | | **Ex parte search order (to search premises and computer for misappropriated data)** | **Order to submit documents** | | |
| | **Ordinary action** | **Interim relief** | | **Ordinary action** | **Interim relief** | |
| Austria | | | **X** | | | |
| Belgium | | | | | | |
| Bulgaria | | | **X** | **X** | **X** | |
| Cyprus | | | **X** | | | |
| Czech Republic | | | | **X** | | |
| Denmark | | | | | | |
| Estonia | **X** | **X** | | **X** | | |
| Finland | | | **X** | **X** | | |
| France | | | **X** | **X** | **X** | |
| Germany | **X** | **X** | **X** | **X** | **X** | |
| Greece | | | **X** | **X** | **X** | |
| Hungary | | | | **X** | **X** | |
| Republic of Ireland | | | **X** | | | **X** |
| Italy | **X** | **X** | | **X** | **X** | |
| Latvia | **X** | **X** | **X** | | | |
| Lithuania | **X** | **X** | **X** | **X** | **X** | |
| Luxembourg | | | **X** | | | |
| Malta | | | | | | |
| Netherlands | **X** | **X** | **X** | **X** | **X** | |
| Poland | | | | **X** | | |
| Portugal | | | | **X** | | |
| Romania | | | | **X** | **X** | |
| Slovakia | | | **X** | **X** | **X** | |
| Slovenia | | | **X** | **X** | | |
| Spain | | | **X** | | | |
| Sweden | | | **X** | **X** | | |
| UK | **X** | | **X** | **X** | | **X** |

(X = countries where the remedy exists)

*Table C (b) - Available Remedies to secure evidence (non-EU jurisdictions)*

| Non- EU Countries | Measures to preserve evidence | | | | | Duty of disclosure |
|---|---|---|---|---|---|---|
| | Description (order to enter premises to describe the allegedly infringing information/goods) | | Ex parte search order (to search premises and computer for misappropriated data) | Order to submit documents | | |
| | Ordinary action | Interim relief | | Ordinary action | Interim relief | |
| Japan | | | X | X | | |
| Switzerland | X | X | X | X | X | |
| US | | | X | X | | X |

(X = countries where the remedy exists)

*Ex parte* orders to search premises and computers for misappropriated data and to require the defendant to provided information on the whereabouts of documents[42] are available in some countries only and often such remedy is granted only in connection with the enforcement of an intellectual property right (for example, in **The Netherlands**). However, as with countries where the right to apply for a search order exists in principle, in practice such orders are rarely awarded by courts and no case law has been reported. Search orders (including the orders to enter premises only to describe the misappropriated data or the allegedly infringing goods) are usually executed by the court's bailiff or the police. The claimant is allowed to participate through its representatives only in certain countries (for example, in **Italy**) and this may make it difficult to identify relevant and appropriate evidence, especially considering that the defendant is rarely very cooperative and that most of the countries do not have specific coercive measures to force the infringer to comply with the court's order. In general, non-compliance with court orders only matters for evidentiary purposes (*i.e.,* the court may consider the conduct of the defendant as a plea of guilty). Only **France and Portugal** reported the possibility for the court to fine the infringer's refusal to comply with the court's order to submit a document or other piece of evidence or information.

The main reason for this lack of *ex parte* orders is that they require an almost insuperable burden of proof. The claimant must have an extremely strong *prima facie* case; he must provide very clear evidence that the defendant is in possession of the incriminating documents or materials, along with the real and imminent danger that the documents or materials will be destroyed or hindered if the defendant is made aware of the claimant's intentions. In addition, the claimant must also prove a serious actual or potential damage by virtue of the infringement of his rights.

A pre-trial duty of (full) discovery (whereby documentation and information relevant to the case must be disclosed to the court and the other party) is provided only in common law jurisdictions such as the **United Kingdom** and **Republic of Ireland** in Europe and the **United States** outside Europe.

Conclusion: Although remedies potentially available in case of trade secret misappropriation are in most cases very similar to the remedies available to ranked IP rights, in practice, while injunctions (cease-and-desist orders) and damages are commonly applied by Member States courts, this is not the case for remedies such as orders to return/destroy secret information or goods embedding the secret information; seizure of information/goods containing the information and withdrawal from the market of goods containing the information. Injunctions are also typically requested in *interim*

[42] This seems to be a typical remedy available to the police during criminal investigations.

proceedings, although a certain reluctance of courts to grant such measures *ex parte* has generally been reported. Furthermore, contrarily to US, Member States do not have in place administrative remedies to block at Customs goods made using misappropriated trade secrets.

Furthermore, despite remedies to secure evidence are potentially available in almost all countries (with very few exceptions), the analysed jurisdictions have reported a general concern about the difficulty in enforcing trade secrets, mainly due to the high burden of proof for the plaintiff to demonstrate the infringement. E*x parte* search orders are available in some countries only and often granted only in connection with the enforcement of an intellectual property right, and courts have no effective coercive powers to force the defendant to comply with orders to submit evidence, the lack of evidence being thus one of the main reasons for the dismissal of the case.

**Measures to protect secrecy of information before and during proceedings**

Civil proceedings in all relevant jurisdictions are public. National procedural laws include general provisions which allow courts to exclude the public from the hearing only for reasons relating to security, public order and decency (see for example, **Belgium**, **Czech Republic**, **Greece**, and **Italy**).

Some European jurisdictions (notably **Bulgaria**, **Estonia**, **Hungary**, **Germany, The Netherlands, Poland, Romania, Slovakia,** and **Slovenia)**, reported the express existence of the right of a party to request the court to order that the entire proceeding or a part thereof be heard in private to preserve the secrecy of the trade secret, although in practice this seems to rarely happen and there is no case law on this point. For example, in **Bulgaria**, private hearing is specifically provided for cases related to "*protection of trade, manufacturing, invention or tax-related secrets*" if public disclosure may impair a party's legitimate interest. When publicity is precluded, only the parties, their attorneys, experts and witnesses are allowed to enter into the court room and are subject to a statutory obligation not to disclose subject matter and content of the relevant proceeding (breach of such obligation entails liability for compensation). In **Estonia** (similarly in **Finland** and **Lithuania**), *in camera* examination can be ordered for the protection of trade secrets if the interest in a public hearing is not deemed to be greater than the commercial interest in protecting the secret. In **Hungary**, when the court orders *in camera* examination, the parties are also prohibited from making copies of the minutes of the hearing, or of any document containing a trade secret. Examination of documents containing trade secrets is subject to a declaration of non-disclosure and special review procedures are established by the judge. In **Germany**, besides the exclusion of the public if trade secrets are to be discussed, legal practice has developed the so-called "Düsseldorf Procedure" (originally developed for patent law claims but likely applicable to trade secret cases), which consists of a procedure where courts order independent proceedings for the preservation of evidence as an *interim* injunction handed to the defendant together with the statement of claims so that there is no chance to destroy evidence. Evidence is then examined exclusively by authorised experts and attorneys bound to confidentiality. The parties do not have access to the confidential information.

In the **United Kingdom**, the parties may agree or apply to the court to ensure that certain information to be revealed during the pre-trial disclosure procedure remains confidential. The parties may enter into a contractual agreement whereby the parties agree that certain information may remain confidential or only be disclosed to legal counsel, or where the parties do not reach such agreement, a party may unilaterally apply to the court requesting that confidential information be not disclosed to the other party during the proceeding. Requests for restriction of disclosure are at the discretion of the court.

Outside Europe, **Switzerland** has specific provisions in its Code of Civil Procedure which allow a court to take all required measures to protect the trade secrets of a party, including limitation to inspection of files and private hearing of a party. In the **United States,** a party from whom discovery is sought may obtain from the court a protective order preventing confidential information from being revealed or be revealed only in a limited manner. **Japan** allows both protective orders and *in camera* examination where not only the public but also the opponent party may be excluded from a part of the proceedings.

Conclusion: Except for common law jurisdictions where a pre-trial duty of (full) discovery exist, in all the other countries, the parties to a civil proceeding must substantiate their pleadings and submit all the relevant documents and evidence to the court. Pleadings, and in general court documents in civil proceedings, are generally public and potentially accessible by anyone. Courts have a general duty to adopt adequate measures to safeguard the secret information of a party, for example, by restricting access to those documents which contain trade secrets only to the other party's attorney or to the court's expert (in certain cases, the confidential information can be put under closed seals), or not disclosing certain information in the court's final decision (by blanking out relevant information in the decision and other court's documents). However, said measures have proved to be of limited effect to prevent the actual leak of confidential information during proceedings.

Secrecy of information is, therefore, often at risk during civil proceedings, and the lack of effective measures for the protection of trade secrets during court proceedings, with the consequent risk of losing control over trade secrets, makes recourse to legal actions often unappealing for trade secrets owners. Only **Hungary**, **Germany** and **the United Kingdom** in Europe, and **Japan** and **the United States** outside Europe, seem to have in place effective procedural measures to prevent disclosure of secrets during civil proceedings.

**Damages – available options and criteria for calculation**

Compensation of damages arising from the infringement of a trade secret is available in all jurisdictions; in **Bulgaria**, damage compensation is the sole final remedy available to the owner of a trade secret.

Damages claims are mainly based on tort or contract. In some countries, specific provisions on damages are included in unfair competition laws (see for example **Spain**). **Italy** and **Sweden** have relevant provisions included in specific laws on trade secret protection.

Damages based on tort cover both accruing damages ("*damnum emergens*") and loss of profits ("*lucrum cessans*"). Loss of profits, however, is in most cases very difficult to prove. A claim for unjust enrichment is available in some countries only, such as among others, **Belgium**, **Estonia**, **Finland, Lithuania** and **Spain** (for further details, please see Table D below). In some other countries (for example, **Austria**, **Germany**, **Italy**, **Ireland**, **Lithuania**, **Poland**, **Sweden** and the **United Kingdom**), the claimant has the right to claim the account of profits obtained by the infringer from its wrongdoing. In most of the cases, however, the account of profits is alternative to the loss of profits or is considered a criterion to calculate said loss. In **Italy**, the owner of trade secrets may claim the restitution of the infringer's profit in addition to the loss of profits to the extent that the infringer's profits exceed the claimant's loss. In **Greece**, account of profits and unjust enrichment are alternative ways to calculate the loss of profits. Similarly, in **The Netherlands,** loss of profits excludes account of profits.

If damages are claimed on contract, liquidated damages (if provided by the agreement) can also be claimed in addition to damages. Contractual liability, however, is often limited to the damages which were foreseeable at the time of conclusion of the contract.

Many jurisdictions (**Belgium**, **Bulgaria**, **France**, **Luxembourg**, **Malta**, **Portugal**, **Romania**, **Slovak Republic**, **Slovenia** and **Spain**) do not have specific criteria for the calculation of damages, and apply the general criteria of tort liability (*i.e., damnum emergens* and *lucrum cessans*). The license analogy has been indicated as a possible criterion for the calculation of damages, among EU Member States in **Austria**, **Denmark**, **Germany**, **Greece**, **Hungary**, **Italy, The Netherlands and United Kingdom**, and in all the non-EU jurisdictions.

Outside Europe, damage options are very similar to those available to EU Member States. **Japan**, similar to Spain, has specific provisions on damage compensation included in the unfair competition law which provides for three alternatives to calculate the amount of damage (*i.e.,* loss of profits, account of profits and license fee). In **Switzerland** and **the United States**, account of profits, unjust enrichment and fair royalty complete the damage options picture.

Table D below summarises the available damage compensation options split between the European Union and non-EU countries.

*Table D – Damage available options*

| Countries | Accruing damage (*damnum emergens*) | Loss of revenues (*lucrum cessans*) | Moral damages | Punitive damages | Other monetary compensation | Account of profits | Fair royalty | Unjust enrichment | *Ex aequo et bono* global amount | Are these damage options cumulative? |
|---|---|---|---|---|---|---|---|---|---|---|
| Austria | X | X | | | | X | X | | | |
| Belgium | X | X | | | | | | X | X | X |
| Bulgaria | X | X | X | | | | | | X | X |
| Cyprus | X | X | | | | X | | | | |
| Czech Republic | X | X | | | X[43] | X | | X | | X |
| Denmark | X | X | | | | | X | | | X |
| Estonia | X | X | | | | X | | X | X | |
| Finland | X | X | | | | X | | X | X | X |
| France | X | X | X | | | | | | | |
| Germany | X | X | | | | X | X | | | |
| Greece | X | X | X | | | X | X | X | | X |
| Hungary | X | X | X | | | X | X | | X | |
| Republic of Ireland | X | X | | X | | X | | | | |
| Italy | X | X | X | | | X | X | | X | X |
| Latvia | X | X | | | | X | | X | | X |
| Lithuania | X | X | | | | X | | | X | X |
| Luxembourg | X | X | | | | | | | X | |
| Malta | X | X | | | | | | | X | X |
| Netherlands | X | X | X | | | X | X | | X | X |
| Poland | X | X | | | X | X | | X | | X |
| Portugal | X | X | X | | | | | X | X | |
| Romania | X | X | X | | | | | X | X[44] | |
| Slovakia | X | X | X | | | | | X | | X |
| Slovenia | X | X | | | | | | X | | X |
| Spain | X | X | | | | | | X | | X |
| Sweden | X | X | | | | X | | | | X |
| UK | X | X | | X | | X | X | | | |
| Japan | X | X | X | | | X | X | | X | X |
| Switzerland | X | X | | | | X | X | X | | X |
| US | X | X | | X | | X | X | X | | X |

[43] Appropriate satisfaction which may be rendered in money.

[44] Only in arbitral cases where the court may decide cases *ex aequo et bono*, but only where the parties agree thereto (contractual liability).

The available options are in principle all cumulative (exceptions are **Austria**, **Cyprus**, **Estonia**, **Finland**, **France**, **Germany**, **Hungary**, **Ireland**, **Luxembourg**, **Portugal**, **Romania** and **United Kingdom**) provided that the total amount awarded by the court does not exceed the actual claimant's loss. Furthermore, in countries where courts are allowed to award an "*ex aequo et bono*" global amount in cases where damages cannot be alternatively calculated, such criteria are of course to be considered as alternative to all the other available damage options.

Except for **Ireland**, the **United Kingdom** and the **United States**, all the other jurisdictions do not allow courts to impose punitive damages to infringers in civil proceedings involving trade secrets. However, courts in **Hungary** and **Poland** can obtain a similar effect by ordering the infringer to pay a fine, in addition to damages, which amount will be used for public purposes.

With the exception of **Japan**, statistics on the average of damages awarded in trade secret infringement cases are not publicly available. Damages vary on a case-by-case basis but the average figures provided by the relevant countries seem not to be particularly encouraging[45].

Conclusion: The study has evidenced that the owner of a trade secret often encounters difficulties in proving damages suffered by virtue of the trade secret violation. In some countries (**Austria**, **Cyprus**, **Denmark**, **France**, **Germany**, **Republic of Ireland**, **Sweden** and **United Kingdom**), damages are awarded only if the claimant is able to demonstrate that he had suffered some loss. Other countries allow courts to award damages on an equitable basis - taking into account all the circumstances of the case - if the claimant has not been able to provide sufficient evidence on the amount of damages (**Belgium**, **Bulgaria**, **Estonia**, **Finland**, **Hungary**, **Italy**, **Lithuania**, **Luxembourg**, **Malta**, **The Netherlands**, **Portugal** and **Japan**). In any case, we note a certain reluctance of courts to award substantial damages in case of trade secret infringements.

**Enforceability of remedies against third parties in good faith and third parties who autonomously developed the information**

One of the requirements to start a civil legal action for trade secret infringement is the unlawfulness of the misappropriation or use of secret information. Accordingly, in most EU Member States[46], the owner of a trade secret has no action at all against third parties who obtained the secret information in good faith, unless it consists of a case of negligence (*i.e.,* the violation of the ordinary due diligence) on the party acquiring or using the secret information.

In **Italy**, if the recipient was aware of the misappropriation, the owner of the trade secret may launch proceedings for trade secret infringement and unfair competition. In the **United Kingdom** a duty of confidentiality may be implied by the circumstances of the disclosure or the relationship between the parties (the duty of confidentiality is easy to identify in case of an employment contract or a non-disclosure agreement, but it could prove to be very

[45] In Italy, in two cases of trade secret infringement, the Court of Milan has awarded damages for EUR1,100,000.00 and EUR10,000,000.00, respectively. In Sweden, courts have awarded damages for SEK7/10,000,000 and SEK48,000,000. However, these appear to be exceptional cases.

[46] Belgium, Bulgaria, Cyprus, France, Greece, Hungary, Italy, Luxembourg, Malta, The Netherlands, Poland, Romania, Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

difficult to demonstrate where a person has obtained the confidential information in absence of any relationship between the owner and the recipient), but a person who innocently receives a confidential information will not be under a duty of confidentiality until he is made aware the information is confidential.

In some other countries, remedies are potentially available regardless of the recipient's good or bad faith (**Austria**, **Czech Republic**, **Denmark**, **Estonia**, **Finland**, **Germany**, Republic of **Ireland, Latvia, Lithuania,** and **Portugal**) and injunctions can be obtained also against a third party who obtained the secret in good faith. However, the third party is likely not to be held liable for damages, unless the use of the secret information continues even after the recipient has been informed of the confidential nature of the information. In **Austria**, damage claims are also available in cases of default; accordingly damage compensation could be awarded also in case of the third party's slight negligence.

The situation is very similar also in non-EU countries. In **Japan** and **USA** remedies for trade secret infringement are enforceable only against recipients who receive and use the confidential information being aware of the wrongful acquisition or improper disclosure. Differently, in **Switzerland** the remedies are in principle available also against a third party who acquires the secret in good faith, although the absence of the bad faith may affect the possibility to obtain damage compensation.

In all the jurisdictions analysed, no action is available against a third party who autonomously developed the same information.

Conclusion: Actions aiming at preventing the use of a trade secrets obtained by a third party in good faith are admitted only in a limited number of jurisdictions. In this case, however, injunction is the only available remedy. The absence of a remedy (in particular the possibility to obtain a cease and desist order) in most of the EU Member States may have very serious consequences for the trade secrets owner.

**Practical solutions adopted by companies to protect trade secrets - Enforceability**

The importance of protection of trade secrets and the need for adequate means to protect trade secrets are commonly perceived throughout Europe, Switzerland, Japan and the United States.

Non-disclosure, non-use and confidentiality agreements are customarily used in commercial relationships with third parties. Confidentiality clauses are almost always included in license and other commercial agreements with business partners. These agreements are generally recognised and enforceable under national contracts law. The adoption of physical precautionary measures is often suggested as an additional measure to protect trade secrets from being accessed by non-authorised parties.

With regard to employees, the study finds that though in general, whilst employed, employees have a statutory duty of loyalty (including non-disclosure and non-compete obligations) towards the employer, most jurisdictions reported as a common practice to provide for non-use and non-disclosure[47], as well as non-compete[48] clauses in contracts of

[47] Example of standard confidentiality clause in an employment agreement:

*(1) The Employee shall neither during the Employment (except in the proper performance of [his/her] duties) nor at any time (without limit) after the termination thereof, howsoever arising, directly or indirectly*

*(a) use for [his/her] own purposes or those of any other person, company, business entity or other organisation whatsoever; or*
*(b) disclose to any person, company, business entity or other organisation whatsoever;*
*any trade secrets or confidential information relating or belonging to the Company or its Associated Companies including but not limited to any such information relating to customers, customer lists or requirements, price lists or pricing structures, marketing and information, business plans or dealings, employees or officers, source codes, computer systems, software, financial information and plans, designs, formulae, product lines, prototypes, research activities, services, [insert other specific classes of information], any document marked "Confidential", or any information which the Employee has been told is "Confidential" (or with a similar expression) or which he might reasonably expect the Company would regard as "Confidential", or any information which has been given to the Company or any Associated Company in confidence by customers, suppliers or other persons.*
*(2) The Employee shall not at any time during the continuance of [his/her] employment with the Company make any notes or memoranda relating to any matter within the scope of the Company's business, dealings or affairs otherwise than for the benefit of the Company or any Associated Company.*
*(3) The obligations contained in Clause (1) shall not apply to any disclosures required by law, and shall cease to apply to any information or knowledge which may subsequently come into the public domain after the termination of employment other than by way of unauthorised disclosure.*

[48] Example of standard non-compete clause in an employment agreement:

*1.After the termination, for any reason, of this Agreement, you shall be bound not to carry out and not to engage in, not to plan and prepare, directly or indirectly, as proprietor, partner, shareholder, director, executive, employee, agent, consultant, collaborator, or in any other capacity or manner, in any activity in competition with our Company.*

*More specifically, this covenant not to compete extends to the scope defined by the following limitations:*

- *purpose of the activity:[insert the purpose of the activity of the Company];*
- *geographical area: [indicate the area where the employee will not be entitled to perform activities in competition with the Company. We suggest indicating specific areas of the Italian territory. According to current case law, in fact, if the geographical area is too wide, the non competition agreement may be hardly enforceable].*
  *[the following is not a mandatory legal requirement; the wording may be useful in case limitations are desired with regard to specific competitors]*
- *competing undertakings: [list, or alternatively] undertakings that have been customers of the Company, (including occasional clients and not on a continuous basis), at any time during the [_] months prior to termination of employment.*

*2. After the termination, for any reason, of this Agreement you shall not, directly or indirectly:*
*(A) recruit employees of the Company or employees of other Group Companies, solicit them to terminate their employment with us, whether or not for the purposes of hiring them;*
*(B) solicit or encourage or assist third parties in performing the activities mentioned under point (A) above;*
*(C) act for clients of the Company for which you acted or with whom you has been in touch during the past 12 months before the effective termination date, as employee, agent, consultant, collaborator, partner, shareholder, director, or in any other capacity or manner.*

*3. As a consideration for the undertakings under **Clauses 1 and 2** the Company shall pay you, following termination of the Agreement, a gross amount equal to …… (…….. per cent) of your last gross fixed compensation during the 365 (working and non-working) days preceding the effective date of termination. Should the Agreement last less than 365 days, the compensation for your obligations shall be equal to ……% (…….. per cent) of your average daily gross fixed compensation (calculated taking into account both working and non-working days) during your employment with the Company, times 365. Any benefit or variable compensation in addition to the fixed compensation shall not be taken into account. The total gross amount, determined as specified in this **Clause 3**, shall be the compensation for your obligations during the whole period under **Clause 6** below and will be paid on a*

employment. (For examples of confidentiality and non-compete clauses that can be included in a contract of employment, please refer to the national questionnaires).

However, the analysis has found that Member States adopt different remedies/solutions to prevent or stop use or disclosure of trade secrets by former employees. The balance between the interests of the employer and the employee is indeed assessed differently in relevant countries. We noted that in general, post-employment, an employee cannot be prevented from using the skill and knowledge he developed and/or achieved during the employment, provided that said knowledge does not consist of clearly identifiable trade secrets or confidential information that the employee wilfully misappropriated with the purpose of using them after termination of the employment relationship.

In **Denmark** (and similarly in **Poland**), the statutory non-disclosure and non-use obligations survive termination of the employment contract for a period of three years. In **Italy**, as in many other European countries, non-compete agreements (or clauses) are commonly used to prevent use or disclosure after termination of the employment

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*monthly basis in equal instalments.*

*4. Throughout the duration of the **Clauses 1 and 2**, in order to allow the Company to check your compliance of the same, you undertake to immediately inform our Company of any business activity that you engaged in, in any of the ways described under **Clause 1** above, as well as any other activities, including non-business ones started by yourself and that may be inconsistent with the obligations undertaken herewith. Moreover you undertake to answer promptly and in an exhaustive way to any requests of information that the Company may ask you with regard to the activities performed by you and to make available to us any documents concerning them that you may have, including information and documents regarding interests that you indirectly possess, through fiduciaries.*

*5. Throughout the duration of this Agreement, you undertake to inform your future employers, contract awarding parties, principals, contractual parties, administrative bodies of companies of which you become director or shareholder, of the restrictions set forth in this Agreement, before undertaking obligations, or, depending on cases, purchase interests in them.*

*6. The duration of your obligations under **Clauses 1 and 2** shall be [**the maximum statutory limitation is: (i) five years for executives, but usually restrictions do not exceed 1-2 years; (ii) three years for the other employees (including middle managers]** months starting as of the end of your employment relationship with us.*

*7. You agree that any breach of **Clause 1** and/or any breach of **2** and/or any breach of **Clause 4,** would immediately and throughout the duration of the non compete provision cause irreparable damages to us and therefore you agree that we shall, under those circumstances, be entitled to obtain a Court's order for specific performance, as well as adequate injunctive relief or any other adequate judicial measure, to immediately stop such breach. You recognise also that this Agreement would by itself constitute sufficient and final Court evidence of the requirements necessary in order to obtain any of the above judicial measures, except for summary evidence concerning the carrying out of competing activity by you. The above with no prejudice for any other right that we may have as a consequence to said breach.*

*8. In addition to the above, you hereby agree that for any breach of even one of the obligations undertaken by you through **this Clause [_],** you shall pay to us, by way of liquidated damages, an amount equal to 100 % (one-hundred per cent) of your last gross fixed compensation during the 365 (working and non-working) days preceding the effective date of termination. Should this Agreement last less than 365 days, the amount of liquidated damages that you shall pay to us shall be equal to 100 % ( one-hundred per cent) of your average daily gross fixed compensation (calculated taking into account both working and non-working days) during your employment, times 365. In any event the Company may seek further damages, if any. Any benefit or variable compensation in addition to the fixed compensation shall not be taken into account*".

relationship, subject to certain restrictions (to be enforceable, non-compete clauses must generally be limited in time and space, identify the activities which the former employee cannot engage in, and provide for monetary compensation). In **Sweden**, liability of former employees for breach of confidentiality obligations is limited to "extraordinary circumstances". In the **United Kingdom** (and similarly in **Ireland**), Courts distinguishes between confidential information provided to an employee in the course of their employment which constitutes a "trade secret", and therefore enjoy protection also after termination of the employment, and other confidential information which receives limited or no protection at all once the employment relationship ceases. The distinction is in principle determined by the nature of the information (trivial or easily accessible information cannot in general be regarded as trade secrets) and the possibility to separate or not the relevant information from the reasonable stock of knowledge of the employee which the employee remains free to use after employment.

An additional measure to protect trade secrets against disclosure by former employees would potentially be offered by the so-called US doctrine of inevitable disclosure[49]. However, the study has shown that EU Member States, Switzerland and Japan are not familiar with this doctrine and even in the United States, it has been recognised in some but not all states[50].

Conclusion: The Study shows that all the involved jurisdictions are familiar with confidentiality and non-disclosure agreements, and often use such kind of provisions to prevent disclosure of trade secrets or confidential information (also in post-employment contract) rather than relying on confidentiality statutory obligations or other law provisions granting protection to trade secrets.

**Cross-border litigation and enforcement of foreign decisions**

From our analysis of the legal background and leading case law of EU countries, Switzerland, Japan and the United States, it appears that cross-border litigation in trade secret cases, although possible and admitted in all relevant jurisdictions, is very rare.

For the purpose of determining the applicable jurisdiction, actions involving trade secret infringements have been mostly regarded either as (a) contractual, or (b) tort, delict or quasi-delict actions[51]. Accordingly, in cross-border litigations involving EU Member States,

[49] According to this doctrine, an employer could prevent a former employee from being hired by a competitor merely because the employee had knowledge of the former employer's trade secrets that would "inevitably" be disclosed. The principle behind this doctrine is that an employee with knowledge of a former employer's trade secrets would "inevitably" disclose the same to the new employer since the nature of the new job would lead to such disclosures, given that the new and old employers are competitors.

[50] In *PepsiCo., Inc. v. Redmond*, the court, applying Illinois law, adopted the inevitable disclosure doctrine holding that "a plaintiff may prove a claim of trade secret misappropriation by demonstrating that defendant's new employment will inevitably lead him to rely on the plaintiff's trade secrets." 54 F.3d 1262, 1269 (7th Cir. 1995). This doctrine has been rejected under California law because it "is imposed *after* the employment contract is made and therefore alters the employment relationship without the employee's consent." *Whyte v. Schlage Lock Co.*, 125 Cal. Rptr. 2d 277, 293-294 (Cal. App. 4th Dist. 2002).

[51] In the United Kingdom, it is arguable if breaches of the equitable duty of confidence fall within the definition of "tort" - if not then it remains in limbo in terms of the applicable jurisdiction for a case. Under English law, a breach of confidential information is an equitable claim but is not a "tort" per se.

the jurisdiction is established on the basis of (i) Articles 5.1 and 5.3 of the Council Regulation (EC) No. 2001/44. The Lugano Convention applies in litigation between an EU Member State and Iceland, Switzerland or Norway. In all the other cases where a non-EU country is involved, the jurisdiction is determined according to the bilateral treaty in force between the relevant jurisdictions or, lacking such a treaty, by local procedural and international laws.

The study has evidenced that local procedural and international laws often contain provisions very similar to the provision of the Regulation (EC) No. 2001/44. In a nutshell, in all **EU countries** (and similarly in **Switzerland**), jurisdiction is *in primis* determined by the domicile or the registered seat of the defendant within the territory of the court where the action is brought. If the defendant has no domicile or registered seat in that territory, an action may still be brought before the courts of that country if (i) in tort actions, the harmful event occurred or may occur in that country; and (ii) in contract actions, the obligation was or should have been performed in that country. **Japan** has similar rules. Jurisdiction of **US** courts depends on whether a court has personal jurisdiction. If a defendant has domicile in the *forum* state, personal jurisdiction will generally exist. If this is not the case, the court in the *forum* state may exercise personal jurisdiction over the defendant if the defendant purposefully availed itself of the privilege of conducting activities within the *forum* state.

The place of creation of trade secrets has been considered not relevant for the purpose of establishing the jurisdiction by all the countries involved in the study.

With regard to the enforcement of foreign decisions, the study has revealed that enforcement is in general possible regardless of whether the right at stake (*i.e.,* the trade secret) is protected (and to what extent) or not in the country where the decision has to be recognised. Decisions of **EU countries** are recognised in other EU jurisdictions according to the Regulation (EC) No. 2001/44 (or the Lugano Convention for judgements issued by Icelandic, Norwegian and Swiss courts). If the judgement falls outside the Regulation (or the Lugano Convention), enforcement is regulated by the applicable bilateral treaty or (lacking any treaty) by national procedural and international laws. We noted again that these laws generally contain provisions very similar to those provided by the Regulation. The main difference is that in most countries only decisions which are final (no longer appealable) can be recognised (see for example, **Italy**, **Portugal, Romania** and **Switzerland**). **Japan** has very similar rules.

Different rules seem to apply in common law countries. In **Ireland** and the **United Kingdom**, enforcement of non-EU countries' decisions is subject to common law rules which provide very restrictive requisites, so that in practice, the only way for a party seeking to enforce a foreign judgment is to initiate fresh proceeding in the country. Similar rules apply in the **United States**.

Conclusion: No cases of cross-border litigation involving trade secrets have been reported. No clear reasons have been provided by any jurisdictions with respect to the reluctancy to launch cross-border litigations. We think that one of the main obstacles to cross-border litigation may lay in the complexity of the procedure, especially with respect to the collection and submission of evidence, and the possible length of the enforcement process.

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The Regulation however does not contemplate or provide for any general rules for actions not founded in either contract or tort.

## Subsection 2.3. Conclusions

The legal IP and Commercial Civil Law review has shown the importance of trade secrets in all the jurisdictions involved in the Study. Although their relevance differs from country to country, all the jurisdictions involved in the Study have shown a certain propensity for recognising, more or less extensively, legal protection to secret and/or confidential information. Yet the legal analysis performed has evidenced that there is no harmonised legal framework among the European Union, Switzerland, Japan and United States.

A specific legislation on trade secrets exists only in **Sweden** and the **United States**. **Italy** and **Portugal** (but also France with respect to manufacturing trade secrets only) have specific provisions on the protection of trade secrets included in the respective Codes of Industrial Property. All the other jurisdictions offer protection to trade secrets through different pieces of legislations, the most important of which are included under local laws on unfair competition, civil and labour laws. Tort and contract laws are also used to protect trade secrets.

The absence of a specific law or of specific provisions, however, does not seem to necessarily entail an inadequate level of protection of trade secrets. Secret information which meets certain minimum requirements is in principle protectable in all relevant jurisdictions.

The first and most immediate consequence of the lack of a uniform legal framework is the lack of a uniform definition of "trade secrets" within the European Union, Switzerland, Japan and United States. As a result, each jurisdiction has adopted different standards to qualify business confidential information as trade secrets. Only **Sweden**, **Italy**, **Portugal**, **Bulgaria**, **Czech Republic**, **Greece**, **Lithuania**, **Slovak Republic**, **Slovenia**, **Japan** and **the United States** have a statutory definition of trade secrets. Where a legal definition is missing, this has been developed by case law and commentators based on certain common criteria, which substantially mirror the requirements provided in the general definition of trade secrets contained in Article 39.2 of the TRIPS Agreement.

A second material consequence of the absence of a common legal framework is that action available against misappropriation of trade secrets vary from country to country, depending on the nature of the action (tort, unfair competition, breach of contract, etc.) and the individual capacity of the defendant (current or former employee, independent recipient who obtained the information in good or bad faith, etc.). Furthermore, we noted that in countries where there are no specific provisions, such as **Malta**, courts seem to pay less attention to the importance of trade secret protection and show a lower propensity to deal with cases of trade secret violation if compared with countries where a specific law exists or where specific provisions are clearly identifiable within more general areas of law[52]. Also, we noted that in general, the existence of specific law/provisions on trade secret protection is often accompanied by more specific and effective procedural measures to stop the violation of the trade secret.

In this connection it must be pointed out that most of the jurisdictions involved in the Study do not attach the status of IP right to trade secrets. Qualifying a trade secret as an IP right under national legislation would trigger the application of the remedies provided by the

[52] As a matter of fact, Malta has reported no case law on trade secret violation, whereas Sweden, Italy and Germany, and also Switzerland and Japan - where there are very specific provisions on trade secret protection - boast a more familiar and mature approach to this issue.

Enforcement Directive for intellectual property rights. However, due to the different forms of implementation adopted by Member States, this does not automatically foster the creation of a more uniform legal system.

The analysis revealed that remedies potentially available to a trade secret owner in case of misappropriation are in most cases very similar to the remedies applicable to traditional intellectual property rights and include injunctive relief, return/seizure/withdrawal/destruction of infringing goods or materials embedding trade secrets, restraint orders, penalties and damages. In the practice, however, remedies ordered by courts are often limited to injunctions and damages. Furthermore, although the mentioned remedies are also usually available at the *interim* stage of legal proceedings, they are rarely granted *ex parte* as this kind of order requires a very high burden of proof.

Measures to secure evidence, like *ex parte* orders to search premises and computers for misappropriated data and to require the defendant to provide information on the whereabouts of documents are available in some countries only (**Austria, Bulgaria, Cyprus, Finland, France, Germany, Greece, Republic of Ireland, Latvia, Lithuania, Luxembourg, The Netherlands, Slovak Republic, Slovenia, Spain, Sweden** and **the United Kingdom**) and often not accompanied by effective coercive powers to force the defendant to comply. The lack of evidence is thus one of the main reasons for the dismissal of the case.

In general, the legal survey has determined common acknowledgement of the difficulty in enforcing trade secrets, such difficulty not only arising from the very high burden of proof for the plaintiff to demonstrate the infringement by the defendant, but also from the lack of adequate measures to protect trade secrets during a proceeding (the plaintiff must substantiate its claim in most cases by submitting to the court the allegedly infringed trade secret). Secrecy of information is often at risk during civil proceedings and the absence of effective measures to protect trade secrets during court proceedings, with the consequent risk of losing control over trade secrets, makes recourse to legal actions often unappealing for trade secrets owners. Only **Hungary**, **Germany** and **the United Kingdom** in Europe and **Japan** and **the United States** outside Europe, seem to have in place effective procedural measures to prevent disclosure of secrets during civil proceedings. Furthermore, the violation of trade secrets in most cases is compensated only with monetary damages, the evidence of which must be given by the plaintiff and which in many cases has proved to be very difficult, with the consequence that the owner of a trade secret has to bear both the risk of losing control over its secret information and the risk of not obtaining adequate compensation.

Another factor impairing enforcement of a trade secret – strictly related to the fact that trade secrets are not ranked as IP rights – is the general impossibility of enforcing a trade secret against a third party who obtains the information in good faith. In most of the jurisdictions (exceptions are **Austria, Czech Republic, Denmark, Estonia, Finland, Germany, Ireland, Latvia, Lithuania, Portugal** and **Switzerland**), the owner of a trade secret has no action at all against third parties in good faith, unless the third party has acquired or used the secret information negligently.

Such enforcement difficulty is reflected in the relevant European leading case law. Generally, trade secret case law is very limited throughout Europe[53] and cross-border litigation is non-existent.

In conclusion, the analysis of the legal background of European countries has revealed a common concern for the lack of a uniform definition and scope of protection of trade secrets throughout the European Union, entailing a risk of inconsistent interpretation of what is protectable as trade secret and an inconsistent level of protection among different jurisdictions. According to the opinion of some contributing jurisdictions (**Austria**, **Cyprus**, **Germany**, **Slovenia**, **Spain** and **Sweden**), a uniform legal protection would constitute an incentive for technological development and cross-industry cooperation, and would allow more transparency in the business. Furthermore, a uniform international protection of trade secrets would prevent companies from establishing only in those countries where actual protection is granted.

A drawback envisaged in the harmonisation of trade secret legislation lies in the difficulty of effectively capturing the common features of different categories and providing a balanced definition of trade secrets. It has been pointed out that a too specific definition would probably add nothing to the existing laws, while a too broad definition would risk widening too much the scope of the legislation.

Except for **France**[54] and **Romania**[55], there is currently no proposal for a new legislation on trade secrets in any of the relevant jurisdictions.

[53] Official statistics on the number of cases involving trade secrets are rarely available, although almost all countries have estimated that the number of trade secrets cases heard by national Courts yearly is not a significant one.

[54] The proposal for a new legislation in France introduces the new offence of violation of "economical information", punishable by three years' imprisonment and a fine of EUR375,000. For the purpose of this proposal, "*economical information*" is defined as information which is not generally known or readily accessible to the public, and which confers, directly or indirectly, a commercial value to the company, and has been subject to reasonable steps according to the law and commercial practices, by the person lawfully in control of the information, to keep it secret. The proposal also provides that, "*The act, by any director or salaried person of the enterprise in which he is employed, of revealing or attempting to reveal economical information protected under article 226-14-2 shall be punishable under article 226-14-2 of the Criminal Code".*

[55] The proposal aims at amending the current provisions on trade secret protection contained in the Law on Unfair Competition. The most relevant amendments concern the introduction of a new definition of business secrets (similar to the definition provided by the US Uniform Trade Secrets Act); the introduction of the crime of business espionage; the exclusive jurisdiction of the Competition Council in connection with the enforcement of the Unfair Competition Law, and the embitterment of both criminal and civil sanctions.

## Section 3. Competition Law - Overview

### Subsection 3.1. Applicable regulatory framework

#### Applicable competition law provisions

The Study has found that none of the relevant countries' competition laws contain any substantive provision specifically referring to trade secrets, whereas they do contain (see Subsection 3.2. below) provisions protecting secret information from being disclosed in the course of proceedings before the National Competition Authorities ("NCAs"). In this respect, the replies have stressed that specific protection to trade secrets is normally granted under IP law, unfair competition law and criminal law, whereas the purpose of competition law is to protect the market from possible anticompetitive effects rising from the ownership, use and/or enforcement of trade secrets. Accordingly, it has emerged that general competition law provisions relating to illicit agreements/concerted practices and abuses of dominant position may apply in each jurisdiction to situations relating to the licensing, disclosure of (or refusal to disclose) trade secrets, but only to the extent that such practices restrict competition.

A peculiar solution has been, however, adopted in **Bulgaria**, where the Law on Protection of Competition – which brings together under its umbrella the rules on unfair competition and antitrust – does contain two explicit provisions on protection of trade secrets that respectively prohibit (a) the "*acquisition, use or disclosure of manufacturing or trade secrets that is contrary to good faith commercial practices*" (Article 37(1)); and (b) the "*use or disclosure of manufacturing or trade secrets that were acquired or communicated under the condition not to be used or disclosed*" (Article 37(2)). These rules pertain to the unfair competition field, but they deserve to be mentioned since they are contained in the national law on the protection of competition.

It is also worth mentioning that in **Spain**, pursuant to Article 3 of the Spanish Competition Law, unfair acts (such as the breach of trade secrets) will be considered as an infringement of Competition Law provided that they ultimately affect the public interest by distorting competition on the market.

In any event, the Study has emphasised that the raising of trade secrets in cases based on competition law is extremely rare: as it will be further analysed in Subsection 3.2. below, very few decisions and/or judgments have been adopted in relation to competition law violations involving trade secrets, and the replies provided by the relevant countries generally confirm that an impact of competition law on trade secrets could very rarely apply. In this sense, for instance, the US Department of Justice, in its Antitrust Guidelines for the Licensing of Intellectual Property of 1995, recognised that trade secrets (like other intellectual property) do not necessarily confer market power on their owner[56], and that intellectual property licensing has pro-competitive benefits[57].

It should be stressed that several jurisdictions have pointed out that the disclosure of trade secrets could be of relevance from a competition law perspective in case of competitively sensitive information (*i.e.*, information relevant to unveil the commercial strategy of the company) being exchanged between competitors in order to – or with the effect of – creating artificial transparency on the market though facilitating collusion. For the purpose

[56] Antitrust Guidelines, at par. 2.2.

[57] *Id.* at par. 2.3

of this Study, however, these cases have not been taken into account since they refer to situations where information – which might include trade secrets – is exchanged voluntarily by companies, with the result of a restriction of competition.

Conclusion: Based on the above, it can be concluded that there are no rules specifically targeted to trade secrets that come into play when applying national competition laws, since such rules are provided neither by the law, nor by the extremely limited decisional practice. It has emerged that competition law has no purpose of protecting trade secrets, but to protect the market from possible anticompetitive effects rising from the ownership, use and/or enforcement of trade secrets. In this respect, competition law provisions may come into play only when the use of trade secrets affects competition.

**Definition of trade secrets**

As a general remark, scholars have stressed the difficulties in identifying what sort of information can qualify as trade secret – since the concept of information has no conceptual boundary – and that trade secrets are sometimes lumped in with "know-how". In respect to the applicability of competition law rules to issues involving trade secrets, such difficulties have been evidenced by several jurisdictions, also in consideration of the fact that national competition laws do not normally define trade secrets (an exception being the **Bulgarian** Law on Protection of Competition, which in § 9 of its Supplementary provisions, does define trade secrets: "*a manufacturing or trade secret is any circumstance, information, decision or data related to a business activity, the secrecy whereof serves the interests of the undertakings concerned and necessary measures to this end have been undertaken*"; this definition is however tailored to unfair competition activities, also covered by such Law). In some circumstances, national competition laws do provide a definition of trade secret or of business secret, but only in the context of the procedural remedies to prevent the disclosure of such secrets during proceedings (see **Estonia**, **Luxembourg**, **Portugal**, **Romania** and **Slovenia** Chapters). Furthermore, due to the scarcity of national decisional practices specifically targeted at trade secrets, it is not possible to identify definitions adopted at the national level by NCAs' decisions. In this respect, it should be mentioned that where NCAs have dealt with trade secrets, such concept has not been defined since the core of the decisions relates to whether a restriction of competition has occurred, and such circumstance is not necessarily dependent on the peculiarities of trade secrecy.

It can be expected that, when it proves necessary to define trade secrets, NCAs will make reference to the definition provided by national laws or generally accepted in the relevant country (in this respect, please refer to the Commercial and IP Chapter).

Conclusion: The analysis has revealed that there is no common notion of trade secrets within EU Member States, nor a clear indication of whether they do constitute intellectual property rights. Since the definition of trade secrets might vary from country to country, the application of competition law may lead to inequalities and inconsistencies between different jurisdictions.

**Applicability of EU competition law principles**

All the jurisdictions within the European Union, in applying their national competition laws, apply the principle elaborated in the context of EU competition law. Furthermore, Member States, according to EU Regulation No. 1/2003, also directly apply Article 101 and Article 102 of the Treaty on the function of the European Union ("TFEU"), dealing respectively with agreements restricting competition and abuses of dominant position.

The applicability of EU competition law principles therefore may impact on the way NCAs and/or national courts deal (or will deal) with competition law issues involving trade secrets, given the lack of any guidance within national systems in this respect and the extremely scarce decisional practice available within EU national jurisdictions.

To start with, EU jurisdictions should refer to the EU Transfer of Technology Block Exemption Regulation of 2004 ("TTBER") in reviewing agreements involving the transfer of know-how. This issue has been expressly pointed out in several replies (namely for **Belgium**, **Czech Republic**, **Greece**, **Italy**, **Portugal** and **Romania**). In this respect, it is worth noting that scholars have stressed that the TTBER – when compared to its previous version of 1996 – considers licensing as generally pro-competitive, has a more flexible approach, is more firmly based on economic principles and lists as blacklisted hard-core provisions essentially classic cartel provisions such as price fixing, allocation of markets and output limitations. This suggests that the transfer of trade secrets would rarely be considered to result in a restriction of competition.

Furthermore, the European Commission's decisions – together with the judgments of EU courts – concerning the applicability of Articles 101 and 102 of the TFEU will also impact on the conclusions that the NCAs and courts will draw when assessing agreements or abuses of dominant position concerning trade secrets. For the purpose of abuses of dominance relating to the non-disclosure of trade secrets, the **Italian** Competition Authority expressly referred to the General Court's reasoning in the *Microsoft* case in order to qualify as abusive a refusal to disclose medical studies (decision No. 22558 of 28 June 2011, *Sapec Agro/Bayer Helm*. The decision was however annulled following an appeal to the competent administrative court).

However, scholars have stressed that a problem for the application of European competition law in relation to trade secrets is that there is no secondary European legislation on trade secrets, and hence no generally accepted concept of trade secrets protection in the European Union (Drexl). The issue has emerged in the *Microsoft* case. Several commentators (Drexl, Czapracka, First) has stressed the fact that the European Commission decision in such case did not take any position on whether the information Microsoft failed to supply to its competitors was protected as trade secrets or as IP rights, but nevertheless assessed the case under the principles governing the application of Article 102 TFEU on a refusal to licence an IP right.

In this respect, the question of whether the standard of intervention of competition law in relation to unilateral practices involving trade secrets could be lower than that for intellectual property – a refusal to licence an intellectual property right can only be considered an abuse of dominant position in exceptional circumstances (*inter alia*, the IMS Health judgment) – was not answered by the European Commission's decision. In addition, the European Commission, in the DG Competition Discussion Paper on the application of Article 82 of the Treaty (now Article 102 TFEU) to exclusionary abuses and in its arguments before the General Court in the *Microsoft* case, indicated that the standard of intervention in cases involving trade secrets could be lower as compared to cases involving IP rights, *i.e.,* that trade secrets should be treated differently (and less favourably) than either patents or copyrights in terms of any presumption of legitimacy of a refusal to supply. The reasoning behind this position was that the protection trade secrets enjoy under national law is normally more limited than that given to copyrights or patents.

In this respect, it has been argued that EU antitrust enforcers, lacking uniform standards of trade secret protection, have somehow undermined national trade secret protection measures and thus created a legal environment which may discourage private R&D

investment and impede diffusion of technologies (Czapracka)[58]. Scholars have also stressed that there is no reason for applying a different or even a lower standard of intervention to the refusal to disclose trade secrets than the one applied for IP rights (Drexl, Ghidini Falce).

In any event, the General Court judgment in the *Microsoft* case expressly indicated that "*the plea must proceed on the presumption that the protocols in question, or the specifications of those protocols, are covered by intellectual property rights or constitute trade secrets and that those secrets must be treated as equivalent to intellectual property rights*"[59]. However, such statement originated from the peculiarities of the *Microsoft* case and does not exclude that in future cases of refusal to supply trade secrets, a different test is applied.

Conclusion: The Study suggests that, notwithstanding EU Member States applying the principles of EU competition law, further clarity on the standard of intervention of competition law in cases involving trade secrets, particularly in the refusal to supply cases, is needed. This could be achieved through a uniform notion and level of protection of trade secrets within the EU. A common notion of trade secrets, and a clear indication of whether they do constitute intellectual property rights, may clarify if any antitrust interference which may be deemed appropriate when an IPR is challenged should also be available when the exercise of a trade secret might be seen as a decisive factor of market foreclosure (Ghidini Falce). Alternatively, the same objective could be reached by the European Commission clarifying once and for all, through guidelines or an interpretative communication, whether in evaluating refusal to disclose trade secrets by a dominant undertaking the same standard used in the case involving the refusal to licence IP rights would be applied.

## Subsection 3.2. Litigation and enforcement

### Decisional practice of NCAs

The Study has evidenced that in very few jurisdictions within the European Union (such as **Greece**, **Italy**, **Slovenia** and **United Kingdom**) NCAs have dealt with competition law matters involving trade secrets. In such cases, however, the definition and the peculiarities of trade secrets have not been examined in detail, since the focus of such decisions has been on whether the various practices did or did not restrict competition. It is worth stressing that the licence of trade secrets has not been considered as restrictive in any EU jurisdiction, and that such an approach is in line with the decisional practice within the **United States**, where the licence of trade secrets has not engendered specific concerns.

In the **United States**, in particular, it has been stressed that trade secrets themselves, or the efforts to protect them, do not generally constitute a violation of US antitrust law. Instead, a possible violation only depends on the specific conduct taken by the owner of the trade secrets to protect or exploit the trade secrets. Thus, antitrust concerns involving trade secrets arose out of practices that were generally suspect under antitrust law (*e.g.*, in *Dr. Miles Medical Co.* it was held that trade secrets did not avoid an antitrust violation through resale price maintenance because "*the question concerns not the [secret] process of manufacture, but the manufactured product*") (overruled by *Leegin Creative Leather Prods. v. PSKS, Inc.*, 551 U.S. 877 (2007) according to which resale price maintenance is not a *per se* violation of the Sherman Act but subject to a rule-of-reason analysis).

[58] Katarzyna A. Czapracka, "Antitrust and trade secrets: the US and the EU approach", Santa Clara Computer & High Tech. L.J. Volume 24, p. 207, 2008.

[59] Case T-201/04, *Microsoft* v. *Commission*,[2007] ECR II-3601, § 289.

In relation to cases relating to vertical agreements or agreements ancillary to concentrations, the position is that EU Member States' NCAs apply the EU principles as set in the TTBER, in the Commission Regulation No. 330/2010 on vertical agreements, and in the Commission Notice on restrictions directly related and necessary to concentrations.

The most relevant cases, however, refer to behaviours of dominant undertakings that have been under scrutiny to verify the existence of possible abuses of dominance. In this respect, no decision has expressly identified as abusive situation where a dominant undertaking has obtained from its weaker contractual counterparties information or know-how that may qualify as trade secrets.

On the contrary, in **Italy** and **Greece,** the refusal to disclose certain information has been considered as a potential abuse of a dominant position. In particular, the refusals related to:

- medical Studies;
- technical information for repairing devices;
- information needed for drafting a call for tender not penalising incumbents' competitors; and
- information needed to have a virtual point of sales communicating with the dominant undertaking's server used to collect bets for numerical games.

Notably, in the *Sapec Agro/Bayer Helm* decision (decision No. 22558 of 28 June 2011), the Italian Competition Authority, dealing with the refusal by a dominant undertaking to grant access to its competitors to two medical studies on the effects on human health and the environment of a certain active ingredient for a fungicide, expressly followed the steps recognised by EU Competition law to apply the *essential facility doctrine*. In particular, the ICA evaluated (i) whether the two studies were or not duplicable; (ii) the absence of any alternatives on the market; (iii) the link between the refusal and the incentives for competitors to innovate (citing in this regard the EU *Microsoft* case); (iv) the existence of objective justification to the refusal; and (v) elimination of competition and harm to consumers. It is worth mentioning that the ICA indicated that the EU approach, when expressly taken into account, provides for a high level of competition protection, which may prevail over the protection of IP rights when balancing such two aspects (citing in this regard the EU *Magill*, *Microsoft* and *IMS* cases). The decision has been, however, annulled by the competent administrative court, which confirmed the principle expressed by the Italian Competition Authority, but contested that the medical studies were not duplicable.

For the purpose of this Study, it is also worth mentioning that in the case of *Capita Business Services Ltd and Bromcom Computers plc*, Capita gave the **UK** Office of Fair Trade voluntary assurances that it would provide "interface information" to a third party to enable it to have access to data on Capita's server; on this basis, the case was closed by the OFT.

As far as the **United States** is concerned, antitrust law does not generally mandate a company to disclose its technology to rivals to enable such rivals to make their products compatible with the company's technology: several cases have dealt with this issue (*e.g.*, *United States v. National Lead Co.*; *Berkey Photo, Inc. v. Eastman Kodak Co.*; *California Computer Products, Inc. v. International Business Machines Corporation*, where it was concluded that "*IBM, assuming it was a monopolist, had the right to redesign its products to make them more attractive to buyers whether by reason of lower manufacturing cost and price or improved performance[,] was under no duty to help CalComp or other peripheral equipment manufacturers survive or expand [, and] need not have provided its rivals with disk products to examine and copy ... nor have constricted its product development so as to facilitate sales of rival products*").

In *Intergraph Corporation v. Intel Corporation*, the Court of Appeals for the Federal Circuit reversed the lower court's preliminary injunction against Intel, holding that Intel could not be required to disclose pre-release technical information to Intergraph under the "essential facility theory," reasoning that *"[t]he notion that withholding of technical information and samples of pre-release chips violates the Sherman Act, based on essential facility jurisprudence, is an unwarranted extension of precedent and can not be supported on the premises presented*." Finally, in *Data General Corp. v. Grumman Systems Support Corp*, the appeal court held that *"[e]ven a monopolist ... 'may normally keep its innovations secret from its rivals as long as it wishes".*

Conclusion: The Study has found that there is a very limited perception of the possible applicability of competition law rules to issues relating to trade secrets (this has been expressly stated for **Cyprus**, **Czech Republic**, **Ireland**, **Italy**, **Lithuania**, **Slovenia**, **Sweden**, **The Netherlands**, **the United Kingdom** and the **United States**), and such view is confirmed by the decisional practice of NCAs. With specific reference to unilateral practices carried out by trade secret owners, they may be of relevance from a competition law perspective only when put in place by dominant undertakings. However, there are few abuse of dominance cases involving trade secrets, and such cases all relate to refusals to disclose information which have been considered as violations of competition law.

**Rules protecting trade secrets from disclosure in the course of NCAs proceedings**

The Study has found that all relevant jurisdictions do have measures aimed at protecting business secrets/confidential information from being disclosed during NCAs' proceedings. In this respect, it has emerged that the involved undertakings have the right to indicate the information that, in their opinion, shall not be divulged. Even though the procedural steps needed to obtain protection of secret information varies, to a certain extent, from jurisdiction to jurisdiction, effective mechanisms preventing the right to access the NCA file, or the publication of NCAs' decision, may result in the divulgation of secret information which have been adopted in all the examined countries.

It should be mentioned that several jurisdictions have expressly indicated that the secrecy of information may not be sufficient to prevent disclosure when such information is relevant to prove the infringement or for the right of defence of the parties (**Bulgaria**, **Estonia**, **Germany**, **Greece**, **Italy**, **Luxembourg**, and **Portugal**). In any event, the Study has not evidenced any case where such circumstances have led to the disclosure of trade secrets.

Some peculiar provisions do, however, exist. In particular, for **Germany**, a possible inadequacy of the system has emerged since, in fine proceedings, the defence counsel has to be given access to files, but there is no explicit provision requiring him/her not to disclose the trade secrets contained therein. The issues have been, however, assessed by the German Supreme Court, which stated that the defence counsel can disclose to its client only the information that is indispensable for a proper defence.

Furthermore, in the **United States** – due to the peculiarities of competition law proceedings when compared to the European model – the discovery process permits a party to demand disclosure of relevant information and potential evidence from the other party. This includes information on trade secrets that is relevant for litigation. However, a party from whom discovery is sought may move the court to issue a protective order requiring not to reveal (or to reveal it only in a limited manner) a trade secret.

Conclusion: The Study has evidenced that great attention is paid in relevant jurisdictions to the protection of trade secrets from being disclosed during competition law proceedings, and that the level of protection granted at a national level in this respect is considered as appropriate.

**General civil litigation *vis-à-vis* enforcement of competition law rules**

In general terms, the Study has evidenced that there are no main differences between general litigation and litigation relating to competition law violations. Accordingly, for a description of procedure and protection of trade secrets during proceedings, please refer to the chapter on Commercial and IP law.

In any event, it is worth stressing that certain peculiarities have emerged. To start with, in the **United Kingdom** and **Sweden**, the jurisdiction on competition law cases is devolved to specific courts. Similarly, in **France**, specialised sections deal with competition law cases. In **Italy**, following the recent entry into force of Decree No. 1/2012, private enforcement actions stemming from violations of competition law must be filed within the specialised sections of the 1st degree tribunal having territorial jurisdiction. The reply for **Greece** has indicated that special IP courts might also deal with cases based on competition law.

Furthermore, damage actions based on violations of competition law do have some peculiarities. In **Bulgaria**, damage actions may only be brought by a competitor of the alleged tortfeasor. In **Germany**, with specific reference to an action for damages deriving from a violation of competition law, the German Federal Supreme Court has recognised the so-called "passing-on defence". However, such defence (according to which where the direct purchaser brings an action for civil damages against the cartelist, the latter can raise the defence and counter-argument that the direct purchaser passed the effect of the increased cartel price on to its customers) seems hardly applicable to cases involving trade secrets. Furthermore, in **Hungary**, it has been recently introduced a rebuttable presumption that hard-core cartels result in a price increase of 10%, which has effects on the claimant's burden of proof in quantifying damages.

Finally, the fact that a NCA or the European Commission simultaneously examines the same facts, on which a civil action has been brought, may lead national courts to suspend proceedings and wait for the NCA or European Commission's decision.

However, it should be mentioned that the Study has found that civil courts of EU Member States have never dealt with competition law issues involving trade secrets.

Conclusion: The Study has evidenced that trade secrets have never been involved in civil litigation pertaining to competition law issues in any EU Member State, even though civil judgements (as opposed to NCAs' decisions) could order the restoration of the damages suffered by the claimant. The absence of civil litigation in this specific field, taking into account that procedural rules do not present any particular complexity, further evidences that the protection of trade secrets is not considered as achievable through the application of competition law rules and that there is a very limited perception of the possible applicability of competition law rules to issues relating to trade secrets.

## Subsection 3.3. Conclusion

The Study has evidenced that competition law has no purpose of protecting trade secrets. Competition law provisions may come into play only when the ownership, use and/or enforcement of trade secrets generate anticompetitive effects. However, there is a very

limited perception of the possible applicability of competition law rules to issues relating to trade secrets. This is confirmed by the very limited number of decision adopted by NCAs relating to competition law issues involving trade secrets, and by the absence of any civil law judgement within EU Member States in this field.

On the basis of the relevant case law, competition law could, nonetheless, be a useful tool to deal with refusals to disclose trade secrets by dominant undertakings. In this respect, however, some opacity on the applicable test to verify if a refusal to disclose certain secret information does constitute an abuse depends on the lack of a common notion of trade secrets within EU Member States and of a clear indication, at the EU level, on whether trade secrets should be treated differently than IP rights. Accordingly, uniforming the notion and the level of protection of trade secrets throughout the EU, or at least clarifying whether the standard of intervention applied to the refusal to disclose trade secrets is the same applied for IP rights, would shed some light on the issue and result in uniform decisions by NCAs and in a higher level of legal certainty.

## Section 4. Criminal Law - Overview

### Subsection 4.1. Applicable regulatory framework

### Applicable criminal provisions and scope of protection

Due to the lack of a common EU framework, criminal protection of trade secrets differs from member state to member state on several levels, though almost all the legal systems analysed establish provisions in this respect.

Again, there is a lack of a common/shared definition of the scope of trade secrets. As a result thereof, the actual extent of the protection provided by states may vary depending on the aims pursued by the provisions implemented for this purpose.

Just a limited number of Member States (*i.e.,* **Bulgaria, Ireland and UK**) have not established any specific criminal framework with respect to trade secret violations. However, even in these Member States, the conduct of the infringer may be punished under other related criminal offences, as will be clarified below. In many cases, where no specific criminal provision has been implemented, penal sanctions of trade secret violations apply under unfair competition laws or commercial laws.

The table below summarises the criminal provisions in force for each state:

| Country | Specific law on trade secrets | Criminal Code | Unfair Competition /Commercial Law |
|---|---|---|---|
| **Austria** | | **X** | **X** |
| **Belgium** | | **X** | |
| **Bulgaria** | | | |
| **Cyprus** | | **X** | **X** |
| **Czech Republic** | | | **X** |
| **Denmark** | | **X** | **X** |
| **Estonia** | | **X** | |
| **Finland** | | **X** | **X** |
| **France** | | **X** | |
| **Germany** | | **X** | **X** |
| **Greece** | | **X** | **X** |
| **Hungary** | | **X** | |
| **Republic of Ireland** | | | |
| **Italy** | | **X** | |
| **Japan** | | | **X** |
| **Latvia** | | **X** | |
| **Lithuania** | | **X** | |
| **Luxembourg** | | **X** | |
| **Malta** | | **X** | |
| **Netherlands** | | **X** | |
| **Poland** | | | **X** |
| **Portugal** | | **X** | |
| **Romania** | | **X** | **X** |
| **Slovakia** | | **X** | |
| **Slovenia** | | **X** | |
| **Spain** | | **X** | |
| **Sweden** | **X** | **X** | |
| **Switzerland** | | **X** | **X** |
| **UK** | | | |
| **US** | **X (California and Texas)** | | |

Many of the states, as it emerges from the table above, establish criminal provisions regarding trade secret infringements within laws other than criminal code/statutes, such as unfair competition or commercial laws. Sweden is the only EU Member state that has implemented a specific law on trade secrets (the Swedish Act on the Protection of Trade Secrets), even though some relevant provisions are also contained in the Criminal Code.

In particular, the Act on the Swedish Protection of Trade Secrets establishes two different offences: business espionage and the unauthorised dealing with trade secrets. Other complimentary or more general offences, such as, for instance, unauthorised access to computer systems or breach of faith against principal are regulated under the Criminal Code.

In the **United States**, just a few federal states have adopted specific criminal statutes against trade secret violations: California and Texas directly regulate the theft of trade secrets, whereas New York's larceny statute criminalises the larceny of secret scientific material. It also has to be stressed that the US Federal Law provides for the criminalisation of theft of trade secrets related to or in products within interstate or foreign commerce.

**Switzerland** has implemented an extensive regulation of trade secret infringements. The relevant scope of protection, in addition to the breach of confidentiality, provides for the punishment of industrial espionage and other crimes related to specific types of secrets (*i.e.,* professional or official secrets).

**Japan** does not establish any offence under the Criminal code: the relevant provisions concerning trade secret violations are contained in the Unfair Competition Prevention Act that criminalises an extensive range of conduct pertaining to trade secrets, such as an unlawful use or disclosure, theft, misappropriation, or breach of custody.

The extent to which violations of trade secrets are criminalised under the legal systems depends on the various definitions of confidential business information adopted. The lack of a common legal framework in this respect in international law and, as regards the European Union, in European law, gives rise to significant differences between the scopes of the actual protection afforded by criminal law.

Just a few legal systems provide a definition of trade secrets in criminal law. In the absence thereof, courts have developed certain standards to set out the scope of the criminal protection relating to trade secrets. In particular, the concept of trade secret is deemed to refer to any information that:

- concerns the business of the owner/company (*i.e.*, qualifies as a business/professional secret);
- confers to the owner a competitive advantage (that the owner has a legitimate economic interest to exploit), so that the disclosure may cause to him damage in terms of financial loss;
- is known/disclosed to a limited group of people only; and
- whose confidentiality is protected through proper measures.

In many jurisdictions, the confidential information whose disclosure entails a violation of a trade secret is often defined by reference to any information that a manager, director or employee has known by reason of his employment with the company that is the owner of the secret.

The definition of the actual scope of trade secrets may rely on different criteria. According to a subjective criterion, trade secrets include any information that the owner considers to be strategic assets and, thus, to be kept confidential. In light of an objective criterion, trade secrets would instead refer to any information that can be reasonably considered as having economic value.

These different views have been identified with two alternative theories: on one hand, the theory of the will; on the other one, the theory of the interest. However, for business information to be considered confidential and, thus, a trade secret, the mere will of the owner usually should not *per se* suffice as criminal protection may be afforded only when there is an objective interest to the exploitation thereof.[60] Otherwise, the use of criminal punishment would be put in the hands of the owner of a trade secret.

However, other reasons for criminal protection of business information include the confidentiality of the company that may be felt as an extensive development of the constitutional right to privacy normally conferred to individuals, and the regular functioning of the market, that is mainly pursued by unfair competition law.

In light of the above, criminal protection of trade secrets is afforded through provisions of various legal areas, reflecting the different legal interests that are safeguarded by domestic laws. As a result, in the absence of a shared definition of trade secrets (and apart from the "hard core"), criminal conduct punished as trade secret violations may even substantially vary from state to state.

**Characteristics of the conduct**

In **Austria**, the offender to be held criminally liable for trade secret violations must have acted at least with conditional intent. In **Belgium, Estonia** and **France,** the conduct may be punished even if the offender acted with negligence.

**Cyprus** does not establish any specific requirement that the offender must meet to be charged with criminal liability for trade secret violations. Nor is there any stated obligation on the owner to keep information confidential.

In **Czech Republic,** the offender must act deliberately to commit the offence. As the relevant conduct is defined as an act of unfair competition, the offender must qualify as a competitor or someone participating in the competitive process. The concept of competition has nevertheless been construed very broadly, including even indirect or potential competitors.

In **Denmark**, the offences provided for under the Criminal Code require intent. Only upon certain circumstances, if the employee causes a substantial risk of dissemination of confidential information by negligence, he or she may be charged with criminal liability pursuant to Section 19 of the Marketing Practices Act, without having acted with intent.

[60] *See*, for instance, Section 370B of Greek Criminal Code, which defines "secret" as "any information which its legal owner, out of reasonable interest, treats as confidential, especially when he has taken measures in order to prevent third parties to take knowledge of it".

**Germany** partly requires that the infringer acts with intent and, specifically, for the purpose of competition, for personal gain, for benefit of a third party, or causing damage to the owner of the secret.[61]
In **Greece,** the offender must act (with intent) for purpose of competition, which means that two criteria have to be met: (i) the conduct of the offender must be suitable to serve the purpose of competition; (ii) he or she must act with the "intention of competition", *i.e.,* enhance his or the third parties' competitiveness.

As to **Hungary** and **Italy**, the offender may be punished only if he or she acts with intent.

In **Latvia**, the employer is obliged to identify in writing the information considered to be commercial secrets. In any case, the offender requires the offender to have acted for use or disclosure by himself or another person; therefore, intent is required for the offence to occur.

**Lithuania** requires that the offender, in case of business espionage, acted with the intent to unlawfully obtain a trade secret, whereas, in the case of violation of trade secrets, major property damage to the victim is required.

In **Luxembourg**, **Netherlands** and **Portugal**, the offender must act with the intent to reach a competitive advantage or to cause harm to the owner.

**Poland** also requires intent, as the offender must breach an obligation of confidentiality that must be previously established by the owner of the secret, either directly or indirectly.

Under **Romanian** and **Slovak** law, the offender must act with intent, but no specific purpose is required.

The same applies in **Slovenia**, where if the conduct reaches a certain outcome, the offender may be charged with more severe correspondent penalties.

**Spain** also requires intent, even if the purposes to be pursued vary depending on the type of offence considered (for instance, commercial advantage).

The **Swedish** Act on the Protection of Trade Secret does not pose any requirement as to the purpose that the offender acts for. It only requires that he acted wilfully and without authorisation.

Under **Japanese** law, the offender must act with the intent of obtaining an illicit gain or causing damage to the owner of the trade secret.

**Switzerland** punishes violation of secrets provided that the infringer acted with intent. Mere betrayal constitutes an offence regardless of the purpose of the offender, whereas the exploitation of the secret requires that the infringer acted to obtain a financial advantage. Additionally, the crime of business espionage requires that the offender acted to render the information available to a foreign destination.

In the **US**, the offender must act with intent for his conduct to constitute an offence.

[61] Please also note that pursuant to Section 85 of the Limited Liability Company Act (GmbHG), any person who reveals a secret of the company without authorization, particularly an operational or business secret, that became known to him in his capacity as managing director, member of the supervisory board or liquidator shall be subject to imprisonment for a period of up to one year or a fine. Indirect intention (dolus eventualis) is sufficient for such act.

As almost all the EU Member states require that the offender acted with intent, it emerges that whoever commits a trade secret infringement must clearly have the knowledge that the business information constituted trade secrets, even if there is no express obligation to keep such information confidential.

**Related offences**

As to **Austria**, **Hungary, Japan** and **Romania**, no "related offences" have been reported as potential additional consequences of a conduct that constitutes trade secret infringement.

In **Belgium**, a person who commits the offence under Section 309 of the Criminal Code (unauthorised disclosure of trade secrets) may also be charged with theft or misappropriation (provided that he qualifies as an employee with the company).

Similarly, Section 491 applies when a person tasked with handling manufacturing secrets that are physically stored breaches his duty of confidence.

In **Bulgaria**, for instance, the offence of business bribery is applicable to any individual who discloses to third parties information that he knows in return for something.

In **France**, there is a wide range of crimes that may arise in connection to trade secret violations:

First, the offence of theft may occur when the conduct at stake consists of the fraudulent appropriation of third parties' data carriers containing confidential information. Such an offence has been found by the court of cassation to apply even in connection to the disclosure of trade secrets.[62] Theft is punished by imprisonment up to three years and a fine of EUR45,000.

Additionally, the offence of a breach of trust may be committed where an individual with the company misappropriates documents containing confidential information entrusted to them for temporary use. In such case, the offender shall be punished by imprisonment up to three years or a fine of EUR375,000.[63]

Also, other provisions of the Criminal Code punish the act of supplying secret information to foreign powers by imprisonment up to 15 years and a fine of EUR225,000.00.

In **Germany**, cases of industrial espionage may result in theft or misappropriation.

In **Greece**, the infringement of trade secret may constitute, among other offences, a breach of trust under Section 390 of the Criminal Code. In such a case, the offender shall be punished by imprisonment up to 10 years and a fine up to EUR15,000.

Depending on the circumstances, violations of trade secrets may result, further to civil lawsuits, in a number of offences, including but not limited to insider trading, unauthorised access to computer systems, and a breach of privacy.

[62] *See* Court of Cassation, ruling 7 November 2004.

[63] This offence has been applied by the Correctional Court of Clermont Ferrand, in a ruling delivered on 21 June 2010, in the "Michelin case", where an employee had attempted to sell trade secrets to a competitor.

As to **Italy**, the conduct of the offender who commits an unauthorised use or disclosure of trade secrets may also constitute theft or misappropriation.

In **Latvia**, acts of unauthorised disclosure or acquisition of trade secrets may constitute unfair competition practices where repeated within a one-year period and, thus, result in a punishment by imprisonment of up to two years and a fine, in addition to disqualification penalties.

Violations of trade secrets may constitute fraud or bribery in **Lithuania** or theft in **Luxembourg.** In **Netherlands**, the conduct may also result in the theft of secret documents or hacking of computer systems. In **Portugal**, the related offences include computer and communications fraud. **Slovakia**, in addition to the breach of trade secrets, criminalises the misuse of participation in economic competition through unfair acts.

In **Slovenia**, the same act may be punished under the crime of "disclosure of and unauthorised access to trade secrets" as well as, for instance, the offence of abuse of insider information. **Spain** provides an extensive regulation of trade secret infringements: however, pursuant to Section 278.3 of the Criminal Code the specific provisions apply without prejudice to the penalties that may arise for appropriating or destroying the computer media, *i.e.,* for offences of theft or misappropriation.

In **Sweden**, further to the offences provided for under the act on the Protection of Trade Secrets, other criminal provisions may apply, including unauthorised access to computer systems, unlawful dispossession, unlawful use, espionage, unlawful dealing with secret information and negligent in dealing with confidential information.

In **Switzerland,** the violation of trade secrets may also entail theft, trespassing or unauthorised penetration of a secured data system.

In the **US,** generally speaking, the theft of secrets does not prevent other offences that may occur as a result of the conduct carried out by the infringer, such as economic espionage.

Offences in any way related to trade secret violations have significant importance in the legal systems that do not establish any specific provision in this respect.

In **Bulgaria**, violations of trade secrets may be punished only indirectly. The relevant offences in this respect include the disclosure of service/office secrets, the business bribe and computer crimes.

Under **Irish** law, for instance, trade secret infringements may result in:

(i) disclosure of personal data obtained without authority;

(ii) unauthorised accessing of data;

(iii) unlawful use of a computer;

(iv) theft; or

(v) criminal infringements of intellectual property rights.

Under the **Maltese** criminal law, in the absence of provisions specifically concerning trade secrets, one could be charged with misappropriation and fraudulent gains as a result of his conduct.

In the **UK**, the criminal provisions that may apply in connection to trade secret infringement cases include theft, fraud, conspiracy to defraud as well as upon certain circumstances, some of the offences provided for under the Computer Misuse Act (such as unauthorised access to information contained in a computer) and the Data Protection Act (although it is very unlikely that personal data qualify as trade secrets).

Under certain legal systems (in **Estonia**, **Finland**), according to general principles of criminal law (as it will be discussed below) the specific offences regarding trade secrets may not apply in so far as the conduct of the offender meets the requirements of more serious offences.

In light of the foregoing, it has to be stressed that a conduct that constitutes a trade secret infringement does often entail other offences, also depending upon the circumstances of the case (for instance, the manner the confidential information is unlawfully handled by the offender). However, the importance of these complimentary crimes varies according to whether a certain jurisdiction provides for or is not a specific offence regarding trade secret violations.

**Requirements for prosecution**

The conduct which normally gives rise to violations of trade secrets include the access to confidential information, the use or the disclosure thereof or the illicit acquisition for exploitation by the offender or third parties. These types of conduct are generally punished regardless of the fact that the offender qualifies as a competitor and may be committed either by (past) employees of the company or by external persons (such as consultants, contractors, or agents).

It is quite frequent, however, that the violation of trade secrets committed by an employee of the company owning the confidential business information results in a more severe punishment than that provided for the same offence in other cases (*i.e.,* in **Belgium, Greece** and **Spain**).

Please find below a summary of the main conduct concerning trade secret violation and the related punishment provided for under the legal systems considered in the study.

| Country | Offender | Conduct | Penalties |
|---|---|---|---|
| **Austria** | **Whoever** | Disclosure or exploitation of trade or business secrets | Up to six months' imprisonment; up to one year if the conduct is committed with the purpose to obtain a pecuniary advantage or to cause harm to the owner or monetary penalties |
| | | Spying out trade or business secrets for their exploitation by somebody else, or | Up to two years' imprisonment OR monetary penalties |

| Country | Offender | Conduct | Penalties |
|---|---|---|---|
| | | disclosure | |
| | | Spying out trade or business secrets for their exploitation abroad | Up to three years' imprisonment AND monetary penalties |
| **Belgium** | **Whoever** | Communicating in bad faith, or manufacturing secrets learned during the (past) employment with the owner | From three months up to three years' imprisonment AND monetary fine from EUR 50 to EUR 2,000 |
| **Bulgaria** | | There is no specific criminal provision concerning violation of trade secrets. However, depending on the characteristics of the conduct, the offender may be charged with more general offences, such as business bribe or computer crimes | |
| **Cyprus** | **Whoever** | Disclosure of trade secrets | Imprisonment up to one year OR a monetary fine up to EUR 1,275 |
| | | Disclosure of information protected by professional secrecy involving trade secrets | Imprisonment up to six months AND/OR monetary fine up to EUR 1,700 |
| **Czech Republic** | **Whoever** | Acts of unfair competition infringing trade secrets and causing damage or in excess of EUR2,000 to other competitors/consumers, or providing someone with unjustified benefit in the same or greater amount | Monetary fine up to EUR 1.5 million* |
| **Denmark** | **Whoever** | Unauthorised misuse or appropriation of trade secrets | Imprisonment up to one year and six months, OR monetary fine |
| | | Serious violations such as appropriation of trade secrets in a contract of service or in the performance of assignments | Imprisonment up to six years |

| Country | Offender | Conduct | Penalties |
|---|---|---|---|
| **Estonia** | **Whoever** | Unauthorised disclosure or use of business secret learned by reason of professional or official duties with the purpose of causing damage | Imprisonment up to one year OR monetary fine |
| **Finland** | **Whoever** | Violation of a trade secret: Disclosure or use of trade secrets known by reason of the employment, position or other lawful activities to obtain financial benefit or to injure the owner | Imprisonment up to two years OR monetary fine |
| | | Misuse of trade secrets obtained or revealed through an unlawful act | Imprisonment up to two years OR monetary fine |
| | | Business espionage: Unlawfully obtaining information regarding trade secrets | Imprisonment up to two years OR monetary fine |
| **France** | **Whoever** | Revelation of manufacturing secrets | Imprisonment up to two years AND monetary fine of EUR 30,000 |
| | | Theft (carriers or materials containing trade secrets), breach of trust | Imprisonment up to three years AND monetary fine up to EUR 375,000 |
| **Germany** | **Employees** | Unauthorised communication of trade or business secrets that the offender was granted access for the purpose of obtaining financial advantage or injuring the owner | Imprisonment up to three years OR monetary fine. Imprisonment up to five years if aggravating circumstances occur |
| | **Whoever** | Unauthorised acquiring or securing trade or business secrets or using thereof | Imprisonment up to three years OR monetary fine. Imprisonment up to five years if aggravating circumstances occur. |
| **Greece** | **Whoever** | Copying, imprinting, using, disclosing or in any way violating data or computer programs constituting secrets of an enterprise | Imprisonment from three months up to one year. Imprisonment from one year to five years if the offender is in the service of the owner and the secrets are of great financial significance |
| | **Employees** | Unauthorised communication to third parties of secrets that the offender has known by reason of his employment to obtain financial advantage or to cause damage to the owner; unauthorised use of the information so obtained | Imprisonment up to six months AND monetary fine up to EUR 8.80** |

| Country | Offender | Conduct | Penalties |
|---|---|---|---|
| **Hungary** | **Whoever** | Illegally obtaining, using, communicating, publishing trade secrets for financial gain advantage or causing others pecuniary disadvantage | Imprisonment up to three years |
| **Republic of Ireland** | **Not applicable** | | |
| **Italy** | **Whoever** | Disclosure or use of any information concerning scientific discoveries or inventions, or industrial applications intended to remain secret known by the offender by reason of his status, function, job or art, to obtain a profit | Imprisonment up to two years |
| **Japan** | **Whoever** | Acquiring a trade secret by an act of fraud or an act violating control obligations to obtain financial advantage or cause damage to the owner; use or disclosure of trade secrets obtained in the manner described above to obtain financial advantage or cause damage to the owner; breach of the duty of safe custody of trade secrets to obtain financial advantage or to cause damage to the owner | Imprisonment with work up to 10 years AND/OR monetary fine up to JPY 10,000 000 |
| **Latvia** | **Whoever** | Revelation of non-disclosable information other than a state secret; unauthorised acquisition and disclosure of commercial secrets | Imprisonment up to five years OR monetary fine |
| **Lithuania** | **Whoever** | Unlawful acquisition of commercial secrets or communication to third persons; disclosure of information that the offender was entrusted by reason of his employment | Imprisonment up to two years OR monetary fine up to EUR 18,825 OR restriction of liberty OR community service |
| **Luxembourg** | **Employses** | Use or disclosure, during the employment or within two years after its expiration, trade or manufacturing secrets known by reason of the job to obtain financial advantage or to cause damage to the owner | Imprisonment from three months to three years AND monetary fine from EUR 251 to EUR 19,500 |

| Country | Offender | Conduct | Penalties |
|---|---|---|---|
| **Malta** | **A person in a particular capacity** | Fraud: misappropriation or disclosure of information by which is derived an economic benefit | Imprisonment up to two years AND/OR monetary fine up to EUR 46,587.47 |
| **Netherlands** | **Employee** | Intentional disclosure of confidential information that may harm the owner | Imprisonment up to six months AND/OR monetary fine up to EUR 19,500 |
| **Poland** | **Whoever** | Disclosure or exploitation of trade secret in breach of confidential duties that causes substantial damage to the owner; use of information illegally acquired or disclosure to third persons | Imprisonment from one month to two years OR monetary fine up to EUR 260,000* |
| **Portugal** | **Whoever** | Use or disclosure to third parties of secrets that the offender knows by reason of his status, job, profession or art | Imprisonment up to one year OR monetary fine |
| **Romania** | **Whoever** | Disclosure, acquisition or use of trade secrets without the consent of the owner, as a result of an action of commercial or industrial espionage | Imprisonment from six months up to two years OR monetary fine from EUR570 to EUR15,000* |
| | | Disclosure of data or information not intended to be publicly known by a person who knows it by reason of his employment, provided that the offence is likely to cause damages | Imprisonment from two up to seven years; imprisonment from six months to five years if the disclosure is made by another person |
| **Slovakia** | **Whoever** | Spying out trade secrets with the intention to disclose it to unauthorised persons | Imprisonment from six months up to three years; Imprisonment from seven to 12 years if aggravating circumstances occur |
| **Slovenia** | **Whoever** | Disclosure of trade secrets; Providing unauthorised third parties with access to trade secrets; collection of trade secrets with the purpose of delivering them to unauthorised persons; unlawful obtainment of trade secrets with the purpose of delivering them to unauthorised persons | Imprisonment up to three years; imprisonment up to five years if the information is of particular importance |

| Country | Offender | Conduct | Penalties |
|---|---|---|---|
| **Spain** | **Whoever** | Acquiring data, documents, media and other objects to discover trade secrets; disclosure, revelation or communication to third parties of the discovered information | Imprisonment from two up to four years AND monetary fine; imprisonment from three to five years AND monetary fine in case the secrets are disclosed |
| | | Diffusion, disclosure or communication of trade secrets in breach of duties of confidentiality | Imprisonment from two up to four years AND monetary fine, in case the information is disclosed in breach of confidentiality |
| **Sweden** | **Whoever** | Unauthorised accessing trade secrets as business espionage | Imprisonment up to two years OR monetary fine; Imprisonment up to six years in case of information of significant importance |
| | | Acquiring trade secrets knowing that the person who made it available accessed the trade secret through acts of business espionage | Imprisonment up to two years OR monetary fine; Imprisonment up to four years in case of information of significant importance |
| **Switzerland** | **Whoever** | Betrayal of manufacturing or trade secrets that the offender has a statutory or contractual duty to keep confidential | Imprisonment up to three years OR monetary fine |
| | | Obtaining manufacturing or trade secrets in order to make it available to third persons/entities | Imprisonment up to three years AND/OR monetary fine |
| **UK** | **Not applicable** | | |
| **US** | **Whoever** | US federal law prohibits acts such as stealing, misappropriation, and unauthorised copy of confidential information | Imprisonment up to 10 years OR monetary fine. |
| *Monetary penalties are expressed in local currency and converted to euro for the reader's convenience<br>** Greece Law No. 146/1914 on unfair competition provides for a monetary penalty amounting to GRD3,000 | | | |

The comparative table above shows the different ways by which states punish trade secret infringements from a criminal standpoint. Generally, punishment of the offender is by imprisonment, even though he or she may also be charged, either in addition to that or alternatively, with monetary penalties.

A summary table is presented below. The table reflects the penalties that shall apply for the main offence (for instance, unauthorised disclosure/use of trade secrets) provided for by each of the legal systems considered in the study.

| Country | Imprisonment ONLY | Imprisonment AND monetary penalties | Imprisonment OR monetary penalties | Monetary penalties ONLY | Other penalties |
|---|---|---|---|---|---|
| **Austria** | | | X | | |
| **Belgium** | | X | | | |
| **Bulgaria** | | | | | |
| **Cyprus** | | | X | | |
| **Czech Republic** | | X | | | X |
| **Denmark** | | | X | | |
| **Estonia** | | | X | | |
| **Finland** | | | X | | |
| **France** | | X | | | |
| **Germany** | | | X | | |
| **Greece** | | X | | | |
| **Hungary** | X | | | | |
| **Republic of Ireland** | | | | | |
| **Italy** | X | | | | |
| **Japan** | | X | X | | |
| **Latvia** | | | X | | |
| **Lithuania** | X | | | | X |
| **Luxembourg** | | X | | | |
| **Malta**[64] | | X | X | | |
| **Netherlands** | | X | X | | |
| **Poland** | | X | | | |
| **Portugal** | | | X | | |
| **Romania** | | | X | | X |
| **Slovakia** | X | | | | |
| **Slovenia** | X | | | | |
| **Spain** | | X | | | |
| **Sweden** | | | X | | |
| **Switzerland** | | | X | | |
| **UK** | | | | | |
| **US** | | | X | | |
| | | | | | |
| **Total** | **5** | **10** | **15** | **0** | **3** |

[64] Malta has reported that no specific criminal provisions is established with respect to trade secrets but a wide interpretation of that the wording contained in Articles 293 and 309 of the said Criminal Code, relating to "misappropriation" and "fraudulent gains" are drafted in such a manner as to be construed as covering also the violation of trade secrets.

Most of the states considered in the Study alternatively apply imprisonment or monetary penalties to offenders charged with trade secret infringements.

**Hungary, Italy, Lithuania, Slovakia** and **Slovenia** only provide for the imprisonment of the offender whereas in **Czech Republic** only monetary penalties and, where possible, forfeiture of property shall apply.

**Lithuania,** as well as **Romania**, also provide for disqualification penalties in addition to imprisonment, such as deprivation of the right to be employed in certain positions or to engage in certain activities. This is a very significant solution, as it directly impacts on the opportunity for the offender to be entrusted with certain responsibilities in his future employment.

With respect to the extent of punishment, the **Czech Republic** is the state where the heaviest fines apply: under Czech law, the infringer shall be punished with a fine up to EUR1.5 million.

In most of states, trade secret infringements are punished with imprisonment up to a term of two to three years.

There are a few exceptions: in **Denmark**, the offender may be charged with up to six years' imprisonment, provided that serious violations have taken place; in **Slovenia**, imprisonment may be up to five years when the acts carried out by the offender concerns information of particular importance.

Under the **Swedish** Act on the Protection of Trade Secrets, terms of imprisonment of up to six years are foreseen for cases of business espionage and up to four years for the unlawful acquisition of trade secrets of significant importance.

Also, **Switzerland** punishes trade secret violations by imprisonment up to three years, while in the US imprisonment may amount to 10 years according to the provisions contained in the US Federal Law. The same applies in Japan. Therefore, it emerges that outside EU trade secrets, as far as penal sanctions are concerned, are more strongly protected against the risk of unlawful disclosure, dissemination or misuse through more severe penalties.

In light of the above, it can be observed that most of the jurisdictions provide for the combined or alternative use of imprisonment and pecuniary penalties as reaction to trade secret infringements. However, the terms of imprisonment (that usually do not exceed three/four years) and, in particular, amounts of fines may significantly diverge from one jurisdiction to another, as they are determined according to every state's discretion but harmonisation could be successfully reached in this respect by defining minimum/maximum thresholds (at least in so far as monetary penalties are concerned).

**Threshold for applicability of criminal penalties**

In the **Czech Republic**, only violations resulting in a damage of at least EUR2,000 may give rise to criminal liability. The offender must cause harm to a competitor or a consumer equivalent to such an amount or provide someone else than the owner of the secret with a benefit of the same amount. The offender does not necessarily need to be a legal person or an enterprise.

A *de minimis* threshold applies for the disclosure of a trade secret in **Lithuania,** where for the offender to be prosecuted it is required that the conduct caused damage of at least EUR 5,648. However, the threshold does not apply to commercial espionage.

Something like a *de minimis* threshold is established in **Poland**, where the conduct must have caused substantial damage to the owner, although no quantification of this concept is provided for in law.

**Slovakia** establishes that for the offender to be prosecuted, a significant damage (more than EUR 26,600) must be caused by his conduct to another competitor. It also provides for a more severe penalty in cases where the conduct causes large-scale damages (over EUR 133,000).

Also, under **Estonian** criminal law, a general safe harbour clause applies, preventing prosecution in case the offence is found to be of minor importance.

In **Austria**, the offender will not be prosecuted if his conduct is justified by a compelling public or private interest.

No safe harbour has been reported with respect to **Latvia, Sweden** and **US.** In **Cyprus**, disclosure of trade secrets is allowed, for instance, when protection of health and safety of citizens is affected, *i.e.,* where compelling public interests are at stake or to prove violations of statutory provisions.

Similarly, no safe harbour or *de minimis* threshold applies in **Denmark, Finland, Italy, Luxembourg** and **Slovenia.**

**Germany** does not provide for any safe harbour; however, as a general principle of criminal law, disclosure of trade secrets is justified when committed to avert an imminent danger to life, limb, freedom, honour, property or other prevailing legal interests.

In **Greece**, trade secrets are not protected in case a witness is examined to represent certain circumstances before the court, excluding state secrets.

In **Hungary**, Section 300(2) of Criminal Code expressly sets forth some safe harbours that justify infringement of trade secrets. These clauses include:

| | |
|---|---|
| (i) | fulfilment of duties prescribed in a separate act governing the publication of information and information to be disclosed in the public interest; and |
| (ii) | fulfilment of duties subject to statutory reporting obligations, even in the case the report was filed in good faith and proved to be unfounded. |

In the **Netherlands**, a specific provision sets out an exemption for those who disclosed in good faith a trade secret assuming that the disclosure was in the public interest.

**Portugal** and **Romania** consider the consent of the owner to the disclosure of a secret as a safe harbour clause.

In addition to that, Romanian law permits the disclosure of trade secrets where compelling public interests are at stake.

**Spain** expressly does not consider information about illegal activities carried out by the owner to be a trade secret: therefore, its revelation would not determine any prosecution. The same may apply for other jurisdictions, being the protection afforded to trade secrets based on the legal interest to prevent unlawful misappropriation and use of know-how developed by other companies/individuals to gain competitive advantage.

**Switzerland** does not provide for a safe harbour or *de minimis* threshold but the offender may invoke general principles of criminal law and be exempt of prosecution if he/she manages to prove that his/her conduct was carried out for self-defence or in a situation of necessity.

**Japan** provides for an exemption from criminal penalties for any person who acquired a trade secret through a transaction, using or disclosing the trade secret within the scope of the authority acquired through such transaction and with no knowledge that there had been an improper disclosure or a wrongful acquisition of such trade secret, provided that the lack of knowledge was not due to negligence.

In all the states involved in the Study (except for **Slovakia, Slovenia** and, upon certain circumstances, **US**), mere risks of dissemination of confidential information do not amount to a criminal offence. The conduct carried out by the infringer must in fact result in an actual violation of the interest protected under the relevant provisions.

In contrast, most legal systems (including **Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Italy, Latvia, Lithuania, Slovakia, Slovenia, Switzerland** and **US**) provide criminal protection against activities that constitute an attempt to commit a trade secret violation. The acts carried out with the purpose of disclosing or using confidential business information which reach a certain threshold in the realisation of the offence are likely to trigger criminal liability.

The above shows how trade secret infringements are punished under criminal law regardless of the extent to which the disclosure, use or misappropriation (or the other activities that constitute breach of confidentiality) of confidential information cause a harm to the owner. Just where general principles of criminal law apply the offender may be exempted from prosecution.

**Specific types of secret violations (other offences)**

Certain jurisdictions also establish qualified offences when the revelation or use of confidential information is committed by a person acting in a particular capacity (*e.g.,* as civil servant, public official, or as person handling confidential information by reason of his job, *e.g.*, lawyers, officers).

Please note that this does not mean that for each of the offences a specific provision is established. Separate provisions may have been implemented (*e.g.*, Italy) or, like in Estonia, the same provision may apply to professional and official secrets, also covering trade secrets.

A specific act on official secrets has been adopted in **Malta**.

| Country | Breach of professional secret | Breach of official secret | Other breach of confidence | Separate provisions Y/N |
|---|---|---|---|---|
| **Austria** | **X** | **X** | | **Y** |
| **Belgium** | **X** | | | **Y** |
| **Bulgaria** | | **X** | | **N** |
| **Cyprus** | **X** | **X** | | **N** |
| **Czech Republic** | | | | **N/A** |
| **Denmark** | | | | **N/A** |
| **Estonia** | **X** | **X** | | **N** |
| **Finland** | | **X** | | **Y** |
| **France** | **X** | **X** | | **N** |
| **Germany** | **X** | **X** | **X** | **Y** |
| **Greece** | **X** | **X** | **X** | **N** |
| **Hungary** | **X** | **X** | **X** | **Y**[65] |
| **Republic of Ireland** | | | | |
| **Italy** | **X** | **X** | | **N** |
| **Japan** | | | | |
| **Latvia** | | | | |
| **Lithuania** | | | | |
| **Luxembourg** | | | | |
| **Malta** | **X** | **X** | | **N/A** |
| **Netherlands** | **X** | | | **N** |
| **Poland** | | | | |
| **Portugal** | **X** | **X** | | **Y** |
| **Romania** | **X** | **X** | | **Y** |
| **Slovakia** | **X** | | | **N** |
| **Slovenia** | | | | |
| **Spain** | | | | |
| **Sweden** | **X** | | | **Y** |
| **Switzerland** | **X** | **X** | | **Y** |
| **UK** | | | **X** | **N/A** |
| **US** | | | | |

Therefore, to have a complete overview on the criminal legal framework concerning trade secrets, it has to be taken into account that the same conduct may fall within the scope of other particular provisions that regulate separate offences.
This could occur, for instance, when the offender, by reason of his office or the nature of the information he/she is handling, is subject to particular confidentiality duties

**Differences between trade secrets and intellectual property rights. Relationship between civil and criminal scope of protection**

[65] A new Criminal Code will enter into force on 1 July 2013. It will not introduce substantial changes in the criminal law protection of trade secrets, but trade secret related offences will be treated in a separate provision from the „breach of economic secret".

The relationship between trade secrets and protection of intellectual property rights does not qualify as significant, since the protection afforded to patentable inventions is alternative to that of business confidential information: once the owner determines to register a patent, in fact, any information concerning the relevant invention enters the public domain and the right of the owner to the exclusive exploitation thereof is limited to a certain time frame.
A trade secret is not *per se* considered to be an intellectual property right, but it can fall within the relevant scope of protection provided that certain requirements are fulfilled.

Generally speaking, a conduct that does not entail consequences from a criminal law standpoint may nevertheless constitute a violation of trade secrets under intellectual property and/or civil law. For instance, in **Belgium**, if the offender discloses information to third parties without fraudulent intent, he may not be charged with criminal liability, but such conduct may constitute an infringement under intellectual property law. In **Finland**, a misuse of trade secrets that is not carried out intentionally constitutes a violation of commercial and employment law but does not result in criminal liability.

In **France**, there is an overlap between the scope of protection afforded by criminal law, on one hand, and intellectual property law, on the other: any conduct prohibited under intellectual property law with respect to trade secrets also constitutes a criminal offence. A similar overlap can be observed in **Germany** where the same provision provides the grounds for both criminal and civil claim connected to disclosure of business and trade secrets. Also, the scopes of protection overlap in **Hungary** and **Slovakia**. In **Italy**, the requirements set forth under intellectual property law for the protection of secret information against revelation match those provided for by the Criminal Code: therefore, any disclosure of information that is secret, has an economic value, and is subject to measures intended to keep it confidential may give rise, in addition to civil remedies, to criminal liability for the infringer.

In **Japan**, the definition of trade secrets under intellectual property law matches that used in the context of criminal law. **Luxembourg** and **Netherlands** do not provide any protection from a civil standpoint. In **Poland**, the criminal law provisions relating to trade secret violations are established under unfair competition law but the scope of civil and criminal liability does not overlap, as certain conduct may trigger either criminal or civil consequences only. The same applies in the **UK**, where trade secrets are protected as a form of confidential information: the unauthorised used thereof may give rise to civil liability as breach of confidentiality but may not trigger criminal consequences, as the criminal protection relates to a limited group of conducts.

In the **US**, the definitions of trade secrets under the criminal statutes are identical or very similar to trade secrets as defined for civil trade secret misappropriation claims.

It is important, in light of the above, to take into account that even if the scope of the protection afforded under criminal/IP law is identical, criminal and civil liability may arise in connection with different grounds as to the state of mind of the infringer: as reported above, most of the states criminalised only criminal conduct committed with intent, whereas a negligent conduct establishes offences only as exceptions. Therefore, a negligent conduct that constitutes violation of trade secrets under intellectual property law does not necessarily entail a criminal offence.

**Limitations to protection of business confidential information as trade secrets**

In the jurisdictions considered in the study, there are no particular limitations as to the types of confidential business information that may fall within the definition of trade secrets and benefit from the corresponding protection.

In most of the cases, the offences in question rely upon a definition of trade secrets (either statutory or developed by case law) covering an extensive range of items (except for **Bulgaria, Cyprus, Denmark**, **Estonia, Ireland, Latvia, Malta, Portugal, Switzerland** and **the United Kingdom**).

Many of the countries seem to limit the scope of trade secrets to the information that a company has reasonable and objective interest to keep confidential, in accordance with an objective criterion (*e.g.*, **Austria, Belgium, France, Germany, Hungary, Italy, Japan, Lithuania, Luxembourg, Netherlands, Slovakia, Spain, Sweden and the United States**). In **Austria**, for instance, the case law has afforded protection for trade secrets for strategic issues such as conditions of purchase, distribution channels, customer lists, turnover on customer accounts, print methods, origin of raw materials, price calculation, sample collection, tenders, recipes, information on the production and storage of goods, methods of production, designs or engineering drawings and patented systems. The New York's larceny statute, in turn, refers to the notion of "secret scientific material", including "a sample, culture, microorganism, specimen, record, recording, document, drawing or any other Section, material, device or substance which constitutes, represents, evidences, reflects or records a scientific or technical process, invention or formula or any part thereof."

Nonetheless, in some cases, the relevant protection is afforded to any information having economic value that the owner deems it opportune for his benefit to keep the secret according to a subjective criterion, and that is subject to reasonable measures for the protection of confidentiality (*e.g.,* this broad interpretation seems to be prevailing in **Czech Republic, Finland, Greece, Poland, Romania** and **Slovenia**)**.**

In **Finland**, trade secrets are expressly defined as "a business or professional secret and other corresponding business information that an entrepreneur keeps secret and the revelation of which would result in causing financial loss to him or to another entrepreneur who has entrusted him with the information". In **Slovenia**, the definition of trade secrets used in criminal law is provided under the Companies Act, which includes (i) any information that a written decision of the owner has identified as such, and (ii) any information with respect to, regardless of the existence of a decision in writing of the company, it is reasonable to anticipate that substantial damage would result in case of disclosure to unauthorised persons.

It has to be stressed, nevertheless, that even if no jurisdictions establish a list of information that may be subject to confidentiality duties as trade secrets, the lack of more specific criteria than those reported above (under Section A.1, *i.e.,* disclosure to a limited group of individuals only, economic value, protection through proper measures) may give rise to some problems from a criminal law point of view, as the conduct
subject to prohibition may be found to be not completely defined and, accordingly, the border between legal and illegal activities may remain uncertain in some cases.

On the other hand, it has however to be conceded that establishing an exhaustive list of all the information to be kept secret would be impossible; therefore, domestic courts are expected to interpret the notion of a trade secret, absent in most of the states, a legal definition, in a manner that is consistent with the subjective (will) and objective (interest) criteria described above (under Section A.1).

Having said the above, it emerges that one of the objectives of any attempt to harmonise the legal framework concerning trade secrets should be to determine which criteria have to be met for an information to qualify as trade secret, in a manner that is consistent with the legal interests protected by each jurisdiction.

**Requirements for protection of trade secrets**

Patentability of inventions to which confidential business information refers never amount to a requirement for criminal protection of trade secrets to apply.

It has to be stressed that, once an invention is patented, the related information which prior to registration was confidential shall not qualify as trade secrets anymore.

Therefore, any information regarding industrial applications, inventions or discoveries that the owner wishes to register to obtain a patent, when an application is filed, ceases to be secret as the owner acquires the right to the exclusive exploitation of the patented item just for a limited term (or by granting a licence on that to third parties in exchange of royalties). Once expired the duration of the patent, the information regarding the patent shall become of public domain. Therefore, it is for the owner of a company to decide whether to exploit a strategic information as a trade secret (without any term) or patent (for a limited term).

In light of that, there is no conflict between criminal protection of trade secrets and the requirements provided by commercial law to determine that an item (*e.g.*, an invention) amounts to an intellectual property right.

**Criminal provisions regarding other IP rights**

Intellectual property rights (such as trade marks, patents, utility models and designs) are normally protected by criminal provisions against violations. However, the punishment of conduct consisting of the violation of IP rights is in no way connected to revelation of trade secrets.

| Country | Trademarks | Patents | Utility Models | Designs | Copyright | Others (database rights, geographical indications..) |
|---|---|---|---|---|---|---|
| **Austria** | X | X | X | X | | X |
| **Belgium** | X | X | | X | X | |
| **Bulgaria** | | X | X | X | | |
| **Cyprus** | | | | | | |
| **Czech Republic** | X | X | X | X | X | X |
| **Denmark** | X* | X* | X* | X* | X* | |
| **Estonia** | X | X | X | X | X | |
| **Finland** | X | X | X | X | X | |
| **France** | X | X | X | X | X | |
| **Germany** | X | X | X | X | X | X |
| **Greece** | X | X | X | X | | |
| **Hungary** | X | X | X | X | X | |
| **Republic of Ireland** | X | | X | X | X | |
| **Italy** | X | X | X | X | X | |
| **Japan** | X | X | X | X | X | |
| **Latvia** | X | | X | X | X | |
| **Lithuania** | X | X | | X | X | |
| **Luxembourg** | | | | | X | |
| **Malta** | X | X | | | X | |

| Country | Trademarks | Patents | Utility Models | Designs | Copyright | Others (database rights, geographical indications..) |
|---|---|---|---|---|---|---|
| **Netherlands** | | X | | | X | |
| **Poland** | X | X | X | X | X | |
| **Portugal** | | | | | | |
| **Romania** | X | X | | | | X |
| **Slovakia** | X | X | X | X | X | |
| **Slovenia** | X | X | | | | X |
| **Spain** | X | X | X | X | X | * |
| **Sweden** | X | X | X | X | X | |
| **Switzerland** | X | X | | X | | |
| **UK** | X | | | | X | |
| **US** | X | | | | X | |

* Denmark reported that Danish criminal law provides protection against violation of IP rights, so it is assumed that the relevant scope of protection includes trade marks, patents, models, design and copyright.

Although there is no necessary relationship between intellectual property rights and trade secrets, most of the jurisdictions involved in the Study establish criminal provisions regarding intellectual property rights. They could be used as comparative framework to focus on aspects that may be concerned in those jurisdictions where criminal protection is lacking at all.

## Subsection 4.2. Litigation and enforcement

### Requirements to commence legal proceeding

Some jurisdictions establish that offences such as a violation of trade secret may be investigated by the Public Prosecutor without any complaint by the aggrieved person to be filed (*e.g.,* **Belgium, Bulgaria, Czech Republic, Cyprus, Estonia, France, Hungary, Lithuania, Slovakia, Slovenia, Sweden** and **the United States**). On the other hand, certain states (such as **Austria, Denmark, Finland, Germany, Greece, Italy, Japan, Netherlands, Poland, Portugal, Romania** and **Spain)** require the filing of a compliant by the aggrieved person as condition for the prosecution of the offence to be started.

Generally (except for **Austria, Cyprus, Germany, Slovenia** and **Japan**), claims for compensation may be filed within criminal proceedings. In any cases, the aggrieved party or the person harmed by the offence may nevertheless separately file a civil lawsuit for recovery of damages suffered as a consequence of the offence.

| Country | Upon criminal compliant | *Ex officio* | Claim damages (Y/N) |
|---|---|---|---|
| | | | |
| **Austria** | **X*** | | **N** |
| **Belgium** | | **X** | **Y** |
| **Bulgaria** | | **X** | **N/A** |
| **Cyprus** | | **X** | **N** |
| **Czech Republic** | | **X** | **Y** |
| **Denmark** | | **X** | **Y** |
| **Estonia** | **X** | | **Y** |
| **Finland** | **X** | | **Y** |
| **France** | | **X** | **Y** |
| **Germany** | | **X**** | **N** |
| **Greece** | **X** | | **Y** |
| **Hungary** | | **X** | **Y** |
| **Republic of Ireland** | | | **N/A** |
| **Italy** | **X** | | **Y** |
| **Japan** | **X** | | **N** |
| **Latvia** | | **X** | **Y** |
| **Lithuania** | | **X** | **Y** |
| **Luxembourg** | **X** | | **Y** |
| **Malta** | | | **N/A** |
| **Netherlands** | **X***** | | **Y** |
| **Poland** | **X** | | **Y** |
| **Portugal** | **X** | | **Y** |
| **Romania** | **X** | | **Y** |
| **Slovakia** | **X** | | **Y** |
| **Slovenia** | | **X** | **N** |
| **Spain** | **X****** | | **Y** |
| **Sweden** | | **X** | **Y** |
| **Switzerland** | **X** | | **Y** |
| **UK** | | | **N/A** |
| **US** | | **X** | **N/A** |

*Except for the offence under Section 124 of Criminal Code

**Generally speaking, the offences can be prosecuted *ex officio* if the public prosecutor considers it necessary in the public interest. Otherwise, the owner of a trade secret may bring a private prosecution against the infringer before the Criminal Court

*** Under the Dutch law, the offence provided for under Section 272 of Criminal Code shall be prosecuted upon compliance of the aggrieved person only in cases where the conduct of the offender caused harm to somebody. The offence under Section 273 shall be prosecuted only upon the filing of a criminal complaint by the aggrieved person.

****Except for cases where the offence affects general interests or multiple persons

In light of the above, the possibility to have a criminal proceeding starting *ex officio* depends on the importance of the interests protected under relevant provisions. Where a trade secret infringement is felt as a matter of public policy, prosecution starts regardless of

any initiatives by the aggrieved person. In other cases, on the contrary, it is for the aggrieved person to bring prosecution, as the violation of trade secrets does not amount to an issue that legitimates the starting investigations by the public prosecutor

**Criminal evidence**

Normally, within criminal proceedings concerning the violation of trade secrets, there is no specific evidence to provide.

Nevertheless, it has to be noted that criminal procedural law of several states (*e.g.,* **Cyprus, Finland, Italy, Lithuania, Malta, Sweden** and **the United Kingdom**) requires the public prosecutor (or the owner who claims an infringement of confidential business information before a criminal court) to obtain evidence beyond any reasonable doubts that the offender committed a violation of trade secrets. This may be considered the main reason why criminal jurisdiction is not frequently activated in many countries, since it is seen as a hazardous way of protection, because of the high standard of proof required.

Providing evidence that an infringement occurred will be more difficult in those legal systems (such as **Austria, Belgium, Greece, Italy, Poland** and **Romania**) where the nature of trade secrets depends on the way certain information is treated by the owner, *i.e.,* on whether the owner has adopted proper measures for the protection of the information or he has clearly identified/marked it as confidential.

For instance, in **Belgium**, the owner that claims an infringement must prove to have adopted the necessary measures to protect the manufacturing secrets, *e.g.*, by requiring employees and past employees of the company to sign confidentiality clauses.

However, in criminal proceedings regarding trade secret violation, any evidence admitted under the domestic procedural law can be provided.

The general criteria set out under the respective procedural laws with regard to evidence, therefore, equally apply, with no exception, to proceedings for violation of trade secrets.

**Precautionary measures, searches and seizures**

In almost all jurisdictions (excluding **Austria, Latvia** and **Romania**) covered by the present analysis, precautionary measures may be granted by judges investigating cases of trade secret violations. These orders include searches and/or seizures of computers, whereabouts or premises of the defendant where information is supposed to be, as well as injunctions aimed at preventing continuation of the infringement.

In most of the states, these measures can be granted by public/private prosecutors while investigating the case. However, it is possible for owners of trade secrets apply for an *ex parte* order and thus, obtain that searches and/or seizures are carried out.

**Austria** is the only state where provisional pecuniary orders have been reported.

Please find below a table resuming the different precautionary measures that can be ordered in the course of investigations.

| Country | Search orders | | Seizure orders | | Injunction | |
|---|---|---|---|---|---|---|
| | Ex parte | Prosecutor | Ex parte | Prosecutor | *Ex parte* | Prosecutor |
| **Austria** | | | | | | |
| **Belgium** | | X | | X | X | |
| **Bulgaria** | X | X | X | X | | |
| **Cyprus** | | X | | X | | |
| **Czech Republic** | | X | | X | | |
| **Denmark** | | | | X | X | |
| **Estonia** | | X | | X | | |
| **Finland** | | X | | X | | |
| **France** | | X | | X | | X |
| **Germany** | | X | | X | | X |
| **Greece** | X | | X | | | |
| **Hungary** | | | | | | |
| **Republic of Ireland** | | X | | X | | |
| **Italy** | | X | | X | | X |
| **Japan** | | | | | | |
| **Latvia** | | X | | X | | |
| **Lithuania** | | X | | X | | |
| **Luxembourg** | | X | | X | | |
| **Malta** | | X | | X | | |
| **Netherlands** | | | | | | |
| **Poland** | X | | X | | | |
| **Portugal** | X | | X | | X | |
| **Romania** | | X | | | | |
| **Slovakia** | X | | X | | | |
| **Slovenia** | | X | | X | | |
| **Spain** | | | | | | |
| **Sweden** | | | | | | |
| **Switzerland** | | X | | X | | |
| **UK** | | | | | | |
| **US** | | X | | X | | |

Based on the foregoing, it can be said that *ex parte* orders are quite rarely provided for under the relevant procedural law of the states. On the contrary, the public prosecutor is entrusted with the power to order searches or seizures. In any case, such orders are normally issued once either the claimant or the public prosecutor (depending on the case) has brought evidence in a manner that suffices for the said measures to be granted.

**Liability of companies for revelation of trade secrets**

**Criminal liability of companies**

Companies are, in most cases (in **Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Hungary, Japan, Latvia, Luxembourg, Netherlands, Poland, Romania, Slovenia, Spain, Switzerland, the United Kingdom** and **the United States**),

liable for trade secret violations committed by its managers, directors, or employees, provided that the conduct was carried out for its benefit or profit, in the course of an assignment of the company, or the offence resulted from the violation of obligations subject to the company's responsibility. This aspect reflects the nature of trade secret violations as "business offences", *i.e.,* as offences which may allow a company to gain an advantage through a conduct against competitors. Normally, the company is subject to liability in those cases where it failed to adopt the proper organisational or management measures for the prevention of the offence.

Since not all jurisdictions involved in the Study establish criminal corporate liability, differences will persist in subjects against which trade secret infringements may be enforced. In those jurisdictions, the aggrieved person may nevertheless seek compensation for damages against companies or legal persons.

**Nature of liability of companies; applicable penalties**

Corporate liability for this type of offences usually results in punishment by fines and does not relieve the offender from his own criminal liability. Fines may be expressed in fixed amounts or depend on the business of the company which is found liable for trade secret violations:

| Country | Monetary penalties | Disqualification penalties |
|---|---|---|
| **Austria** | Calculated on a per diem rate ranging from EUR50 to EUR10,000) | |
| **Belgium** | Calculated by multiplying an amount ranging from EUR500 to EUR2,000 by the minimum and maximum number of months of imprisonment that the law imposes on the individual liable for the offence | Closure or winding up of the company in most serious cases; confiscation of goods; order to stop the infringing acts |
| **Czech Republic** | Up to EUR34,000* | |
| **Denmark** | Apply – Amount not reported | |
| **Estonia** | Ranging from EUR3,200 to EUR16,000 as lump sum | |
| **Finland** | Ranging from EUR850 to EUR850,000 as lump sum | |
| **France** | Up to five times the monetary penalty that applies to individuals under the law sanctioning the offence | |
| **Hungary** | Ranging from EUR2,000 to three times the material advantage/benefit obtained or intended to be gained as a result of the | Termination of the legal person's activity; Restriction of the scope of the legal person's activity |

| Country | Monetary penalties | Disqualification penalties |
|---|---|---|
| | offence* | |
| **Japan** | Up to JPY300,000,000 | |
| **Latvia** | | Liquidation; limitation of rights; confiscation of property; monetary levy; compensation for harm caused |
| **Luxembourg** | Up to EUR25,000 | Confiscation of goods used to commit the offence; exclusion of public procurement markets; dissolution of the company |
| **Netherlands** | Up to EUR78,000 | |
| **Poland** | Ranging from EUR240 to EUR1,200, provided that the amount is not higher than 3% of the revenues gained in the fiscal year when the offence was committed | |
| **Romania** | Ranging from EUR570 to EUR455,000* | Company's winding-up; interruption of the company's activity for a period from three months up to one year, or suspension of one of the activities performed by the legal person in respect of which the offence was committed for a period from three months up to three years; closing down of certain offices for a period from three months up to three years; prohibition to take part in a tender procedure for a period from one up to three years |
| **Slovenia** | Apply – Amount not reported | Seizure of assets; Liquidation of the company; Prohibition of participation in tenders for public procurements; Prohibition of trading in financial instruments |
| **Spain** | Monetary penalties for a period from six months up to three years | Winding up of the company; Suspension of the company's activity for a period not exceeding five years; Closing down of premises and establishment for a period of not exceeding five years; Prohibition to engage in the same activities in the future; Ineligibility for obtaining subsidies and public assistance, public sector contracts and tax or other incentives for a period not exceeding fifteen years |
| **Sweden** | Apply – Amount not reported | |
| **Switzerland** | Up to EUR4.1 million* | |
| **UK** | Apply – Amount not reported | |
| **US** | US Federal Law: Up to EUR4,000,000; California: The amount of | |

| Country | Monetary penalties | Disqualification penalties |
|---|---|---|
| | the fine imposed on companies has not been reported;<br>New York: The greater sum between EUR8,000 and the double amount of the defendant's gain from the crime;<br>Texas: Up to EUR16,000 and, if the company gained money or property or caused loss as result of the trade secret theft, a fine not exceeding the double amount gained or the loss, whichever is greater | |
| *Monetary penalties are expressed in local currency and converted to euro for the reader's convenience. | | |

In light of the above, it emerges that, apart from the penalties imposed on individuals who are found guilty of trade secret infringements, most of the jurisdictions that provide for corporate criminal liability establish pecuniary penalties against relevant companies.

**Jurisdiction**

In all the legal systems which establish corporate liability for trade secret violations, courts that adjudicate criminal cases involving individuals will prosecute the relevant companies as well. No separate jurisdiction is established in this regard.

## Subsection 4.3. Conclusion

The criminal provisions concerning protection of trade secrets implemented in the EU Member States and other jurisdictions considered in this Study are significantly different as to a number of crucial points.

At the outset, it has to be pointed out that any attempt to regulate every matter from a criminal standpoint has to be carefully handled, as criminal provisions impact more than any other areas of law on the protection of a number of legal interests which may be felt to be more or less important depending on the jurisdiction. Criminal protection does normally start at a higher threshold level compared to others (such as the civil one).

Also, it has to be taken into account that criminal law is an area that until the entry into force of the Lisbon Treaty was reluctant to implementation of supranational standards or provisions. To date, the extent to which harmonisation may be reached in such a legal framework depends on the provisions established in the Treaty on the Functioning of the European Union.

The lacking of a shared definition of what constitutes a trade secret does not permit to look at the various jurisdictions moving from the acknowledgment of a common "hard core" of protection. Also, some jurisdictions do not provide trade secrets with criminal protection at all, even if these are very limited cases.

Due to the general absence of a standard common reference, it is also rather unlikely that civil and criminal scope of protection do overlap: a conduct that constitute a trade secret infringement from a civil standpoint may not necessarily fall within the scope of criminal protection. On the contrary, it would be unrealistic that violations punished under criminal law do not instead entail a breach of civil provisions.

Having said that, it could be helpful to focus on cross-border cases, where a violation may be committed, for instance, either by a company established or an individual residing in a state other than that where the infringement occurs.

First of all, the problem could be related to the existence of provisions prohibiting such a conduct in a given jurisdiction. As it was explored above, just a few states do not establish criminal penalties against trade secret infringements. However, some jurisdictions provide for less severe penalties than others, thus an individual or a company may be indirectly "encouraged" to commit a violation in that state. This could result in "forum-shopping" practices. It has to be stressed, in any cases, that general principles require that at least part of a conduct which is punished under criminal law is committed within the territory of a state to be prosecuted in the relevant jurisdiction.

Also, this issue may be of particular importance with respect to cases where legal persons are involved. As pointed out above, not all jurisdictions provide for criminal corporate liability (or do provide for it with regard to trade secret infringements). Very different scenarios may therefore arise, for instance, with respect to the relationship between parent companies established in a certain state and affiliates of the same localised in other countries, depending upon the specific circumstances of the case.

An attempt to harmonise the criminal framework regarding trade secrets, therefore, should take into particular account the issues connected to cross-border cases. Conflicts between jurisdictions, especially when corporate liability is at stake, are normally solved by general principles. Nevertheless, using these principles can be an effective remedy only once the legal frameworks in force in the concerned states provide trade secrets with a similar level of protection.

## Chapter II. Economic Analysis of Trade Secrets and Confidential Business Information

## Section 1. Introduction

### Scope of Research[66]

In addition to the legal analysis of trade secrets, the Commission requested that we perform a survey of the literature relating to the economic analysis of trade secrets and trade secret protection. The survey addresses the following major topics: (i) the economic theory of trade secrets and trade secret protection, and (ii) the applied economic models used to analyse the importance of trade secrets and trade secret protection. Of particular importance in the economic research is an assessment of the importance of trade secrets to European firms and EU member economies. The specific sub-topics to be researched were defined by the Commission as follows:

Economic Theory of Trade Secret Protection: The survey should seek to identify theoretical economic models and analyses developed to analyse the economic benefits and costs of trade secret protection, with specific focus on the following issues:

- Economic impact of trade secrets on investments in innovation
- Economic relationship between trade secrets and other forms of intellectual property ("IP") rights
- Tradeoffs between trade secret ownership and use, and competitive behaviour; and
- Economic efficiency of differing legal frameworks in terms of costs and benefits of trade secret protection

Applied Economics Models and Empirical Analyses of Trade Secrets and their Protection: The survey should seek to identify how existing applied economic models and empirical analyses have sought to evaluate:

- the economic value of trade secrets and their impact on the innovative performance of a sector or economy;
- the extent to which SMEs rely on trade secrets for competitive advantage;
- the use of litigation to seek remedies against trade secret misappropriation and theft; and
- the efficiency of different national regulatory frameworks in terms of innovative performance.

In addition, based on available empirical studies, the Commission requested that we rank EU industry sectors in terms of the trade secret intensity use and importance.

To accomplish the research objectives, we conducted a search of numerous professional economics publications. Our research encompassed both published and unpublished materials; economic studies prepared by government and non-governmental bodies;

[66] The economics literature survey was conducted with the generous advice and guidance of Professor Luigi A. Franzoni, Doctor of Philosophy and Professor of Public Economics, University of Bologna, Bologna, Italy. The economic research team of Baker & McKenzie was led by Dr. Thomas Respess (Washington, DC), with the valuable assistance of economists Dr. Hicham Hadni (Washington, DC), Omar Moerer (Amsterdam, Netherlands), Dr. Jens Rubart (Dusseldorf, Germany), and Riccardo Vaccaro (Milan, Italy).

textbooks, treatises, and consulting analyses; and relevant news and other publicly-available source materials. Although not summarised in this Report, we also reviewed studies related to the economics of innovation and IP protection generally, and to the antitrust analysis of the ownership and licensing of intellectual property, including trade secrets.

Overall, we identified and reviewed approximately 230 economics articles and other publications related directly and indirectly to the defined topics of research. A comprehensive list of references identified by the survey of economics literature, together with a list of the electronic databases searched for relevant source materials, is attached to this Report as Appendix 1.

In the following sections, we summarise the findings of the economics literature survey, highlighting the most important economics studies related to trade secrets and their protection. We note at the outset that on some topics, many economic studies have been prepared by economists and policy makers; on other topics, very few (if any) articles have been published. Where appropriate, we identify topics that have not been fully addressed in the economics literature, making occasional suggestions for further research.

We further note that the economics literature identified by our survey does not generally discuss confidential business information ("CBI") separately from trade secrets. CBI is typically analysed by economists as an element of trade secrets without posing further distinction. In the following Report, consistent with the surveyed economics literature, references to trade secrets should be understood to encompass CBI.

**Overview of Conclusions and Structure of this Chapter**

The economic studies summarised in this Report indicate that innovators, rather than relying exclusively on patents and other formal IP rights, often choose to protect innovations (and the returns to innovation) relying on trade secrecy and trade secret protection. A consensus among economists has emerged that trade secrets play an important role in protecting the returns to innovation, and that trade secret protection is an integral part of the overall system of intellectual property protections available to EU firms. As valuable business assets, trade secrets play an important role in the growth and innovative performance of EU member countries, industry sectors, and innovating firms.

The economic significance of trade secrets to European companies and industries, and to the overall growth and performance of European economies, is confirmed by the results of a survey of European companies administered as part of this project. The results of this survey are summarised in Chapter III of this Report.

Based on our survey of the economics literature, we find empirical support for the view that trade secrets are important to most, if not all, EU industries. The importance of trade secrets compared to patents, copyrights, and other less formal market strategies varies by industry sector. The bulk of the available empirical evidence from economic studies relates to manufacturing, where economists have conducted numerous firm surveys assessing the importance of trade secrets in appropriating the returns to innovation investments. Although more limited in depth and scope, empirical evidence further suggests, however, that trade secrets are important to the service sectors, particularly business services, such as advertising and marketing, business consulting, financial services, and miscellaneous business and consumer services. Empirical evidence also suggests that trade secrets are important to the wholesale and retail trade sectors as well.

We further note that the surveyed economics literature highlights the interrelationship between trade secret and other intellectual property protections, such as patents and copyrights. Trade secret protection both complements and supplements the protections available through other means, representing a separate but integral part of the overall scheme of intellectual property protection available to innovators and their inventions.

Economists have also suggested that intellectual property policies, including those related to trade secrets, require a balancing of various policy considerations. Relevant considerations include: (i) the importance of protecting the returns to innovative activity, (ii) encouraging the disclosure and low-cost diffusion of the inventions, (iii) contributing to the production of innovations at the lowest possible cost, and (iv) promoting other aligned economic goals, such as increasing economic growth, the efficient use of resources or fostering labour mobility. The economics literature discussed below confirms that trade secrets and trade secret policy play an important role in achieving a balance of policy considerations.

The remainder of this Chapter is organised as follows: In section 2 we discuss the theoretical economic models developed to analyse trade secrets and trade secret protection. Section 3 discusses the economic relationship between trade secrets and other intellectual property rights. In section 4 we look closely at the applied economic models and empirical analyses developed by economists to evaluate the importance of trade secrets and trade secret protection particularly EU firms, member economies, and SMEs. Finally, in section 5 we provide a ranking of EU industries in terms of trade secret importance based on the available empirical survey analyses and results

## Section 2. Economic Theory of Trade Secret Protection

In this section we summarise the results of the literature survey related to the economic theory of trade secrets and trade secret protection. We first discuss the economic impact of trade secrets on innovation and performance. We then discuss the economic relationships between trade secrets and other IP rights, followed by a summary of recent economic studies that analyse trade secret protection from an overall economic welfare perspective. This section also discusses the potential impact of trade secret protection on labour mobility and how trade secret laws assist in reducing costly expenditures by firms on internal controls implemented to prevent misappropriation of trade secrets.

### Subsection 2.1. The economic impact of trade secrets on innovation and performance

For purposes of economic analysis,

The terms of reference for this project provide a good working definition of a trade secret: a trade secret is defined as a piece of valuable and not generally known information held by a business that treats it as confidential. Such description is useful because it highlights the key elements considered by economists in the analysis of trade secrets: valuable information acquired through a costly investment in innovation, unknown to others, and held in secret by a firm that expends resources to prevent its disclosure. apparent from this definition is the very broad nature of trade secrets. Any valuable information acquired through innovation activity, ranging from highly technical inventions, such as software and computer and telecommunications equipment, to confidential business information, such as customer lists and business service techniques, may qualify as a trade secret. Economists have not offered a narrower definition of trade secrets, but, consistent with the above definition, analyse trade secrets simply as a valuable protectable interest of a firm.

Economists have long recognised that protection of intellectual property encourages innovation by helping inventors capture ("appropriate") the returns to innovative activity, typically manifested by the earning of financial rewards. The desire to encourage innovation stems from the findings of economists who have concluded that innovation and its diffusion are critical determinants of economic growth and development.[67] Absent intellectual property protection, innovators would not be able to appropriate the full rewards of their invention; all or a substantial portion of the benefits from the innovation would go to "free riders", who invest nothing in the innovation but nevertheless seek to use the valuable innovation without paying for it. Without means to appropriate the returns to innovation, underinvestment in innovative activity would likely occur, adversely impacting competitiveness, economic growth and performance.

The importance of capturing the rewards to innovation was highlighted in a seminal article published 50 years ago by Arrow (1962). Arrow interpreted invention broadly as the production of knowledge through the use of research inputs, a process considered risky in the sense that the output of the production process cannot be predicted perfectly from the applied inputs. Arrow also viewed information obtained through invention as "indivisible", meaning that one person's use of the information does not limit its use by others.[68] Information thus obtained from an invention process may be easily transferred at low or zero cost, making it relatively easy and costless for others knowledgeable in the field to take advantage of the transmitted information.

Under such circumstances, information will remain of commercial value only if other firms are prevented from using the information obtained (*i.e.*, only if the owner is able to keep the information secret or otherwise assert rights that prevent others from using the information for their own benefit). If competitors can easily obtain and use secret information, inventive firms may choose not to engage in the innovative activity, understanding that there will be little prospect for financial reward to an innovation investment. Arrow argued that, absent some mechanism to protect the valuable information, a sub-optimal amount of investment in innovation will occur along with the adverse consequences of such under-investment.

As suggested by Arrow, and many other economists since,[69] firms have an incentive to invest in innovation only if they reasonably expect to receive an appropriate return. If potential innovators are limited in their ability to capture this value, they will not have the appropriate incentive to engage in the socially optimal amount of innovative activity. A fundamental prerequisite for encouraging inventive activity, therefore, is related to the firm's ability to keep information about inventions secret and prevent others from free-riding on the firms' investments.[70] An important question whether trade secrets play a role in preventing free-riding and enabling firms to appropriate the returns to inventive activity.

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[67] *See, e.g.*, *Grossman, Gene M. and Elhanan Helpmann (1997)*; *Aghion, Philippe and Peter Howitt (2009)*; *Aghion, Philippe and Peter Howitt (1998)*; *Barro, Robert J. and Xavier Sala-I-Martin (1995)*; *Acemoglu, Daron (2009); and Romer, David (1996).*

[68] Economists typically refer to goods with such properties as "public goods."

[69] *See, e.g., Levin et al. (1987)*, at 783 ("To have the incentive to undertake research and development, a firm must be able to appropriate returns sufficient to make the investment worthwhile.")

[70] Arrow further noted that the patent laws "would have to be unimaginably complex and subtle to permit such appropriation on a large scale." *Arrow (1962)*, at 617.

*Lemley (2008)* concludes that trade secret protection addresses some of the concerns raised by Arrow. By conferring an exclusive right on the possessor of a trade secret, trade secret protection "gives the developer of new and valuable information the right to restrict others from using it, and therefore the prospect of deriving supracompetitive profits from the innovation"[71]. Although competitors are not prevented from developing the same idea independently or reverse engineering a product to learn the trade secret, the right to exclude does not have to be absolute to assist in appropriating the rewards to innovation, but rather simply to provide "sufficient advantage in terms of lead time or relative costs to minimise or eliminate the public goods problem"[72]. Consistent with the findings of economists, trade secret protection assists in promoting innovation by providing a mechanism by which firms can protect the gains from undertaking costly and risky innovation investment.

**The Role of Trade Secret Law in Promoting Disclosure and Innovative Efficiency**

Arrow and others have considered whether non-disclosure of the information about inventions, although perhaps optimal for individual firms, may not be optimal from a social standpoint. Spillovers and diffusion of knowledge are considered important determinants of dynamic economic efficiency as innovations spread through industries and economies over time. For this reason, economists and other commentators have considered whether it is preferable from a social standpoint for inventions to be patented because, in addition to protecting the returns to innovation, the disclosure required by patents encourages further innovation as others build upon the original idea in future periods.

Some authors have further noted that intellectual property policies should encourage invention at the lowest possible economic cost.[73] Costs in this context may encompass not only the cost of the original innovation, but also the costs associated with registering the intellectual property (in the case of patents and copyrights), implementing internal controls to protect the intellectual property, and pursuing legal actions against possible infringement and misappropriation that occurs through unlawful means.

Although trade secret law may appear to encourage secrecy and non-disclosure, commentators have nevertheless argued that trade secret laws encourage innovative efficiency and disclosure. Policy objectives are accomplished through at least two separate channels: (1) trade secret law provides serves as a partial substitute for excessive investments in physical security of trade secrets,[74] and (2) trade secret law facilitates disclosure in contract negotiations over the use or sale of the invention that otherwise would not occur in the absence of such protection.[75]

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[71] *Lemley (2008)*, at 329-330.

[72] *Id*. at 330.

[73] *Besen & Raskind (1991*), at 5-6.

[74] *Risch (2007)* states that trade secrets are "justified by the economic benefits that flow from their existence, most notably incentives for businesses to spend less money protecting secret information or attempting to appropriate secret information." *Risch (2007)*, at 5.

[75] *Lemley (2008),* at 332-337. The second channel serves as a practical solution to what has been referred to as Arrow's Information Paradox. *Arrow (1962),* at 615 (sellers will not disclose information to buyers in the absence of legal protection, preventing buyers from being able to value the information).

The obligation of firms to take reasonable steps to protect trade secrets is an integral part of the trade secret protection scheme. Although economists have not performed extensive studies of the costs incurred by firms to protect trade secrets, the measures required of firms to prevent disclosure of trade secrets, such as sophisticated IT controls, investments in physical security, management of employee contract arrangements, etc., are undoubtedly costly and distract management from the day-to-day operation of the business. Trade secret protection policies that help to reduce the resources expended by firms on such controls assist firms in maximising the returns to innovation investments. Considered in this light, trade secret protection plays an important role in innovative efficiency and encouraging the disclosure and dissemination of inventions beyond levels that would occur if such protection was not available.

## Subsection 2.2. The impact of trade secret law on labour mobility and wages

The enforcement of trade secret protection requires that firms take pro-active steps to protect trade secrets from disclosure. Such steps may include the use of nondisclosure provisions or covenant-not-compete clauses in employment agreements with key employees. Such provisions are intended to limit disclosure and spillovers of knowledge from the inventing firm to competing firms who seek to discover and copy particular trade secrets. However, such provisions also have the potential to restrict an employee's mobility and value to competing firms who may want to hire the employee. The enforceability of non-compete provisions may vary substantially among EU member country jurisdictions, as they do among different US states. As noted by *Ottoz and Cugno (2011)*, the scope and effectiveness of trade secret protection depends in part on the degree of acceptance on non-compete and other provisions in specific jurisdictions.[76]

As noted by some economists, worker mobility may play a role in promoting disclosure and dissemination of innovative ideas among firms and industries.[77] *Motta & Ronde (2002)*, for example, analyse the trade-offs between strong trade secret protection as compared to the use and enforcement of non-compete clauses in employee contracts. The authors conclude that strong trade secret protection, combined with incentive compensation for successful research output, may be preferable to non-compete clauses in terms of enhancing firm profitability and inventive productivity.[78] The strength of trade secret laws thus appear to interact with employee contracting and compensation arrangements, thereby potentially affecting employee mobility in innovative industries.

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[76] *Ottoz & Cugno (2011)*, at 220.

[77] *Arrow (1962)* noted the impact of employee mobility on the disclosure and dissemination of innovations ("Mobility of personnel among firms provides a way of spreading information."). *Arrow (1962)*, at 615. *See also Ottoz & Cugno (2011), Saxenian (1994), Gilson (1999), Hyde (2003)*, *Png (2012)*, and *Motta & Ronde (2002)*.

[78] *Zabojnik (2002)* analyses how trade secret protection in the presence of employee mobility can be accomplished by means of employees' compensation. Zabojnik develops a theoretical model of trade secrets in hierarchal firms, with the further assumption that each manager has access to trade secrets corresponding to his own level, but also to trade secrets at levels below. *Zabojnik (2002)* finds that managers may have an incentive to overpay subordinates, thereby discouraging their departure, but possibly overprotecting the firm's trade secrets at excessive cost. Reliance on wage premia to discourage employee departure and loss of trade secrets has also been analysed by *Biger & Plaut (2000)* and *Bernhardt & Dvoracek (2009)*. For a further discussion of the steps required of companies to protect trade secrets, *see also Ronde (2001)* and *Martin (1993)*,

## Subsection 2.3. Trade secrets and models of economic welfare maximization

In recent papers, economists have analysed issues of optimal trade secret protection using modelling frameworks that jointly consider innovation incentives and maximisation of social economic welfare. The rich model structures presented in these papers allow for simultaneous consideration of IP protection policies and market competition issues. State-of-the art models emphasise the interrelationships between trade secret and patent policy, and compare policy alternatives based on a consistent framework for comparing alternative economic welfare outcomes. The complexity of these models demonstrates the difficulty of determining the optimal trade-off between protecting the returns to first inventors as compared to promoting disclosure and the range of inventions that may result as firms duplicate or improve on the original invention.

For example, *Denicolo and Franzoni (2004)* present a model of optimal patent design where innovators can rely on secrecy and patents to protect innovations. Noting the empirical work of *Levin et al*. and *Cohen et al*. (discussed below), the authors consider whether the prevalence of trade secret protection by innovating firms is socially desirable. The authors present a model with two stages: an innovation stage and a duplication stage. In the innovation stage, the innovator chooses the level of R&D effort, and also decides whether to adopt trade secret or patent protection. In the duplication stage, a follower decides how much to invest in replicating the innovation. In deciding whether to patent, the innovator must weigh the limits of patent protection against the risk of disclosure of the secret invention.

The authors frame their model in a way that facilitates a comparison of the impact of different trade secret and patent policies on economic welfare. The model allows for alternative market structures and competitive conditions. To keep the model tractable, the authors assume that patent rights are "strong", focusing on optimal patent life as a critical variable affecting the innovator's choice between patent and secret protection.[79] The model structure is specifically designed to consider the impact of prior user rights, patent duration, and competitive conditions. The analysis of social welfare compares the "deadweight loss" under the monopoly conditions of patent ownership to the deadweight loss stemming from duplication of inventions by followers. Successful replication by the follower causes a shift in competition conditions from monopoly to a duopoly market structure. The authors also confirm that selection of patent life materially affects the determination of whether patents or secrecy is socially desirable.

*Denicolo and Franzoni (2011)* refine their earlier analysis, in particular by allowing for the possibility of knowledge spillovers. The analysis presented in the paper demonstrates the difficulty of determining the optimal trade-off between protecting the incentives to engage in innovative activity versus achieving the benefits of disclosure, spillovers, and diffusion. The authors note that patents provide a strong form of protection since they grant an exclusive right to use patented technology for a defined period of time. Trade secret law, by contrast, provides weak and non-exclusive protection, prohibiting misappropriation of knowledge and know-how by unlawful means, but not duplication through reverse engineering or parallel development. As the authors state: "Where strong exclusive protection of IPRs is ostensibly intended to ensure a large reward for the innovator, weak

[79] The model set forth by the authors does not consider the case where patent rights may be weak. Thus, the model sets aside the conditions that might result in the choice for secrecy due to the inability to protect the returns to innovation.

protection aims to foster imitation and competition. Policy, then, must solve a difficult trade-off between incentives for innovation and the need to encourage diffusion"[80].

Allowing for knowledge spillovers, the authors investigate the relationship between the structure of intellectual property rights and the nature of the innovation process. As in their prior paper, the authors incorporate considerations of market structure, comparing the deadweight loss under monopoly conditions to the deadweight loss under a more competitive market structure. The authors find that knowledge spillovers change the analysis in significant ways. Regarding trade secret policy, the authors conclude that strong exclusive rights are preferable from a social welfare standpoint in highly innovative sectors where firms compete aggressively for major innovations, where research knowledge is jealously guarded, and where product competition is weak. In the absence of such industry conditions, trade secrecy may be socially optimal.

*Ottoz and Cugno (2011)* present a model analysing optimal trade secret policy based on the optimisation of economic welfare and incorporating elements of game theory and alternative specifications of competitive conditions. The model assumes that an incumbent firm has a proprietary product whose technology consists of at least two components, one of which is patented while the other is kept secret. The authors specify a model in which social costs associated with a mixture of trade secrets and patents includes, in addition to deadweight losses and innovative R&D costs, the costs borne by an entrant trying to duplicate the part of a technology protected by trade secret. The authors then focus on the relationship between duplication costs by legal means and social welfare.

A special feature of the authors' model is the relationship between duplication expenses, the probability of duplication success, and the scope of trade secret law. Another unique feature of the model is the explicit incorporation of considerations of employee mobility including restrictions imposed by contractual and legal restrictions, such as post-employment non-disclosure or non-compete covenants, intended to limit spillovers of proprietary and non-patented information.[81] The authors conclude that a strong trade secret protection may be collectively efficient by allowing society to save on duplication costs that would be incurred by the new entrant. Such savings may be sufficient to more than compensate the deadweight losses incurred over time associated with a low probability of duplication success.[82] In this rich model structure, the authors find conditions under which a strong trade secret policy is desirable.

## Section 3. Economic Relationship Between Trade Secrets and Other IP Rights

A prominent theme in the theoretical economics literature relating to trade secrets is the interrelationship between trade secret and other forms of intellectual property protection. Of particular importance to economists is the interrelationship between trade secret and patent protection. A comparison of trade secret protection and copyright has received much less attention by economists and represents a fertile area for further economic research.

In this section, we summarise economic studies that analyse the interrelationship between trade secret and patent protection mechanisms. Many of these analyses emphasise

[80] *Denicolo and Franzoni (2011),* at 2.

[81] *Ottoz and Cugno (2011),* at 220.

[82] *Id.* at 226.

characteristics of the innovation process, competitive market conditions, and potential drawbacks of patent protection.

## Subsection 3.1. Trade secret compared to patent protection

As noted above, the subject matter of a trade secret is very diverse. In contrast to patent law, which provides specific criteria for inventions to be patentable, no specific categories exist for defining (or limiting) the subject matter that qualifies for trade secret protection. Almost any information maintained as a secret, not generally known to competitors, and which enhances firm value and provides a competitive advantage, is potentially protectable by trade secret law. This broad definition of trade secrets encompasses innovations that are patentable, but also innovations that may not qualify for patent protection, such as customer lists, marketing data, ideas, formulas, processes, or know-how.

Trade secrets do not require registration to qualify for protection; indeed, an important motivation for protecting innovations through trade secrecy is to avoid the disclosure required by other forms of intellectual property. Disclosure of new inventions could be particularly detrimental to SMEs since disclosure of a key invention could mean catastrophic loss in value and future performance for the inventing firm.

Moreover, whereas patents are granted protection for a definite but limited term, trade secrets have no definite term of protection; trade secret protection continues as long as it remains secret and enhances firm value and business performance. Consequently, a trade secret can exist for an indefinite period of time, or can cease to exist at any time upon disclosure, perhaps by mistake, or by lawful means such as reverse engineering or independent discovery by third parties.[83] Thus, with trade secrets, predictions as to the protectable life of the trade secret and its economic value is less certain as compared to patents or copyrights where lifetime and value may be more readily ascertainable.

Compared to trade secrets, patent protection may be more costly than trade secret protection. For example, preparation of a patent application can involve a significant amount of fixed cost, amounts that can be particularly burdensome to SMEs. In addition, the protection of a patent or copyright may involve substantial costs to monitor possible infringements and even greater expenditure to pursue legal recourse when infringement is detected.[84]

Economists and other commentators have noted that trade secret protection both supplements and complements patent protection. *Friedman et al. (1991)*, in an often-cited paper, were among the first to note the interrelationship between trade secret law and the patent system, concluding that "trade secret law supplements the patent system"[85]. Inventors may choose trade secret protection when they believe that patent protection is too costly relative to the value of their invention. The inventor might also conclude that the invention may provide a reward substantially less than the full value of the invention, either because the invention is not patentable or because the length of patent protection is insufficient. Thus, trade secret law "plugs many holes in the patent statute"[86].

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[83] *Beckerman-Rodau (2002)*, at 383-84.

[84] *Erkal (2004)*, at 430-431.

[85] *Friedman et al.*, at 63-64.

[86] *Id.*, at 64.

*Lemley (2008)* further notes that trade secret protection has significant advantages over patents: protection is easier to obtain since it does not require government approval, and covers innovations that may not be patentable.[87] He adds: "The additional incentive provided by trade secret law is important for innovation. Trade secret law reaches into a number of corners patent law cannot"[88].

The interrelationship between trade secret and patent policy has been summarised succinctly by *Erkal (2004)*. Erkal notes that trade secret protection is used at least as widely as patent protection, and that policymakers must consider the interactions between optimal trade secret policy and optimal patent policy to develop and implement a consistent intellectual property policy.[89] The author differentiates between innovations that are sufficiently developed to be patentable, as compared to innovations that are potentially patentable if developed further. The distinction is important given that one goal of trade secret policy is to protect knowledge that has not reached the patentable stage, or may not ever reach the patent stage.

Erkal emphasises the importance of trade secrets at different stages of the innovative process. Trade secret law and patent law are complementary in the early stages of innovation by allowing innovators to develop their ideas further and avoid early disclosure. Trade secret protection may continue to be important later in the innovation process for innovations that are ultimately determined to be ineligible for patent protection. In both cases, it is the strength of trade secret protection that determines the investment incentives faced by inventors. "As long as innovators use patent and trade secret protection in order to protect themselves against misappropriation in different stages of the innovation process, the two methods supplement each other"[90]. After innovations become patentable, however, patent and trade secret protection become alternative forms of protection available to innovators, and innovators must then choose the form of protection that maximises the likely returns to the innovative activity.[91]

The interrelated nature of patent and trade secret protection has been further discussed by *Jorda (2008)* and *Sherwood (2008)*. *Jorda (2008)* focuses on collateral trade secrets that are essential for the use of patented technology, typically licensed to users as part of a package technology license. Although patents may be the centerpiece for the protection of an innovation, other forms of protection may be valuable for protecting unpatented subject matter, or for strengthening exclusivity, invoking additional remedies in litigation, and serving as a back-up if the primary protection right is determined to be invalid.[92] Jorda

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[87] *Lemley (2008)*, at 313.

[88] *Id*. at 331.

[89] *Erkal (2004)*, at 427.

[90] *Id*. at 431-432.

[91] In some countries, a one-year grace period is granted from the time of discovery. Once this period has elapsed, the innovator forfeits the right to apply for a patent. An issue that can arise is whether an innovation that has been kept secret can be patented at a later stage by an independent inventor. Different legal systems provide different solutions. In most EU countries, late innovators can patent, but the first secret inventor retains the right to use the innovation. This issue is analysed by *Denicolo* & *Franzoni* (2004), who argue that prior user rights are not part of an optimal patent policy.

[92] *Jorda (2008)*, at 13.

concludes that patent and trade secret protection "are not mutually exclusive but are highly complementary and mutually reinforcing"[93].

*Sherwood (2008)* describes how the use of trade secrets by innovating firms can create value by facilitating the commercialisation of partially-finished innovations, or innovations that do not meet the requirements for patent issue. The author notes, similar to *Erkal (2004)*, that trade secret protection can be critical at various phases of the innovation process. For example, trade secrets can play a critical role in securing private funding to begin or continue research into the commercialisation of innovations prior to patenting or for those innovations that will never be patented.

Based on the review of literature, economists and other commentators have identified certain benefits and costs associated with the protection of innovations as trade secrets relative to patent protection. The benefits and costs may be summarised as follows:

<u>Benefits of Trade Secret Protection Compared to Patent Protection</u>

- No formal registration required
- Registration costs avoided
- Broad range of protectable subject matter
- Protection available for inventions that may not qualify for patent protection
- Applies to innovation in early stages of the innovative process
- Disclosure of invention not required
- May be used in combination with other IP protection mechanisms to protect complex inventions
- Unlimited term of protection
- Assists in appropriating returns to innovation investment
- Assists in arranging for financing of further commercial development
- Availability of legal remedies upon misappropriation

<u>Potential Costs of Trade Secret Protection Compared to Patent Protection</u>

- Invention not protected against lawful reproduction through reverse engineering, independent discovery, or inadvertent disclosure
- Requires substantial investments and ongoing expense for internal controls to protect trade secrets from misappropriation
- Requires explicit non-disclosure and covenant-not-compete clauses in employee contracts
- Employee contract arrangements may inhibit employee mobility or payment of excessive wage premia
- Application of trade secret laws uncertain and remedies may vary by enforcement jurisdiction
- Non-disclosure of inventions may inhibit the low cost dissemination and adoption of invention by others.

As the above comments indicate, trade secret and patent protections are separate, but compatible and mutually reinforcing parts of the overall scheme of intellectual property protections available to inventive firms. The selection of trade secret presents both benefits and costs relative to the use of patent protection for new innovations. Firms can thus select

[93] *Jorda (2008),* at 19: "The question is not *whether* to patent or padlock but rather *what* to patent and *what* to keep a trade secret, and whether it is best to both patent and padlock."

the types of protection mechanism best suited to protect their innovations, perhapsat different stages of the innovation process, balancing the costs and benefits of patent protection against cost and benefits of non-disclosure under trade secret protection.

## Subsection 3.2. Trade secret compared to copyright protection

To a large extent, copyright and trade secret protection are co-extensive. For example, as described by *Risch (2011)*, one might protect computer software source code as a copyrighted work and also as a trade secret because copyright registration does not require disclosure of trade secret source code.[94] Thus, the two protection mechanisms complement one another and be employed simultaneously for certain types of inventions.

As with patents, there may be instances where the valuable information, such as ideas, facts, and processes, may not be copyrightable. Examples might include unwritten business plans, initial product ideas, and customer names and telephone lists that may be copied without copyright infringement liability. Such information, on the other hand, may be protectable by trade secret law: trade secret law is "designed to protect certain types of information that copyright law expressly disclaims"[95]. In this sense, trade secret law supplements copyright law for innovations relating to the creation of information not subject to copyright protection.

Economists have not focused extensively on the relationship between trade secret and copyright law. However, the literature discussion suggests that trade secret protection is interrelated with copyright protection and the two mechanisms are also fully compatible and mutually re-enforcing. Further research by economists regarding the relationship between trade secret and copyright protection is clearly warranted.

## Subsection 3.3. The consequences of trade secret protection in alternative market structures

The surveyed theoretical literature suggests that trade secrets play an important role in protecting the returns to innovative activity in a variety of innovation market structures. We discuss below recent economic studies discussing the consequences of trade secret protection under alternative assumptions of competitive behaviour and market conditions in which innovations occur.

### Trade Secret Protection When Patents Are Defined Broadly

*Ottoz and Cugno (2008)* consider the implications for an optimal patent-secret mix for "complex" products that incorporate a mixture of patents and trade secrets in a single innovative product. As the authors note, electronic products tend to incorporate a large number of patents, and often a mixture of patent, copyright, and trade secret technology. In the case of complex innovations, firms can rely on more than one protection mechanism to protect a product. Under some circumstances, the innovator has no choice but to use trade secret protection since certain components may not qualify for patent. In many instances, however, innovators can choose the extent of protection through trade secret versus patent protection. Consequently, trade secret protection may be important not only during the patent application process, but also during the term of and after the expiration of a patent.

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[94] *Risch (2011)*, at 174.

[95] *Id*. at 175.

*Ottoz and Cugno (2008)* present a model where an innovator, possessing all the complementary pieces of the new technology and using the pieces directly, choose an optimal patent-secret mix. The authors conclude, somewhat counter-intuitively, that an increase in the level of patent protection may induce an innovator to rely more on secrecy. The intuition for the authors' conclusions is as follows: an increase in the patented and disclosed knowledge decreases the likelihood that a rival will invent around the patented knowledge, but also increases the probability that the remaining trade secret leaks out (since there is less knowledge to leak). Because of these two opposing effects, the optimal disclosure is somewhere between none and all of the knowledge. In addition, although an increase in patent breadth causes innovators to substitute patent for trade secret protection, an increase in patent breadth allows the innovator to disclose a lower fraction of knowledge, inducing the innovator to rely more on trade secrets. Thus, the opposing economic incentives cause innovators to choose a combination of patent and trade secret protection. This article illustrates how the availability of both trade secret and patent protection enable firms to select the optimal combination of protection that maximises the rewards to the inventive activity. In addition, the article is contrary to the usual view that an increase in patent breadth necessarily implies that innovators would rely less on trade secret protection.

**The Effect of Trade Secret Protection on Subsequent Innovations**

*Erkal (2005)* examines the use of patents and secrecy when the innovative environment is characterised by a process of cumulative innovation. Cumulative innovation occurs when a first innovating firm develops an idea, and then there is a race by a second firm (or firms) to build on and develop an improved version of the first innovation. Erkal shows that if innovators can rely on secrecy after the first stage of R&D, competitors must allocate substantial resources to duplicate the R&D output of the first stage. The investments designed to copy the first innovation are assumed to reduce competitiveness in the second stage of R&D. This in contrast to patent innovations where the competitors can use the disclosed patent of the innovator in order to compete on equal terms in the second R&D stage. The decision by the first innovator to use trade secrets or patents in the first stage then affects the investment required and returns to the second stage innovator. Models of cumulative innovation demonstrate how the use of trade secrets and patents in various stages of the innovative process interact, impacting both the incentive to innovate and the level of investment in subsequent R&D races.

**The Likelihood of Simultaneous Invention Can Impact The Choice Between Patent and Trade Secret Protection**

In *Kultti et al. (2006, 2007)*, the authors examine the implications for optimal patent policy by considering simultaneous innovation, situations where separate firms operating separately develop the same invention simultaneously. The authors demonstrate that the possibility of simultaneous innovations changes the firms' decision dynamics: firms may choose patents instead of secrecy for defensive purposes, "since the choice is no longer between patenting or resorting to secrecy, but between patenting or letting competitors patent"[96]. The models developed by *Kultti et al. (2006, 2007)* demonstrate that the choice between secrecy and patenting is the result of an optimisation process whereby the innovator must consider the likelihood that the invention will be disclosed and by the strength of the patent protection, a strong patent protection system militates in favour of patent, whereas a weak system militates in favour of secrecy. The authors conclude: "For intermediate levels of patent protection…the model predicts a mixed equilibrium where both

[96] *Kultti et al*. *(2006),* at 82.

secrecy and patenting coexist."[97] The authors further find that, whether an innovator may prefer patent versus trade secret protection depends on the probability that competitors will discover the same invention simultaneously. A strong likelihood of simultaneous invention diminishes the gains from secrecy and encourages innovators to patent new inventions even though the protection afforded by the patent may be weaker than the protection provided by continued secrecy. A low probability of simultaneous invention can have the opposite effect.

**Trade Secret Protection Patents Are Weak**

The role of secrecy in an environment where patent rights are "weak" has been considered by *Anton & Yao (2004)*, and by *Anton, Greene, & Yao (2006)*. The authors note that patents vary substantially in the degree of protection provided against unauthorised imitation. Weak patents are defined as patents that have a significant probability of being overturned or being circumvented relatively easily. The authors note that, if patent or copyright laws could fully protect all economically important inventions, circumvention and possible infringement would be of less importance to the management of intellectual property by firms. Under such circumstances, maintaining inventions in the form of trade secrets would be of less importance. The authors note, however, citing empirical studies to be discussed further below, that firms do not view patents as providing strong appropriability. The authors conclude that, in an innovation setting where the breadth and scope of patent protection is viewed as potentially weak, such conditions encourage firms to rely more heavily on secrecy. Thus, secrecy may be viewed as a rational alternative to patenting or copyright where inventors conclude that there is a reasonable probability that a patent may be overturned or easily circumvented. Thus, the choice between patent versus trade secret protection depends in part on the innovator's view regarding the relative strength or weakness of a patent.

**Subsection 3.4. Section Conclusions**

Trade secrets have received less attention in the past by economists compared to other forms of intellectual property, particularly patents. In recent years, however, comprehensive economic models and empirical analyses of trade secrets and trade secret protection have begun to emerge.

Economists have concluded that trade secrets are an important means by which firms appropriate the returns to innovation investments, thus positively impacting innovative activity. As valuable business assets, trade secrets play an important role in the growth and innovative performance of EU member economies, and EU manufacturing and service sectors. Failure to protect trade secrets can materially impact the rewards to innovative activity and may adversely impact the level of innovative activity.

Trade secrets and their protection encourage innovative activity by protecting inventions in the early stages of the innovative process. Trade secret protection complements and supplements the protections offered by patents, and the two protection systems rationally co-exist side by side. Innovating firms weigh the costs and benefits of trade secret protection and choose the optimal mix of trade secret protection relative to the protection by other means, such as by patent or copyright.

[97] *Kultti et al*. *(2007)*, at 36.

The economic studies summarised in this section demonstrate that trade secrets and trade secret policy impact innovation and business performance through their influence on: (i) firms' ability to protect the returns to innovative activity, (ii) incentives whether to disclose or keep secret new innovations, (iii) the costs incurred by firms to protect inventions from unlawful or inadvertent disclosure, and (iv) employee contracting arrangements, compensation, and mobility.

## Section 4. Applied Economic Models and Empirical Analyses of Trade Secret Protection

### Subsection 4.1. Trade secrets and their impact on the innovative performance of a sector or economy

Economists have conducted various surveys of US, European, and Japanese firms, seeking to understand the relative use of patents, trade secrets and other means to appropriate the returns to innovation investments. We summarise the empirical results of these studies in this section. All of the studies consistently find that innovators routinely use means other than patents to protect innovations and appropriate the returns to their innovation investment. The use of trade secrets is prominent among these alternative protection methods. A drawback of these studies (with one exception) is that they focus exclusively on manufacturing industries and do not evaluate empirically the importance of trade secrets in a non-manufacturing setting.

#### Empirical Studies of US Trade Secret Importance

*Levin et al*. *(1987)* analysed the most important mechanisms by which firms are able to appropriate returns to investments in innovation. The authors' results are based on a survey questionnaire to high-level R&D executives, asking opinions about firm and industry technology and economic environment. The survey questionnaire employed semantic scales to ask R&D managers' views regarding the relative effectiveness of alternative protection mechanisms for US manufacturing industries. The authors received 650 individual responses representing 130 lines of the manufacturing business. Analysis of the survey data revealed that firms in many manufacturing industries consider protection mechanisms other than patents more effective in appropriating returns from innovation. For example, lead time, speed down the learning curve, and sales and service efforts were all found to be more effective than patents with respect to both process and product innovations. Secrecy was found to be more effective than patents for process innovations, but slightly less effective than patents for product innovations. The study focused exclusively on manufacturing industries and did not address appropriability conditions in other industries, such as business services or retail or wholesale trade. The manufacturing industries found to rely on secrecy and other appropriability means including pulp, paper and paperboard; cosmetics; organic and inorganic chemicals; drugs; plastic materials; petroleum refining; steel mill products; pumps and pumping equipment; motors, generators, and controls; computers; communications equipment; semiconductors; motor vehicles and parts; aircraft and parts; measuring devices; and medical instrument industries.[98]

Another well-known study of appropriability mechanisms was conducted by *Cohen et al. (2000*). The authors analysed the responses of a survey questionnaire sent to 1,478 R&D labs in the US manufacturing sector in 1994. The population sampled are all R&D labs located in the US conducting manufacturing industries as part of a manufacturing firm. The sample was restricted to firms with at least 5 million (USD) in sales or business units with at

[98] *Id*. at 797, Table 2.

least 20 people. The survey observations are grouped into 34 International Standard Industrial Classification (ISIC) codes at the two- and three-digit industry classification level. Similar to *Levin et al*. *(1987)*, the authors observed that firms capture the returns to innovations using a range of protection mechanisms, including patents, secrecy, lead time, and complementary marketing or manufacturing capabilities. The authors found that patents tend to be the least emphasised by firms in the majority of the manufacturing industries, whereas secrecy and lead time tend to be emphasised most heavily.

A closer review of the results obtained by *Cohen et al*. *(2000)* is instructive with respect to the appropriability mechanisms employed in different US manufacturing industries. Table 1 summarises the results of *Cohen et al*. *(2000)* with respect to the effectiveness of different appropriability mechanisms for *product innovations*. The authors' results have been re-ranked by industry according to the importance of trade secrets as an appropriation mechanism, with the ranking running from highest effectiveness of trade secrets to lowest:

**Table 1: Effectiveness of Appropriability Mechanisms for Product Innovations**

| Mean Percentage of Product Innovations for which Mechanism Considered Effective | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Industry** | | **Mean Percentage of Innovations** | | | | | |
| | **N** | **Secrecy** | **Patents** | **Other Legal** | **Lead Time** | **Complementary Sales/Services** | **Complementary Manufacturing** |
| Miscellaneous Chemicals | 29 | 70.69 | 39.66 | 25.52 | 55.52 | 55.17 | 48.97 |
| Metal | 6 | 65.83 | 20.00 | 5.00 | 50.83 | 58.33 | 61.67 |
| Textiles | 23 | 63.70 | 20.00 | 25.87 | 58.26 | 55.22 | 58.26 |
| Petroleum | 15 | 62.00 | 33.33 | 6.33 | 48.67 | 40.33 | 35.67 |
| Machine Tools | 10 | 61.50 | 36.00 | 9.00 | 61.00 | 43.00 | 34.50 |
| Semiconductors & Related Equipment | 18 | 60.00 | 26.67 | 22.50 | 53.33 | 42.22 | 47.50 |
| Food | 89 | 58.54 | 18.26 | 21.18 | 53.37 | 39.83 | 51.18 |
| Rubber & Plastic | 35 | 56.86 | 32.71 | 10.14 | 40.86 | 34.29 | 37.71 |
| Plastic Resins | 27 | 55.93 | 32.96 | 18.15 | 38.33 | 44.63 | 46.11 |
| Aerospace | 48 | 55.10 | 32.92 | 16.15 | 58.02 | 34.58 | 46.88 |
| Paper | 31 | 55.00 | 36.94 | 26.45 | 47.10 | 40.00 | 39.84 |
| Drugs | 49 | 53.57 | 50.20 | 20.82 | 50.10 | 33.37 | 49.39 |
| Chemicals | 65 | 52.77 | 37.46 | 21.62 | 48.62 | 44.92 | 41.31 |
| Medical Equipment | 67 | 50.97 | 54.70 | 29.03 | 58.06 | 52.31 | 49.25 |
| Motor & Generator | 22 | 50.91 | 25.23 | 19.09 | 48.86 | 47.27 | 45.23 |
| Auto Parts | 30 | 50.83 | 44.35 | 15.65 | 64.35 | 44.84 | 53.06 |
| TV & Radio | 8 | 50.00 | 38.75 | 35.63 | 53.75 | 24.38 | 38.75 |
| Other Manufacturing | 84 | 49.29 | 33.81 | 26.61 | 63.51 | 42.56 | 45.30 |
| General Purpose Machinery | 74 | 49.19 | 38.78 | 20.88 | 52.23 | 41.15 | 43.65 |
| Search & Navigational Equipment | 38 | 48.95 | 28.68 | 24.08 | 46.84 | 32.89 | 40.53 |

| Mean Percentage of Product Innovations for which Mechanism Considered Effective | | | | | | | |
|---|---|---|---|---|---|---|---|
| Industry | Mean Percentage of Innovations | | | | | | |
| | N | Secrecy | Patents | Other Legal | Lead Time | Complementary Sales/Services | Complementary Manufacturing |
| Basic Chemicals | 35 | 48.00 | 38.86 | 11.57 | 38.29 | 45.86 | 44.71 |
| Precision Instruments | 35 | 47.29 | 25.86 | 20.86 | 54.14 | 49.57 | 45.57 |
| Communications Equipment | 34 | 47.21 | 25.74 | 20.15 | 65.59 | 42.06 | 41.18 |
| Glass | 6 | 46.67 | 30.83 | 11.67 | 50.00 | 62.50 | 70.00 |
| Mineral Products | 18 | 46.11 | 21.11 | 12.22 | 39.72 | 37.78 | 40.00 |
| Special Purpose Machinery | 64 | 45.08 | 48.83 | 23.05 | 59.69 | 46.33 | 51.09 |
| Concrete, Cement, Lime | 10 | 45.00 | 30.00 | 17.50 | 38.00 | 45.50 | 40.00 |
| Computers | 25 | 44.20 | 41.00 | 27.20 | 61.40 | 40.20 | 38.00 |
| Metal Products | 44 | 43.07 | 39.43 | 18.18 | 48.18 | 37.05 | 40.11 |
| Car & Truck | 9 | 42.22 | 38.89 | 19.44 | 65.56 | 41.67 | 42.22 |
| Electrical Equipment | 22 | 39.09 | 34.55 | 15.00 | 33.41 | 32.27 | 31.82 |
| Steel | 10 | 37.00 | 22.00 | 11.50 | 61.50 | 34.50 | 42.00 |
| Electronic Components | 26 | 34.04 | 21.35 | 20.19 | 45.58 | 50.00 | 51.15 |
| Printing & Publishing | 12 | 32.50 | 12.08 | 21.67 | 48.33 | 66.25 | 60.42 |
| ALL | 1118 | 51.00 | 34.83 | 20.71 | 52.76 | 42.74 | 45.61 |

*Source: Cohen et al. (2000),* Table 1 (re-ranked highest to lowest based on trade secret intensity).

For product innovations, Table 2 shows that the mean effectiveness as an appropriability mechanism of lead time and trade secrecy exceeds that of patents on average for all industries, followed in importance by complementary sales and service, and complementary manufacturing. The relative effectiveness of trade secrets varies significantly across industries and is viewed as most important in the miscellaneous chemicals, metal, textiles, petroleum, machine tool, and semi-conductor industries. With the exception of two industries – special purpose machinery and medical equipment – the effectiveness of trade secrets as an appropriation mechanism exceeds that of patents in all other industries.

Table 2 summarises the results of *Cohen et al. (2000)* regarding the effectiveness of appropriability mechanisms for *process innovations*.

**Table 2: Effectiveness of Appropriability Mechanism for Process Innovations**

| Mean Percentage of Product Innovations for which Mechanism Considered Effective | | | | | | | |
|---|---|---|---|---|---|---|---|
| Industry | Mean Percentage of Innovations | | | | | | |
| | N | Secrecy | Patents | Other Legal | Lead Time | Complementary Sales/Services | Complementary Manufacturing |
| Miscellaneous Chemicals | 28 | 76.25 | 27.32 | 15.71 | 33.93 | 40.36 | 54.46 |

| Mean Percentage of Product Innovations for which Mechanism Considered Effective | | | | | | | |
|---|---|---|---|---|---|---|---|
| Industry | Mean Percentage of Innovations | | | | | | |
| | N | Secrecy | Patents | Other Legal | Lead Time | Complementary Sales/Services | Complementary Manufacturing |
| Drugs | 48 | 68.13 | 36.15 | 16.04 | 35.52 | 25.21 | 44.17 |
| Metal | 6 | 65.83 | 31.67 | 12.50 | 66.67 | 46.67 | 50.00 |
| Plastic Resins | 27 | 62.96 | 21.30 | 7.22 | 23.70 | 25.19 | 34.26 |
| Textiles | 23 | 60.65 | 25.22 | 24.35 | 48.70 | 44.35 | 53.91 |
| Rubber & Plastic | 35 | 59.14 | 19.86 | 11.43 | 35.86 | 23.00 | 37.43 |
| Paper | 31 | 58.87 | 27.58 | 19.35 | 34.52 | 20.65 | 34.03 |
| Basic Chemicals | 35 | 58.43 | 29.71 | 11.71 | 25.71 | 26.71 | 40.14 |
| Glass | 6 | 58.33 | 30.83 | 18.33 | 31.67 | 42.50 | 50.00 |
| Semiconductors & Related Equipment | 18 | 57.50 | 23.33 | 8.33 | 47.78 | 32.22 | 42.50 |
| Petroleum | 15 | 57.33 | 36.67 | 6.33 | 32.00 | 27.67 | 31.33 |
| Auto Parts | 31 | 56.45 | 24.35 | 15.16 | 50.16 | 36.94 | 55.97 |
| Food | 89 | 55.84 | 16.40 | 15.00 | 41.91 | 29.78 | 46.52 |
| Concrete, Cement, Lime | 10 | 54.00 | 18.50 | 15.50 | 26.50 | 31.50 | 33.50 |
| Chemicals | 63 | 53.65 | 20.40 | 12.86 | 27.14 | 28.41 | 42.30 |
| Other Manufacturing | 79 | 51.65 | 23.42 | 20.76 | 44.56 | 31.39 | 38.29 |
| Aerospace | 47 | 49.26 | 21.38 | 13.30 | 42.23 | 28.40 | 44.89 |
| Medical Equipment | 66 | 49.24 | 34.02 | 22.27 | 45.15 | 32.12 | 49.55 |
| Mineral Products | 18 | 48.89 | 23.33 | 11.11 | 28.61 | 27.50 | 46.94 |
| Machine Tools | 10 | 48.00 | 18.00 | 9.50 | 43.00 | 34.00 | 39.00 |
| TV & Radio | 8 | 47.50 | 18.75 | 18.75 | 38.75 | 32.50 | 46.88 |
| Electronic Components | 26 | 46.54 | 15.19 | 15.00 | 42.69 | 42.31 | 55.77 |
| Metal Products | 42 | 46.19 | 22.50 | 15.36 | 39.05 | 35.36 | 47.38 |
| Search & Navigational Equipment | 37 | 43.65 | 13.24 | 16.35 | 39.05 | 31.89 | 42.97 |
| Precision Instruments | 31 | 43.55 | 16.77 | 15.81 | 35.48 | 32.74 | 40.81 |
| Motor & Generator | 21 | 42.62 | 22.14 | 17.86 | 44.52 | 31.67 | 39.29 |
| Computers | 20 | 42.50 | 30.25 | 16.75 | 39.75 | 23.50 | 35.50 |
| Special Purpose Machinery | 63 | 41.83 | 28.57 | 16.03 | 44.92 | 35.48 | 41.27 |
| Steel | 10 | 41.00 | 15.50 | 11.50 | 42.00 | 25.00 | 42.00 |
| General Purpose Machinery | 69 | 37.54 | 23.62 | 16.30 | 34.86 | 28.33 | 40.00 |
| Communications Equipment | 33 | 35.30 | 14.70 | 13.94 | 43.03 | 33.64 | 40.61 |
| Car & Truck | 9 | 34.44 | 21.67 | 17.22 | 34.44 | 26.67 | 41.11 |
| Electrical Equipment | 22 | 31.59 | 19.09 | 6.82 | 19.09 | 11.82 | 18.86 |
| Printing & Publishing | 11 | 20.45 | 8.64 | 10.91 | 33.64 | 50.91 | 63.64 |
| ALL | 1087 | 50.59 | 23.30 | 15.39 | 38.43 | 30.73 | 43.00 |

*Source: Cohen et al. (2000),* Table 2 (re-ranked highest to lowest based on trade secret intensity).

Similar industry patterns hold for process patents. On average across all industries, lead time and secrecy are found to be the two most important appropriability mechanisms. The effectiveness of trade secrets exceeds that of patents by more than a 2-to-1 margin for process inventions. The relative effectiveness of trade secrets for product innovations varies significantly across industries and is viewed as most important in the miscellaneous chemicals, drugs, metal, plastic resins, and textile industries. The authors further observed

that the effectiveness of trade secrets exceeds that of patents in every industry with only one exception, medical equipment.

*Searle (2010a)* is the only published study that provides evidence of the importance of trade secrets in non-manufacturing industries. In a doctoral thesis, Searle reports the results of an economic analysis of litigated trade secret cases, relying on data collected from prosecutions under the US Economic Espionage Act for the period 1996-2008. Drawing on court filings and other financial data, the author classified victim companies according to the Standard Industrial Classification (SIC) code. *Searle (2010a*) finds that approximately 57% of the victim companies were classified as manufacturing firms. Significantly, service companies represented 17% of the total number of victim companies, with business services specifically representing 12% of the total. Finance, insurance, and real estate companies represented 4% of the total victim service companies, followed by transportation, communications, electric, gas and sanitary services (3%), and wholesale trade (2%). Although focused on US litigation patterns, the results reported by *Searle (2010a)* nevertheless confirm the importance of trade secrets to non-manufacturing industries, such as business services and wholesale trade.[99]

**Empirical Studies of European Trade Secret Importance**

*Harabi* (1995) conducted a survey of 358 Swiss R&D executives, spanning 127 lines of business mainly in the manufacturing sector. The questionnaire used was a slightly modified and augmented version of the survey questions employed by *Levin et al. (1987)*. The author reports survey results that are broadly similar to those of *Cohen et al*. *(2000).* Secrecy, lead time, moving quickly down the learning curve, and superior sales and service were all found to be at least as effective, if not more effective, than patents for appropriating the returns to product and process innovations. The author performed detailed analysis of 10 different industry groups. Secrecy was found to be more effective in protecting process innovations in the electronic, chemicals, food, synthetics and paper, and private research laboratory sectors. With respect to product innovations, secrecy was found to be most effective in the food, synthetics and paper sectors.[100]

*Brouwer and Kleinknecht (1999)* obtained similar results to those of other studies. The authors analysed the Netherlands portion of the European Community Innovation Survey ("CIS")[101] for 1992 and 1988 covering 1,300 manufacturing firms. The survey asked

[99] *Png (2011)* also provides an empirical analysis of the importance of trade secrets for US manufacturing for the period 1976-2006. The authors examines the impact of the adoption of the Uniform Trade Secrets Act (UTSA) by US states on R&D and the decision whether to patent or hold inventions as trade secrets. The results imply that trade secrets matter for R&D investment and, for some industries, whether to patent technical innovations. Png concludes: "In the realm of public policy, my results suggest that policy-makers concerned about technical innovation should look beyond patents, and give more attention to trade secrets." *Png (2011)*, at 27.

[100] The author concludes: "Facing the decision of either patenting or keeping an innovation secret, innovators tend to choose secrecy in cases of process innovations and patenting in the case of product innovations." *Harabi (1995),* at 984.

[101] The Community Innovation Survey (CIS) is a survey of innovation activity in enterprises covering EU Member States, EU candidate countries, Iceland and Norway. CIS provides information on the characteristics of an innovation activity at the enterprise level. The survey allows monitoring of Europe's progress in the area of innovation, creating a better understanding of the innovation process, and analysing the effects of innovation on EU member economies. The survey concepts are in line with the recommendations of the Oslo Manual (2d edition 1997). As part of the 1993 CIS, the

respondents questions about both product and process innovations, as well as questions about the relative effectiveness of patents and other means of protecting innovations. The questionnaire also sought information about the relative effectiveness of other factors such as lead time, retaining qualified people, secrecy, complexity of product or process design, and other factors. The authors observe, consistent with other studies, that secrecy is "more important than patent protection" in protecting both process and product innovations.[102] As with the other studies, a weakness of the study by *Brouwer and Kleinknecht (1999)* is that it focuses exclusively on manufacturing industries and does not evaluate the role played by trade secrets in non-manufacturing industries such as retail or wholesale trade or business service industries.

*Arundel (2001)* also analyses European firm preferences for the use of secrecy versus patents as an appropriation mechanism. The author uses data from the 1993 European CIS for approximately 2,849 R&D-performing firms to analyse the relative importance of secrecy versus patents. The 1993 CIS requested information on the value of both secrecy and patents for manufacturing firms in Norway plus six EU countries: Germany, Luxembourg, the Netherlands, Belgium, Denmark, and Ireland. The survey asked questions about the relative effectiveness of lead-time advantages, secrecy, product complexity, patents, and design registrations for protecting innovations. The results show that a higher percentage of firms in all size classes rate secrecy as more valuable than patents. However, with respect to product innovations, the authors find a statistically significant trend towards declining importance of trade secrets as firm size increases.

*Hussinger (2005)* also analyses whether European firms prefer patents versus secrecy to protect their innovations. Based on survey data from the Mannheim Innovation Panel, Hussinger analyses the importance of patenting versus secrecy for German manufacturing firms for the year 2000. Hussinger finds (similar to other studies) that firms tend to use patents more for the protection of product innovations, which are subject to re-engineering, whereas secrecy may be more favourably applied to protect process innovations. In addition, different protection tools may be used at different stages of the innovation process, and firms may protect different elements of a single invention through the combination of different protection tools. Hussinger finds that, for German manufacturing firms in 2000, patents are more important to protect innovations embodied in products sold in the marketplace, whereas secrecy is important for inventions that are not yet commercialised. Non-manufacturing industries are not analysed.

*Gonzalez-Alvarez and Nieto-Antolin (2007)* similarly analyse the selection of protection mechanisms by Spanish manufacturing companies. Appropriations methods considered by the authors are patents, industrial secrets, cost and time for imitation, and continuous innovation. Manufacturing industries where trade secrets were found to be more important than patents as an appropriability mechanism are food and kindred products; textile mill products; apparel and other textile products; lumber and wood products; paper and allied products; printing and publishing; chemicals and allied products; leather and leather

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questionnaire asked recipients to evaluate the effectiveness of various protection methods for both product and process innovations of patents, registration of design, complexity of process design, lead time advantage over competitors, and secrecy. Questions related to preferred protection mechanisms were eliminated in later CIS, notwithstanding the benefits perceived by economists in analysing such information, as noted by the studies summarised above. We recommend that the Commission and Eurostat consider including such questions in future CIS.

[102] *Brouwer & Kleinknecht (1999)*, at 617.

products; stone, clay, glass and concrete products; primary metals; fabricated metal products; and transportation equipment.

## Subsection 4.2. The extent to which SMEs rely on trade secrets for competitive advantage

This section analyses the importance of trade secrets to SMEs, specifically whether SMEs rely more intensively on informal protection measures, such as trade secrets, as compared to patents, for protecting innovations.

### Studies of Smaller US Firms

Relying on a sample of US state and federal court cases over a four-and-a-half-year period, *Lerner (1995)* analysed the importance of trade secrets relative to other forms of intellectual property protection. The sample encompassed litigations for 530 manufacturing firms. Lerner found statistical evidence supporting the view that intellectual property cases litigated by smaller firms disproportionately involve trade secrets, suggesting the critical importance of trade secrets to smaller firms. The results suggest that smaller, less established firms tend to employ trade secrecy more intensively than larger, longer established firms, due in part to the substantial direct and indirect costs of patenting and protecting against infringement.

Based on a survey among 198 small US firms operating in high technology sectors, *Cordes, et al. (1999)* find support for the view that SMEs prefer trade secrets over patents to protect innovations. The authors determined that small high-technology firms often prefer informal intellectual property protection mechanisms, such as trade secrets and gaining lead time, over formal intellectual property rights protection, such patents, copyrights and trademarks. A summary of the authors' results is provided in Table 3.

**Table 3: Intellectual Property Protection for Product and Process Innovations for Small High-Technology Firms[103]**

| | Product Innovation | | Process Innovation | |
|---|---|---|---|---|
| | Number of Respondents | Percent of Respondents | Number of Respondents | Percent of Respondents |
| **Trade Secrets** | | | | |
| Important | 33 | 28.4% | 33 | 20.5% |
| Very Important | 69 | 59.5% | 69 | 42.9% |
| Total Responding | 161 | | 116 | |
| **Patents** | | | | |
| Important | 38 | 22.8% | 19 | 16.5% |
| Very Important | 46 | 27.5% | 24 | 20.9% |
| Total Responding | 167 | | 115 | |
| **Gaining Lead Time** | | | | |
| Important | 46 | 27.9% | 28 | 23.9% |
| Very Important | 75 | 45.5% | 58 | 49.6% |
| Total Responding | 165 | | 117 | |

Source: *Cordes et al. (1999),* Table 39.

[103] *See Cordes et al. (1999)*, Tables 39 and 40, at 56-57.

*Cordes, et al. (1999)* conclude that the two main reasons why small, high-technology firms may choose secrecy over patents are the costs involved in enforcing patent rights and the requirement to disclose the innovation as part of the patent application. Other observations from the authors' survey regarding why small firms choose non-patent mechanisms to protect innovations include:

- *"High enforcement costs (74%)*
- *Competitors can legally invent around most patents (72%)*
- *Portfolio of patents is too expensive to maintain (61%)*
- *Rapid changes in technology limit patent protection (57%)"*[104].

*Cohen, et al. (2000)* confirm a positive correlation between patent effectiveness and firm size, suggesting that patents may play a more central role at large firms. Analysis of survey results suggests that the costs associated with patents, particularly their defence, disproportionately dissuade small firms from using patent protection as an appropriability measure.[105] The authors state: " … larger firms are better able to spread the fixed costs of applying for and defending patents over greater levels of output".[106]

*Searle (2010b)* analysed the relationship between firm size and trade secret usage, relying on a regression analysis of data from 95 US Economic Espionage Act cases from 1996 to 2008. The author concludes that "there is a negative relationship between firm size and the intensity of trade secrecy". Based on estimated results, the author concludes that smaller firms prefer trade secrets as an appropriability mechanism over patents. Because smaller firms face high costs for obtaining patents, secrecy may be perceived as "a more efficient method of protecting innovations".[107]

**Studies of European Firms**

*Arundel and Kabla (1998)* find support for the view that large European firms rely more on patents as compared to secrecy to protect their innovations. Based on the results of pan-European survey on innovation among European firms, the authors analysed firms' propensity to patent, expressed as the percentage of innovations for which a patent application is filed. The survey included European firms in a wide range of industries and sizes. *Arundel and Kabla* found that patent propensity rates tend to increase with firm size, *i.e.*, large firms file patent applications for a larger percentage of their innovations than smaller firms.[108] This result was observed for both product and process innovations.

From a German perspective, *Blind et al. (2006)* found that the importance of patents grows with the increasing company size. Large firms may patent for strategic reasons, tending to build large patent portfolios, raising potential entry barriers for competitors into the respective markets. Similar to *Arundel (2001),* the authors observe that SMEs are

[104] *Id.* at 58.

[105] *Cohen et al. (2000)*, at 25.

[106] *Id*.

[107] *Searle (2010b)*, at 19-21.

[108] Annual sales in million euros were applied as a proxy for firm size.

disadvantaged in comparison to large companies regarding patenting. The disadvantage to SMEs is not only due to the cost of patenting, but also on the benefit side with respect to blocking further concentration by competitors and in dealing efficiently with patent claims of other companies.

Drawing upon the results of case studies of eight Finnish firms in 2007, *Olander et al (2009)* find that SMEs prefer to rely on informal protection measures, such as trade secrets, in protecting their intellectual property. They also show that firm size and the business type affect the preferred method for the protection of innovations. The authors found that SMEs prefer informal protection methodologies, such as contracts, human resource management and secrecy, over formal intellectual property rights, such as patents, which are considered more difficult to obtain among SMEs. The preferred protection mechanism, however, was very much dependent on the business/industry in which the company operates.

Additional support for the observed reliance of small firms on trade secrets was provided by *Pajak (2009)*. Pajak examined the use of formal (patents) and informal (secrecy) IP protection measures among firms of different sizes. Based on data collected in the European 2004 Community Innovation Survey, the author found that the use of patents as an IP protection tool for process innovations, as compared to using trade secrets, increases with firm size. The results for product innovations do not seem to support this claim, however.

*Leiphonen & Byma (2009)* also found that small firms prefer to rely on informal IP protection measures. Based on an analysis of small, innovative Finnish manufacturing and service firms, the authors conclude that most of the small firms analysed find informal means of protection, such as speed to market or secrecy, more important than patenting. However, in some situations, firms may have a preference between speed to market versus trade secrecy. For example, firms that cooperate in innovation with horizontal partners, or significantly depend on vertical partners, tend to prefer speed, whereas process innovators with modest R&D investments or few cooperative R&D activities display a preference for trade secrets.

In a report to the UK Intellectual Property office, *Hughes & Mina (2010)* analyse the use of alternative appropriability measures based on the UK portion of the European CIS for 2004. The authors analyse several different appropriability measures, including lead-time advantages, complexity of design, secrecy, copyright, confidentiality agreements, patents, trade marks and registration of design. Drawing on UK, European and US data sources, the authors conclude that small firms are less likely to use patents as a means of protecting innovation investments as compared to other means such as confidentiality agreements, secrecy, or being first to market.

## Subsection 4.3. The use of litigation to seek remedies against trade secrets theft

Very few empirical analyses of the use of litigation to seek remedies against trade secret theft have been published. Of the three studies identified, all relate to the trade secret litigation in the US. No economic or statistical analyses of trade secret litigation in EU member countries were identified as part of the economics literature survey. The US cases are nevertheless instructive in terms of the industries and types of misappropriation claims that may arise under EU member country trade secrets laws, and the role played by private parties in the protection of valuable trade secrets. The three studies of trade secret litigation relating to the US are summarised below.

**Empirical Studies of US Trade Secret Litigation**

*Lerner* (2006) selected a sample of trade secret cases from California and Massachusetts, coding the cases by name and number, parties, procedural posture, date, industry, whether a violation occurred, whether injunctive relief was granted, whether damages were granted and the amount of damages. Although the author does not observe a trend toward increasing cases brought under state law, he nevertheless finds that the number of cases brought and decided in US federal courts showed a "pronounced acceleration of cases in the past decade-and-half"[109]. Lerner further notes the diversity in the industries represented in the litigated cases. Assigning three-digit SIC codes to the parties, Lerner further observed that the computer programming industry (SIC 737) easily topped the list of eight industries ranked in terms of cases brought, followed by miscellaneous business services (SIC 738); insurance agents, brokers and services (SIC 641); electronic components and accessories (SIC 367); professional and commercial equipment (SIC 504); services to dwellings and other buildings (SIC 734); laundry, cleaning and garment services (SIC 721); and eating and drinking places (SIC 581).

*Almeling, et al*. published two comprehensive statistical analyses of trade secret litigation in US federal courts (*Almeling, et al*. [2010]) and US state courts (*Almeling et al. [2011]*). The authors observe the following trends in the US federal and state trade secret litigation:

- **Different pace of growth in trade secret litigation in state courts vs. federal courts:** Trade secret litigation is increasing at a significant rate, higher than the overall growth rate of litigation in both state and federal courts. However, litigation of trade secret cases are increasing much faster in federal as compared to state courts. In particular, trade secret cases in federal courts are "growing exponentially"; in federal courts, "the "trade secret cases doubled in the seven years from 1988 to 1995, and doubled again in the nine years from 1995 to 2004."[110] On the other hand, trade secret state appellate decisions are increasing in a linear pattern at a modest pace.

- **The majority of cases involves alleged misappropriators known by the trade secret owner (either an employee or a business partner):** *Almeling, et al. (2010) and (2011)* classified the relationships between the trade secret owner and alleged misappropriator, using the following categories: employee or former employee; business partner; unrelated third party; and other or unknown. The results from both studies are summarised in Table 9.

[109] *Lerner (2006)*, at 12.

[110] *Almeling et al. (2010)*, at 293.

**Table 4: Identity of Alleged Misappropriators**

| % of Total Trade Secret Litigations | | | |
|---|---|---|---|
| **Defendant Classification** | **State Courts** | **Federal Courts** | |
| | **1995-2009** | **1950-2007** | **2008** |
| Employee or former employee | 77% | 52% | 59% |
| Business Partner | 20% | 40% | 31% |
| Unrelated third party | 9% | 3% | 9% |
| Other or Unknown | 3% | 7% | 5% |

*Source: Almeling et al. (2010) and (2011).*

The authors observe that, in over 90% of the state and federal trade secret cases analysed, the alleged misappropriator is someone the trade secret owner knows, in particular employees, former employees, and business partners.

- **Most litigated trade secrets:** The authors classify the litigated trade secret cases by type of trade secrets alleged to be misappropriated. The classification of state and federal trade secrets cases by trade secret classification is summarised in Table 10.

**Table 5: Type of Trade Secret Misappropriated**

| % of Total Trade Secret Litigations | | | |
|---|---|---|---|
| **Trade Secret Type** | **State Courts** | **Federal Courts** | |
| | **1995-2009** | **1950-2007** | **2008** |
| Formulas | 5% | 4% | 9% |
| Technical Information and Know-How | 27% | 46% | 35% |
| Software or Computer Programs | 6% | 11% | 10% |
| Customer Lists | 52% | 32% | 31% |
| Internal Business Information | 42% | 31% | 35% |
| External Business Information | 3% | 2% | 1% |
| "Combination" Trade Secrets | 0% | 2% | 1% |
| "Negative" Trade Secrets | 0% | 1% | 0% |
| Other or Unknown | 6% | 5% | 9% |

*Source: Almeling et al. (2010) and (2011).*

As shown in the table, the authors find that technical information and know-how, customer lists, and internal business information top the list in terms of the types of trade secrets allegedly misappropriated in litigated state and federal cases. The latter types of trade secret information are likely to be of greatest importance to providers of business services.

- **Effective protection measures:** A trade secret owner is not entitled to protection unless the owner took reasonable measures to protect its trade secrets. However, there is no single definition of protection and, as noted by the Congress in adopting

the Economic Espionage Act, "what constitutes reasonable measures in one particular field of knowledge or industry may vary significantly from what is reasonable in another field or industry"[111].

According to their analyses, "confidentiality agreements with employees are the reasonable measure that courts cite most often in both federal and state cases"[112]. Other important measures in both state and federal cases were physical-based protections (*e.g.*, locks and restricted access), computer-based protections (*e.g.*, passwords and restricted access), and confidentiality agreements with third parties (*e.g.*, nondisclosure agreements).

## Subsection 4.4. Section Conclusions

The large number of empirical analyses, conducted over several years and across a wide range of industries and countries, confirms the importance of trade secrets and trade secret protection to the innovative activities of firms. Based on these empirical results, the protection of trade secrets is critical to the appropriation of returns to innovation in all jurisdictions, including Europe, the United States and Japan.

Although there exists some variation across industries, trade secrets appears to be an important appropriability mechanism for virtually every EU industrial sector. The bulk of the empirical results relate principally to the manufacturing sectors, where economists have conducted several survey studies of manufacturing firms in a wide range of industry sectors. The limited quantitative evidence available suggests, however, that trade secrets are used intensively and are valuable to the service sector, particularly to business services firms, such as finance, insurance, real estate, transportation, communication, and utility services.

Trade secrets and other appropriability means are of particular importance to SMEs. Concerns over patent enforcement costs and disclosure requirements are important reasons why SMEs prefer trade secret compared to patent protection. SMEs generally produce "incremental" innovations whose value can be quickly and easily lost through misappropriation and excessive litigation and internal control costs.

Litigation of trade secret misappropriation claims is increasing, raising litigation costs, as well as costs incurred to implement control systems for trade secret protection. Misappropriation of trade secrets occurs most frequently by employees and former business partners. Although trade secret misappropriation occurs over a wide range of types of secret information, the most common misappropriation relates to technical information and know-how; software and computer programs; customer lists; and internal business information.

## Overall Report Conclusions

In accordance with the scope of research defined by the Commission, we conducted a comprehensive search of the economics literature related to trade secrets and trade secret protection. This Report summarises and highlights general observations from the literature survey.

Economists have suggested that intellectual property policies, including those related to trade secrets, require a balancing of various policy considerations. Relevant considerations

[111] *Id.* at 80.

[112] *Id*. at 81.

include: (i) the importance of protecting the returns to innovative activity, (ii) encouraging the disclosure and low-cost diffusion of the inventions, (iii) contributing to the production of innovations at the lowest possible cost, and (iv) promoting other aligned economic goals, such as increasing economic growth, the efficient resource use, or fostering labour mobility. As noted in the economics literature, there can be conflicting tensions in the attainment of such policy considerations, possibly requiring trade-offs in economic objectives. The economics literature discussed in the Report confirms that trade secrets and trade secret policy play an important role in achieving a balance of policy considerations.

The surveyed literature indicates that there is strong theoretical and empirical support for the view that trade secrets represent an important means by which firms appropriate the returns to innovation and positively impact incentives to engage in innovative activity. Trade secrets are thus viewed by economists as valuable business assets that play an important role in EU innovative activity, business performance, and growth.

The economic significance of trade secrets to European companies and industries, and to the overall growth and performance of European economies, is further confirmed by the results of the survey of European companies administered as part of this project. The results of this survey are described in great detail in Section V of this Report.

Trade secrets appear to be important to all EU industrial sectors, although their importance relative to patents and other less formal market strategies varies considerably by sector. The strongest evidence of the importance of trade secrets to EU business relates to the manufacturing sector where many surveys of business firms have been conducted by economists. However, significant evidence exists that trade secrets are also important in other EU business sectors, especially to business services and trade-related businesses.

Trade secrecy is important to both product and process inventions, and in a variety of innovation environments, including market conditions where technology evolves quickly, where inventions may (and do) occur simultaneously, where innovations occur in a cumulative manner, where combinations of trade secrets, patents, and other forms of intellectual property are embedded in "complex" products, or in circumstances where patent rights are considered as weak.

Trade secrets and trade secret protection have been analysed most recently within the context of integrated economic models designed to evaluate how trade secret and IP policies (particularly patents) interact and affect social economic welfare. These latter models illustrate the complexity and difficulty of identifying the optimal trade-off and balancing of trade secret and other IP policies in protecting the returns to innovation versus promoting the low cost diffusion of new inventions through industries and economies.

Trade secrets are particularly important to SMEs because innovations by SMEs tend to be smaller and more "incremental" in nature; the perceived higher cost of patent ownership (application and infringement suit costs) and the material impact that disclosure may have on SME firm's value and performance further encourage use of secrecy as protection mechanism.

## Section 5. Ranking of EU Industry Sectors Based on Trade Secret Intensity

The relative importance of trade secrets and confidential business information is assessed and ranked by major identified industries. In particular, the rankings have been produced by sorting the results from two empirical studies of trade identified by the literature survey: (i) *Cohen et al. (2000*), and (ii) the French CIS 2004 and 2006 survey. In addition, we

consider the results of two studies of US trade secret litigation discussed in the text, which provide further insight into the importance of trade secrets to service firms.

**Ranking of Trade Secret Importance by Manufacturing Sectors**

As discussed above, *Cohen et al. (2000*) analysed the responses of a survey questionnaire sent to 1478 R&D labs in the US manufacturing sector in 1994. This Study separately examines the relative importance of trade secrets for both product and process innovations in various US manufacturing industries based on SIC codes. Tables 1-2 in Section A.5 of this Report reproduce the empirical results obtained by *Cohen, et al (2000)*, with the industries re-ranked from highest to lowest in terms of trade secret importance as an appropriability mechanism. Table 6 below provides the listing of the industries abstracted from Table 1 presented in Section A.5 for product innovations, ranked from highest to lowest in terms of trade secret intensity. Table 7 that follows provides the listing of the industries abstracted from Table 2 in Section A.5 for process innovations, ranked from highest to lowest in terms of trade secret intensity. For both tables, we mapped the relevant SIC code to the appropriate European NACE code.

## Table 6. Effectiveness of Appropriability Mechanisms for Product Innovations for US Manufacturing Industries

| Industry | SIC from reference document | NACE Rev.1.1. |
|---|---|---|
| Miscellaneous Chemicals | 2429 | 2461; 2462; 2463; 2464; 2465; 2466 |
| Metal | 2700 | 2700 |
| Textiles | 1700 | 1700 |
| Petroleum | 2320 | 2320 |
| Machine Tools | 2922 | 2941; 2942; 2943 |
| Semiconductors & Related Equipment | 3211 | 3210 |
| Food | 1500 | 1500 |
| Rubber & Plastic | 2500 | 2500 |
| Plastic Resins | 2413 | 2416 |
| Aerospace | 3530 | 3530 |
| Paper | 2100 | 2100 |
| Drugs | 2423 | 2441;2442 |
| Chemicals | 2400 | 2400 |
| Medical Equipment | 3311 | 3310 |
| Motor & Generator | 3110 | 3110 |
| Auto Parts | 3430 | 3430 |
| TV & Radio | 3230 | 3230 |
| Other Manufacturing | 3600 | 3600 |
| General Purpose Machinery | 2910 | 2910; 2920 |
| Search & Navigational Equipment | 3314 | 3320 |
| Basic Chemicals | 2411 | 2411; 2412; 2413; 2414 |
| Precision Instruments | 3312 | 3320 |
| Communications Equipment | 3220 | 3220 |
| Glass | 2610 | 2611; 2612; 2613; 2614; 2615 |
| Mineral Products | 2600 | 2600 |
| Special Purpose Machinery | 2920 | 2930; 2940; 2950; 2960 |
| Concrete, Cement, Lime | 2695 | 2661; 2662; 2663; 2664; 2665; 2666 |
| Computers | 3010 | 3001; 3002 |
| Metal Products | 2800 | 2800 |
| Car & Truck | 3410 | 3410 |
| Electrical Equipment | 3100 | 3100 |
| Steel | 2710 | 2710; 2721; 2722; 2731; 2732; 2733; 2734 |
| Electronic Components | 3210 | 3210 |
| Printing & Publishing | 2200 | 2200 |

*Source: Cohen et al. (2000)*

**Table 7: Effectiveness of Appropriability Mechanism for Process Innovations for US manufacturing Industries**

| Industry | ISIC from reference document | NACE Rev.1.1. |
|---|---|---|
| Miscellaneous Chemicals | 2429 | 2461; 2462; 2463; 2464; 2465; 2466 |
| Drugs | 2423 | 2441;2442 |
| Metal | 2700 | 2700 |
| Plastic Resins | 2413 | 2416 |
| Textiles | 1700 | 1700 |
| Rubber & Plastic | 2500 | 2500 |
| Paper | 2100 | 2100 |
| Basic Chemicals | 2411 | 2411; 2412; 2413; 2414 |
| Glass | 2610 | 2611; 2612; 2613; 2614; 2615 |
| Semiconductors & Related Equipment | 3211 | 3210 |
| Petroleum | 2320 | 2320 |
| Auto Parts | 3430 | 3430 |
| Food | 1500 | 1500 |
| Concrete, Cement, Lime | 2695 | 2661; 2662; 2663; 2664; 2665; 2666 |
| Chemicals | 2400 | 2400 |
| Other Manufacturing | 3600 | 3600 |
| Aerospace | 3530 | 3530 |
| Medical Equipment | 3311 | 3310 |
| Mineral Products | 2600 | 2600 |
| Machine Tools | 2922 | 2941; 2942; 2943 |
| TV & Radio | 3230 | 3230 |
| Electronic Components | 3210 | 3210 |
| Metal Products | 2800 | 2800 |
| Search & Navigational Equipment | 3314 | 3320 |
| Precision Instruments | 3312 | 3320 |
| Motor & Generator | 3110 | 3110 |
| Computers | 3010 | 3001; 3002 |
| Special Purpose Machinery | 2920 | 2930; 2940; 2950; 2960 |
| Steel | 2710 | 2710; 2721; 2722; 2731; 2732; 2733; 2734 |
| General Purpose Machinery | 2910 | 2910; 2920 |
| Communications Equipment | 3220 | 3220 |
| Car & Truck | 3410 | 3410 |
| Electrical Equipment | 3100 | 3100 |
| Printing & Publishing | 2200 | 2200 |

*Source: Cohen, et al. (2000)*

### Ranking of Trade Secret Importance in France

The Community Innovation Survey (CIS) is conducted by all the countries in the European Union and is based on internationally-harmonised definitions. It serves mainly to describe the innovation process, measure its economic weight, evaluate its effects and appraise its mechanisms. We were able to obtain the CIS survey results for France and prepared a ranking of industries according to the intensity of use of trade secrets as an appropriability mechanism for NES 36 industries. Tentative rankings of the identified sectors (based on French classifications NES36) have been prepared using the results from the French CIS survey for 2004. Table 8 presents the rankings of industries in terms of trade secret

intensity. Significantly, the rankings below include information for both manufacturing and non-manufacturing industries.

**Table 8: CIS 2004 - Means of protecting innovation activities used between 2002 and 2004: Commercial firms with 10 employees or more innovative between 2002 and 2004 (in products, processes or operating under discontinued operations)**

| Means of protecting innovation activities used between 2004 and 2006: Industrial firms with 20 employees or more innovative between 2004 and 2006 (in products, processes or operating under discontinued operations) | | | | |
|---|---|---|---|---|
| **% of companies** | **Legal means** | **Other appropriability means** | | **All appropriability means** |
| **NES 36** | **Total** | **Total** | ***Trade Secrets*** | **Total** |
| N4: Research and development | 70.1 | 76.6 | *63.8* | 89.1 |
| G1: Oil & Fuel | 65.5 | 73.2 | *53.9* | 87.4 |
| C3: Pharmaceuticals & Perfumery | 77.6 | 55.3 | *47.1* | 87.7 |
| F4: Chemical, Rubber & Plastics | 58.0 | 54.7 | *39.8* | 77.1 |
| E1: Other transport equipment | 55.4 | 58.8 | *39.2* | 77.2 |
| F6: Electrical and electronic components | 63.9 | 56.2 | *37.3* | 83.9 |
| E3: Electricals & Electronics | 50.9 | 51.0 | *34.1* | 66.4 |
| B0: Agriculture. food and tobacco | 52.3 | 45.4 | *33.1* | 69.6 |
| D1: Automotive | 53.6 | 57.6 | *30.7* | 75.7 |
| F5: Metallurgy & Metal processing | 42.0 | 47.7 | *28.7* | 64.8 |
| N1: Post & Telecom | 58.0 | 51.6 | *28.2* | 65.0 |
| F2: Textiles | 64.2 | 41.4 | *23.7* | 78.3 |
| G2: Water. Gas & Electricity | 49.5 | 50.0 | *23.2* | 67.0 |
| F1: Mineral Products | 48.6 | 33.8 | *21.0* | 61.5 |
| F3: Wood & Paper | 35.5 | 54.6 | *20.1* | 69.1 |
| C2: Publishing & Printing | 30.1 | 35.4 | *19.6* | 55.1 |
| E2: Mechanical equipment | 48.0 | 37.6 | *19.5* | 61.0 |
| P2: Recreational, Cultural & Sport | 51.3 | 29.6 | *19.3* | 55.9 |
| N2: Advisory and assistance | 46.0 | 43.4 | *18.6* | 62.5 |
| C4: Home furnishings | 50.8 | 37.1 | *18.3* | 60.3 |
| Subtotal (Excluding financial services) | 40.7 | 33.6 | *18.0* | 53.4 |
| L0: Financial services | 51.2 | 35.4 | *17.6* | 62.3 |
| C1: Apparel & Leather | 52.5 | 25.2 | *16.7* | 64.4 |

| Means of protecting innovation activities used between 2004 and 2006: Industrial firms with 20 employees or more innovative between 2004 and 2006 (in products, processes or operating under discontinued operations) | | | | |
|---|---|---|---|---|
| **% of companies** | **Legal means** | **Other appropriability means** | | **All appropriability means** |
| **NES 36** | **Total** | **Total** | ***Trade Secrets*** | **Total** |
| J2: Wholesale | 49.0 | 28.2 | *14.3* | 55.2 |
| N3: Operational services | 32.1 | 22.9 | *12.9* | 44.1 |
| M0: Real estate | 33.5 | 29.0 | *10.5* | 47.5 |
| H0: Construction | 19.2 | 22.4 | *9.4* | 34.5 |
| J1: Car trade and repair | 24.5 | 20.8 | *9.4* | 27.1 |
| P1: Hotel & Restaurant | 25.0 | 13.5 | *8.0* | 26.6 |
| K0: Transports | 16.4 | 16.2 | *5.3* | 25.5 |
| J3: Retail | 36.7 | 15.5 | *5.3* | 38.3 |
| **Total** | **40.9** | **33.7** | ***18.0*** | **53.6** |

Source: *CIS Survey 2004*

In addition to manufacturing industries, the CIS data for France shows that many important non-manufacturing industries also rely on trade secret protection. The service and trade industries with significant reliance on trade secrets include water, gas, and electricity; advisory and assistance; financial services; wholesale trade; operational services; real estate; car trade and repair; hotel and restaurant; transports; and retail trade.

### Evidence From US Trade Secret Litigation

As noted in Section A.5, *Searle (2010a)* reports the results of an economic analysis of litigated trade secret cases, relying on data collected from prosecutions under the US Economic Espionage Act for the period 1996-2008. Drawing on court filings and other financial data, the author classified victim companies according to Standard Industrial Classification (SIC) code. Consistent with other studies, *Searle (2010a*) finds that approximately 57% of the victim companies were classified as manufacturing firms. Of the manufacturing firms, the major manufacturing industries represented in the litigation claims were electronic and other electrical equipment and components (excluding computer equipment, but including semi-conductors), chemicals and allied products, and industrial and commercial machinery and computer equipment). Significantly, service companies represented 17% of the total number of victim companies, with business services specifically representing 12% of the total. Finance, insurance, and real estate companies represented 4% of the total victim service companies, followed by transportation, communications, electric, gas and sanitary services (3%), and wholesale trade (2%).

In addition, *Lerner* (2006) reported the results of an analysis of trade secret litigation cases from California and Massachusetts, coding the cases by name and number, parties, procedural posture, date, industry, whether a violation occurred, whether injunctive relief was granted, whether damages were granted and the amount of damages. Lerner found that the computer programming industry (SIC 737) topped the list of eight industries

ranked in terms of cases brought, followed by miscellaneous business services (SIC 738); insurance agents, brokers and services (SIC 641); electronic components and accessories (SIC 367); professional and commercial equipment (SIC 504); services to dwellings and other buildings (SIC 734); laundry, cleaning and garment services (SIC 721); and eating and drinking places (SIC 581).

## Chapter III. Consultation - Brussels conference and Survey

### Section 1. Conference

The Conference "Trade secrets: supporting innovation, protecting know-how" organised by the Commission (29 June, Brussels) has offered precious insights about the difficulties encountered by European businesses with the protection of their trade secrets and know-how, and about the potential avenues of intervention for the Commission (see Annex 16).

The speeches of Mr. Pierre Delsaux, Director of the European Commission's Internal Market and Services Directorate-General, and Mr. Jean Bergevin, Head of Fight against Counterfeiting and Piracy Unit, have underlined the intention of the Commission to establish a comprehensive dialogue with stakeholders and experts, with the aim at better understanding the role of trade secrets in innovation and economic growth in the EU.

The Commission is aware that trade secrets and confidential business information represent valuable economic and competitive assets, and that a specific legislation about it is missing at the EU level. The Commission is particularly interested in understanding whether businesses regard the current legal framework as satisfactory or whether the need is felt for EU harmonisation. Our survey questionnaire addressed these issues by posing direct questions about costs and benefits of possible EU intervention.

In turn, representative of the business community have exposed the difficulty posed by the current legal framework, where trade secrets are perceived not to be appropriately protected. The companies invited (Alstom, DuPont de Nemours, Michelin, American Superconductor) have each reported their experience with trade secrets misappropriation, as well as their impotence with respect to this phenomenon. The huge losses suffered could hardly find adeguate redress, not to speak of injunctive relief against perpetrators.

These companies concur with the view that the current legal framework is ineffective, and that better legal protection of TS would induce companies to invest more in innovation, thus fostering economic growth and job creation.

Our survet questionnaire measures the extent by which companies, both large firms and SMEs, feel that their secrets are vulnerable to misappropriation and asks them how stronger/uniform protection would benefit their business.

Several other conference participants have reported their point of view on the importance of TS protection in the European Union (see Annex 16). In turn, the Baker and McKenzie team has explained the purpose of the study and the methodology of the survey (see below). Participants have expressed numerous comments on the survey, questionnaire and proposed methodology which have contributed to improve the questionnaire. Comments and suggestions have also been provided by e-mail after the conference.

The presentation of the preliminary results of the Study – including the review of the economic literature by Dr. Thomas Respess and an overview of the scope of policy intervention by Mr. Lorenzo de Martinis – was received by with great appreciation by the audience. Representative of the business community shared their interest for the initiative and expressed their support for the broad policy goals of the study.

On a technical level, comments aimed mostly at improving the questionnaire by i) including factors/answers not considered, and ii) streamlining its format (see Annex 16). Mr. Laroche,

in particular, made the important point that the survey questionnaire should be easily understood and that, for this reason, it should be offered in several languages.

## Section 2. Survey

### Subsection 2.1. Methodology

As shown by the literature survey, little empirical work has been done on the enforcement of trade secrets. We therefore have reason to believe that the results of our empirical survey will provide new path-breaking insights into this field. The lack of research, however, also implies that no established methodology has been developed, to address the issue of trade secret protection by business companies.

For this reason, we confide that the best methodological approach is to follow, as close as possible, the guidelines provided by the *OSLO Manual 3r[d] edition* (2005) for the collection and interpretation on innovation data, developed by the OECD and EUROSTAT. This Manual provides the international reference for empirical research on innovation. Along the lines of the OSLO Manual is also conducted the most important source of information on innovation and R&D at European level, *i.e., Community Innovation Survey* carried out by European States at regular time intervals since the early nineties.

Clearly, trade secret knowledge differs from "innovation", as the former has a much broader scope. The use of a methodology close to that of the CIS will allow us to draw from the huge amount of information provided by the latter, in terms of innovation activity, research patterns, and contribution to the GDP of the individual business sector.

The Target Population for our survey is a subset of the **EU business enterprise sector**, including both goods-producing and services industries. We do not cover enterprises belonging to the public administration.

The primary statistical unit is the "**enterprise**" according to the EU definition (see OSLO Manual, ch. 4): "the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision making, especially for the allocation of its current resources. It may carry out one or more activities at one or more locations and it may be a combination of legal units, one legal unit or part of a legal unit."

In particular, for multinational corporations, we will consider local branches as independent units.

In the statistical investigation, enterprises will be classified according to their "**size**," by which we mean the number of employees:

**Small**: 1-49 employees
**Medium**: 50-249 employees
**Large**: 250 employees and above

Economic activities are classified according to NACE rev. 2.

For the selection of the business activities to include in the frame, we combine the CIS methodology with the information available on the use of trade secrets. With reference to CIS 2008, the Commission mandated the inclusion of the following sectors:

1. Mining and quarrying (NACE 05-09)
2. Manufacturing (NACE 10-33)
3. Electricity, gas steam and air conditioning supply (NACE 35)
4. Water supply; sewerage, waste management and remediation activities (NACE 36-39)
5. Wholesale trade, except of motor vehicles and motorcycles (NACE 46)
6. Transportation and storage (NACE 49-53)
7. Publishing activities (NACE 58)
8. Telecommunications (NACE 61)
9. Computer programming, consultancy and related activities (NACE 62)
10. Information services activities (NACE 63)
11. Financial and insurance activities (NACE 64-66)
12. Architectural and engineering activities; technical testing and analysis (NACE 71)

According to the information presented in Section A7 of this report– which refers to the data of CIS 2004 and CIS 2006 collected in France – not all the sectors listed above make intensive use of trade secret protection.

In particular, in light of Tables 17-20, we realise that "Mining and quarrying", "Wholesale trade", "Transportation and storage", and "Information services activities" report a low level of trade secret use (less than 20% of companies reports to rely on trade secrecy as a means to protect their activities).

The other sectors report a higher level of trade secret use, with the exception of "Architectural and engineering activities" for which little information is available.

We assume that this business pattern can be extended to the other EU countries.

We intend to narrow out activities which presumably rely less on trade secrets and litigation against their misappropriation and to expand the Manufacturing sector instead, which includes a large variety of sub-activities, and to add some topical service activities of special interest for the Commission.

In light of the evidence reported in Tables 17-20, we break down manufacturing in the following sub-classes:

1. Manufacturing: Textiles (NACE 13)
2. Manufacturing: Chemicals and chemical (NACE 20)
3. Manufacturing: Basic pharmaceutical (NACE 21)
4. Manufacturing: Computer, electronic, optical (NACE 26)
5. Manufacturing: Machinery and equipment (NACE 28)
6. Manufacturing: Motor vehicles (NACE 29)

The following activities are of special interest:

1. Scientific research and development (NACE 72)
2. Advertising and market research (NACE 73)
3. Legal and accounting activities (NACE 69)

The first captures innovative activity in its most basic form. The second represents a typical service sector relying almost uniquely on intellectual skills.

To sum up, our structured survey includes the following activities:

1. Manufacturing: Textiles
2. Manufacturing: Chemicals and chemical
3. Manufacturing: Basic pharmaceutical and Biotech
4. Manufacturing: Computer, electronic, optical
5. Manufacturing: Machinery and equipment
6. Manufacturing: Motor vehicles
7. Electricity, gas steam and air-conditioning supply and water supply; sewerage, waste management and remediation activities
8. Wholesale trade, except of motor vehicles and motorcycles
9. Transportation and storage
10. Information services activities
11. Publishing activities
12. Telecommunications and Computer programming, consultancy and related activities
13. Fast moving consumer goods
14. Financial and insurance activities
15. Scientific research and development
16. Advertising and market research
17. Legal and accounting activities

The sample frame includes the following (13) countries: Austria, Belgium, Czech Republic, France, Germany, Hungary, Italy, The Netherlands, Poland, Spain, Sweden, Switzerland, and the United Kingdom.

The sample is stratified so as to include at least two respondents for each activity and each country: one small-medium and one large enterprise.

Thus, the theoretical sample includes 1 respondent x 2 enterprise sizes x 13 countries x 17 activities = **442 respondents**.

The survey is carried out online, following standard CAWI (Computer Assisted Web Interviewing) methodology, and, where needed, on the phone (Computer Assisted Telephone Interview).

The time span for the interviews runs from 14 November to 4 December 2012.

The information needed for the response might be scattered across several divisions. However, only one person will be in charge of answering the questionnaire. For small-medium enterprises, this person should preferably be the CEO or the Managing Director. For large enterprises, the General Counsel. For both, it may also be the Chief IP Counsel or the Head of R&D.

The Survey has been preceded by a pilot survey, administered to a small number of enterprises. Out of 21 companies contacted, only 12 replied. This fact testified to the excessive complexity of the questionnaire (report in Annex 14).

In view of the responses and the requests of the Commission, the questionnaire has been redrafted. The final version is reported in Annex 13. It includes the following sections:

**Section A – Trade secrets:** requesting information on principal activity of the business, features of the market in which the business operates, nature of the R&D input, the kind of trade secrets with which the respondent is concerned, their perceived importance and the relationship with other IP rights.

**Section B – Threats to your trade secrets:** requesting information on forms of information spill-overs across firms.

**Section C – Protection and misappropriation of your trade secrets:** requesting information on precautions taken to avoid trade secret misappropriation, perceived difference in trade secrets legislation across countries, perceived mis-appropriation risks.

**Section D – Litigation to protect and defend your trade secrets:** requesting information on involvement in trade secrets litigation, misappropriation experiences, legal remedies sought and not sought and reasons to seek or non seek legal protection.

**Section E – Added value of any EU action in this area:** requesting information on perceived or expected benefits from harmonisation and desired EU intervention in the field of trade secrets.

**Section F – Your Company:** requesting information on the name of the company, its location, estimates of turnover, and number of employees.

**Section G – Additional information:** requesting information on name and contact details of the respondent.

The questionnaire includes a final question in which respondents can provide additional comments and relate their experience with trade secret misappropriation, including costs of litigation to protect trade secrets and damages suffered as a consequence of misappropriation of trade secrets.

**Implementation**

For each country, we have identified a sample of firms belonging to the frame identified above. This sample was obtained by random selection from the official statistical sources.

On top of the basic sample (with 442 elements), we have allowed other companies willing to participate to take part in the survey. Each company in the basic sample has been contacted by phone (in the national language). Participant companies have been informed of the nature of the Survey. They have also been informed that additional information would be found on the site: www.tradesecretstudy.eu and that a telephone helpline was available. They were asked for an e-mail address where to send the link to the Survey Website, username and password. Non-responding companies were sent three additional reminder e-mails and two phone calls. The website allowed the respondent to choose his/her own language (13 different versions of the questionnaire were available).

Response rates are reported below.

| Country | Response rates |
|---|---|
| AUSTRIA | 23.5% |
| BELGIUM | 17.1% |
| CZECH REPUBLIC | 15.1% |
| FRANCE | 19.8% |
| GERMANY | 22.4% |
| HUNGARY | 28.4% |
| ITALY | 16.4% |

| | |
|---|---|
| NETHERLANDS | 16.1% |
| POLAND | 22.2% |
| SPAIN | 22.3% |
| SWEDEN | 12.1% |
| SWITZERLAND | 13.3% |
| UK | 15.6% |
| **Total** | **17.8%** |

During the Survey period, 537 interviews have been collected, with the following features.

Actual Sample

| | AUSTRIA | BELGIUM | CZECH REPUBLIC | FRANCE | GERMANY | HUNGARY | ITALIA | NETHERLANDS | Other countries | POLAND | SPAIN | SWEDEN | SWITZERLAND | UK | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing: Textiles | 2 | 4 | 3 | 3 | 2 | 5 | 9 | 2 | | 3 | 1 | 2 | | 1 | 37 |
| Manufacturing: Chemicals and chemical | 2 | 6 | 1 | 5 | 6 | 2 | 4 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 42 |
| Manufacturing: Basic pharmaceutical and Biotech | | 4 | 2 | 1 | | 2 | 3 | 2 | 1 | 2 | 3 | 5 | 2 | 1 | 28 |
| Manufacturing: Computer, electronic, optical | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 3 | | 4 | 2 | 2 | 1 | 1 | 25 |
| Manufacturing: Machinery and equipment | 4 | 1 | 2 | | 3 | 2 | 7 | 3 | | 2 | 3 | 5 | 3 | 3 | 38 |
| Manufacturing: Motor vehicles | | 2 | 3 | 1 | 2 | 1 | 5 | | | | 2 | | 1 | 1 | 18 |
| Electricity, gas steam and air conditioning supply and Water supply; sewerage | 2 | 2 | 2 | 3 | 2 | 3 | 2 | | | 6 | 2 | 1 | 1 | | 26 |
| Wholesale trade, except of motor vehicles and motorcycles | 2 | | 2 | 2 | 2 | 1 | 2 | 2 | | 2 | 2 | 1 | 3 | 3 | 24 |
| Transportation and storage | 3 | 3 | 3 | 4 | 4 | 6 | 5 | 2 | | 3 | 2 | 2 | 2 | 2 | 41 |
| Information services activities | 1 | 2 | 2 | 3 | 1 | 1 | 3 | 3 | | 1 | 4 | 3 | 1 | 2 | 27 |
| Publishing activities | 4 | 2 | 2 | 2 | 2 | 1 | 3 | 3 | | | 2 | 2 | 2 | 3 | 28 |
| Telecommunications and Computer programming, consultancy and related activities | 5 | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 4 | 4 | 4 | 43 |
| Fast moving consumer goods | 2 | 3 | 2 | 3 | 4 | 3 | 6 | 2 | 1 | 2 | 2 | 2 | 1 | 4 | 37 |
| Financial and insurance activities | 3 | 2 | 3 | 2 | 3 | 5 | 2 | 2 | | 2 | 2 | 2 | 4 | 2 | 34 |
| Scientific research and development | 2 | 4 | | 2 | 2 | 4 | 3 | 4 | 2 | 3 | 4 | 1 | 5 | 4 | 40 |
| Advertising and market research | 3 | 3 | 1 | 1 | 1 | 3 | 2 | 2 | | | 3 | | 2 | | 21 |
| Legal and accounting activities | 1 | 1 | 3 | 2 | 3 | 1 | 2 | 2 | | 1 | 5 | 4 | 2 | 1 | 28 |
| **Total** | **38** | **44** | **38** | **40** | **41** | **44** | **62** | **35** | **7** | **34** | **43** | **39** | **37** | **35** | **537** |

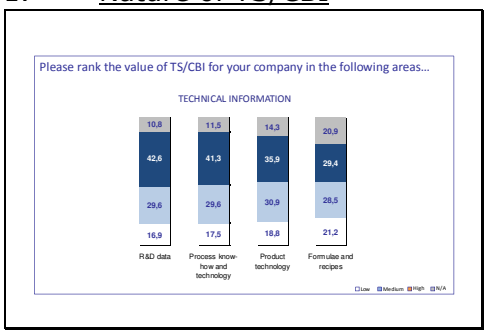
## Subsection 2.2. Survey highlights

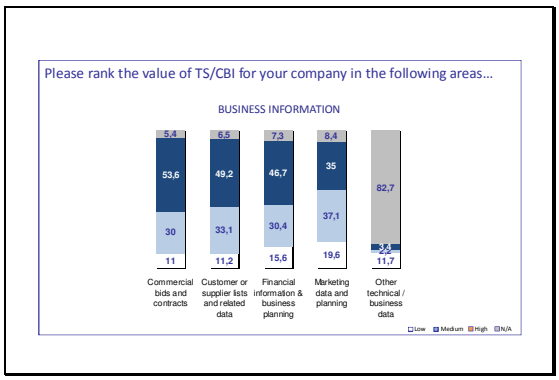
The results of the Survey are presented below. Overall, the questionnaire has been able to grasp the differences across industries and businesses of different sizes.

### Results

The main findings of the survey are reported below (full data in Annex 17).

1. Nature of TS/CBI



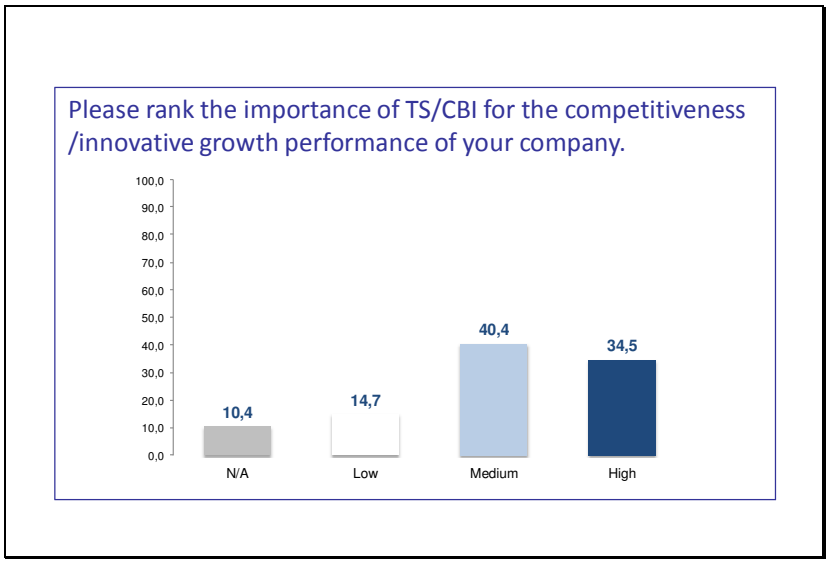



*Responses confirm that TS/CBI are highly valuable. Perhaps surprisingly, the mostly highly-valued TS reside in information about "Commercial bids and contracts" (54% of high responses), followed by information about "Customer or supplier lists and related data" (49% of high responses) and "Financial information and business planning (47% of high responses).*

*Clearly, there are differences across industries. Commercial bids and contracts are in the area of the most valuable secrets in the chemical, computer, wholesale trade, telecommunications, fast-moving consumer goods, and scientific research sectors. In pharmaceuticals, the most valuable secrets lie in marketing data and planning, while they lie in customer and supplier list for machinery and equipment, ,motor vehicles, transportation and storage, advertising and market research, and legal and accounting services.*

*In general, large firms seem to attach greater value to TS than small/medium firms.*

2. Relevance of TS/CBI

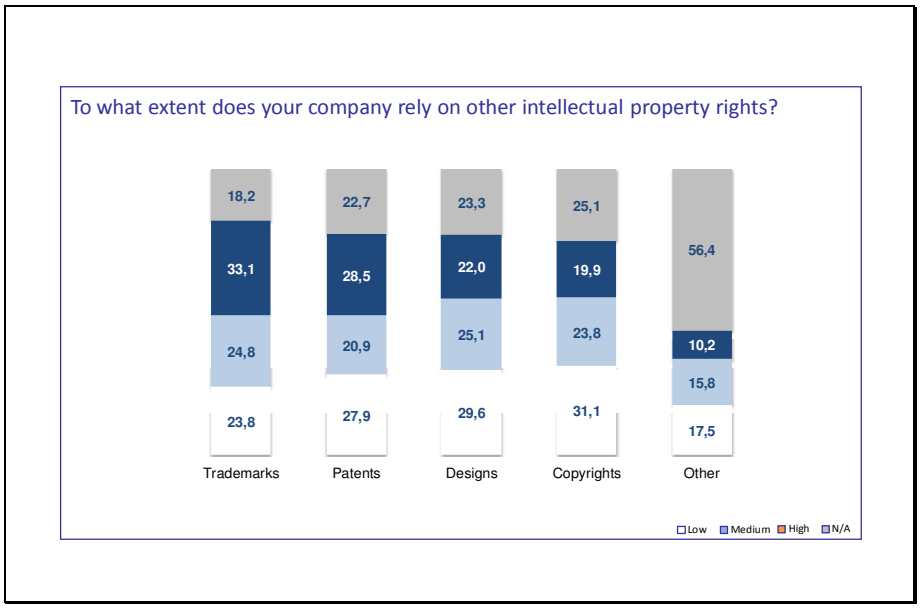



*74% of the respondents attach medium or high importance to TS, in line with earlier studies attesting to the strategic importance of TS for businesses.*

*Industries providing the largest share of high responses are scientific research and development (55%), chemicals (52%) and motor vehicles (44%). The lowest share is provided by legal and accounting activities (7%).*

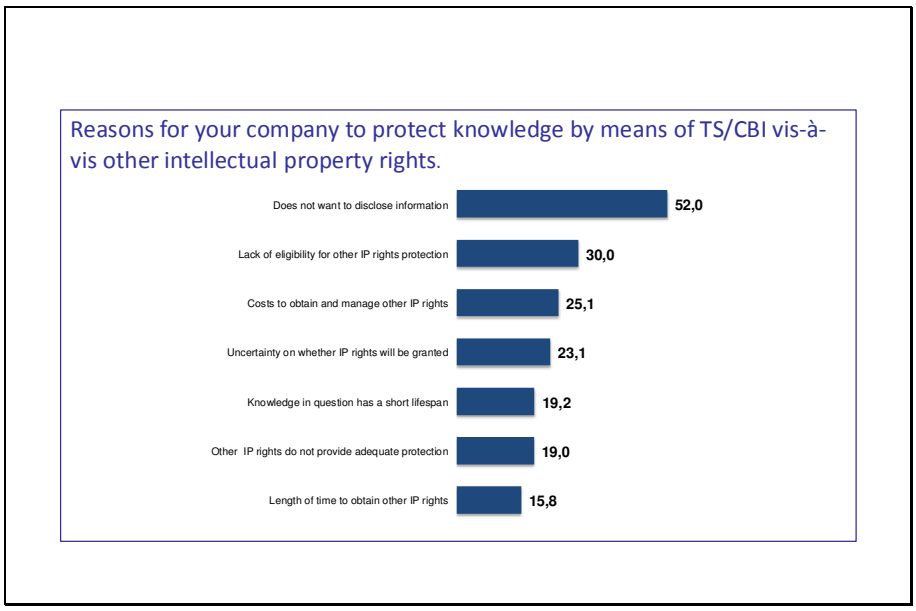
*Again, large firms seem to regard TS more as important than small/medium firms.*

3. Relationship with other IPRs



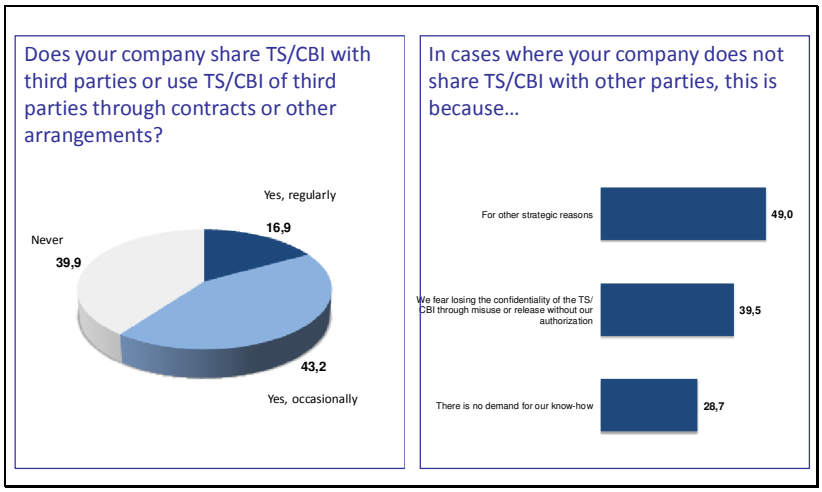

*Overlapping with other IP rights is not as strong as expected. This probably has to do with the subject matter of the TS.*

*Reliance on other IPRs varies substantially across industries. Copyrights rank highly with pharmaceuticals and advertising; patents rank highly with pharmaceuticals and scientific research; trade marks with pharmaceuticals, machinery, and fast-moving consumer goods. Designs are ranked generally lower in all industries.*




*The most important reason why businesses rely on TS rather than on other IPRs concerns the need to not disclose information (52%). The second most important reason is the lack of eligibility (30%). The least important reasons is the short duration of information (19%) and inadequate protection of other IPRs (19%). The latter factor, however, is regarded as important in the chemical and in motor vehicles sectors.*

## 4. TS sharing

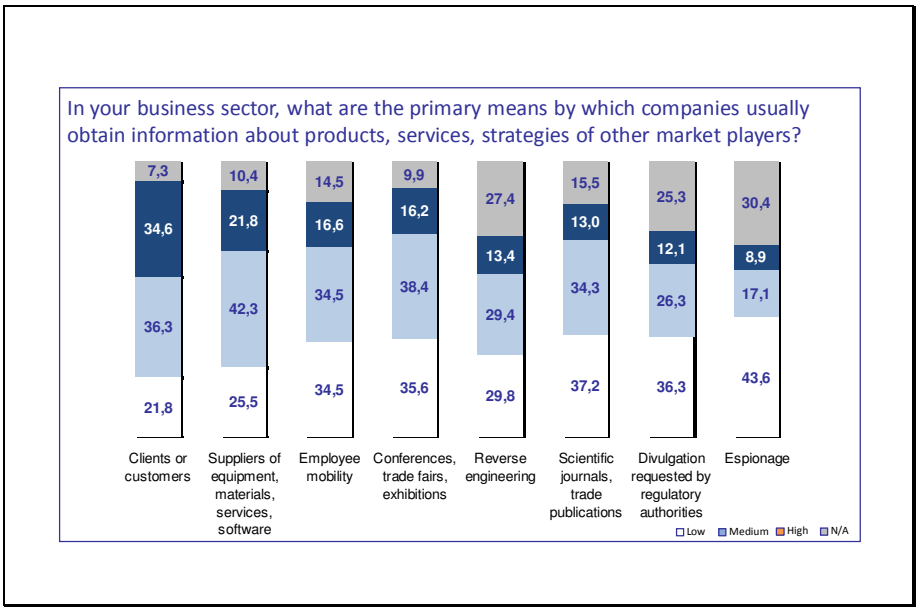



*60% of the business shares their TS regularly or occasionally. Businesses that share more are: scientific R&D, motor vehicles and chemicals. Large firms share more than small/medium ones.*

*Failure to share TS is mostly due to strategic reasons (49%) and for fear of losing confidentiality (39.5%). Of great interest, the data on some manufacturing industries, where there is fear of losing confidentiality represent a significant reason not to share (chemicals [67%], motor vehicles [61%], and pharmaceutical [57%]).*

*This finding suggests that a stronger protection of TS might result in greater sharing of information.*

5. Acquisition of information

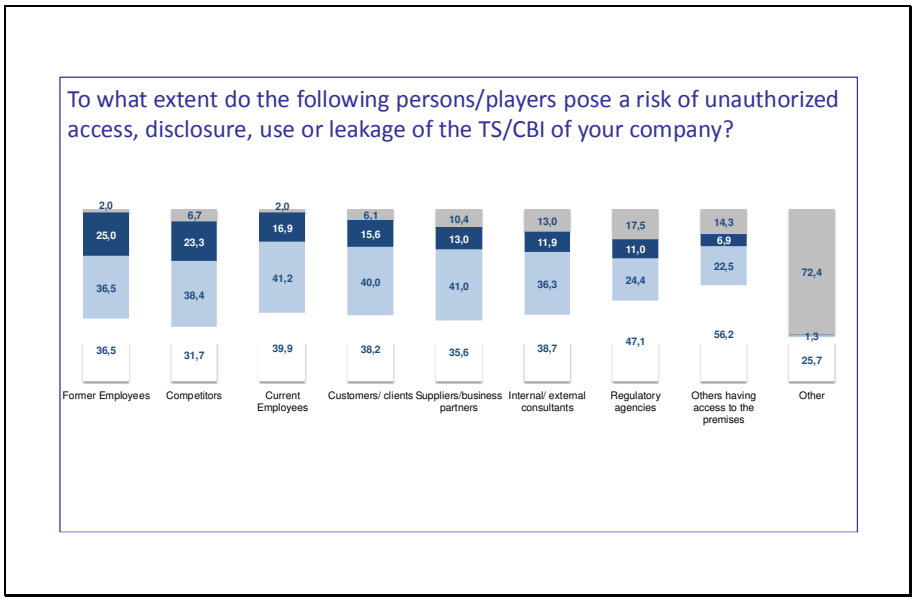



*This question ranks some of the potential sources of information spillovers across businesses. The most important source are clients and customers (34% of high responses), followed by suppliers (22%), employee mobility (17%) and conferences (16%).*

*Of special importance is the question on espionage, which maps the importance of this phenomenon across industries. Those most exposed are the motor vehicles (39%) and the pharmaceutical (21%) industries.*

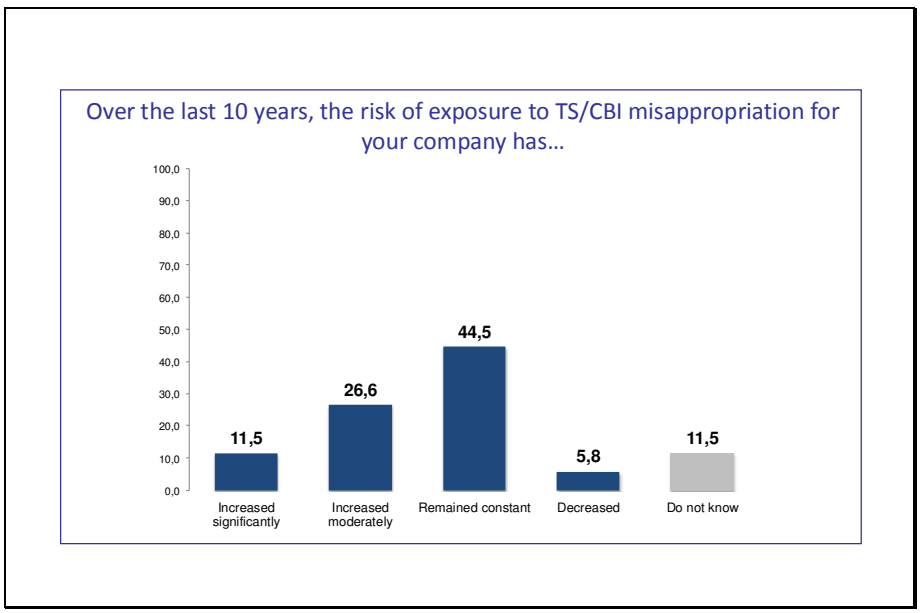
*Divulgation by regulators is regarded as particularly important by the pharmaceutical (39%) and the motor vehicles (39%) industries.*

## 6. Threat of misappropriation



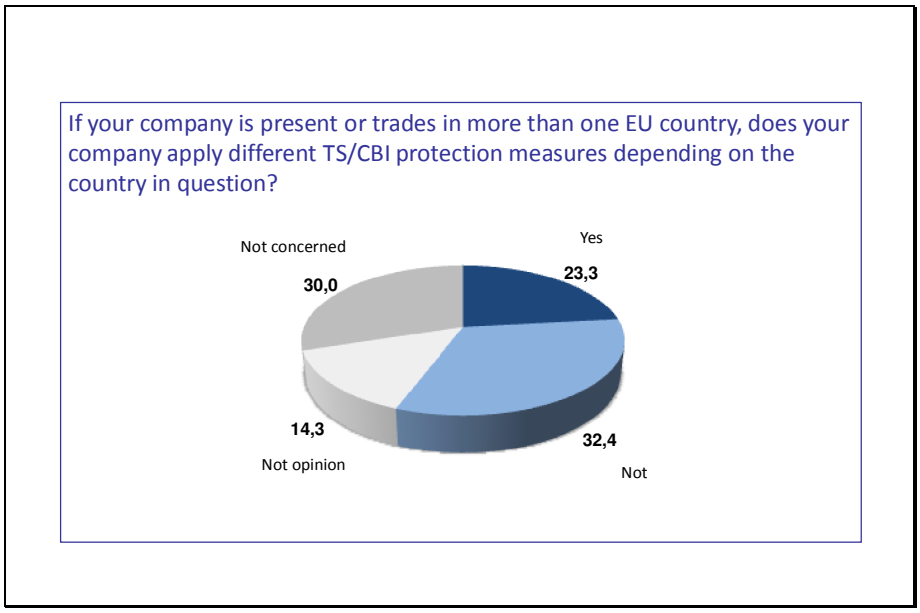

*The risk of TS misappropriation seems to stem from a variety of sources, generally ranked of medium importance (current and former employees, competitors, customers and suppliers). Slightly greater risk is posed by former employees (25% of high responses) and competitors (23%). In the telecommunication and financial sectors, former employees are a special reason of concern (above 30% of high responses), in the pharmaceutical, publishing, and financial services; competitors are a special reason of concern; while in the pharmaceutical sector, regulatory agencies are a special reason of concern.*

## 7. Risk of misappropriation over time



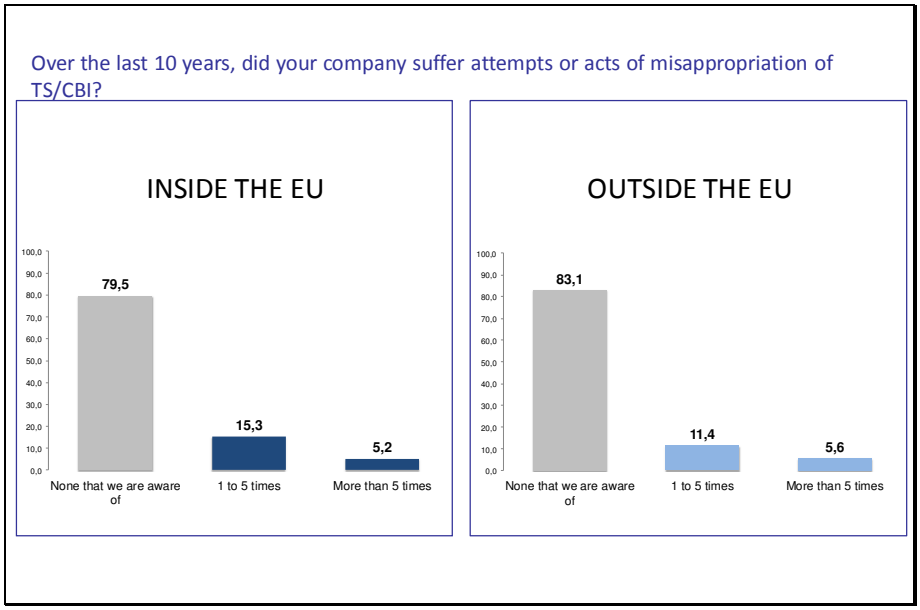
*The majority of the respondents perceives the risk of TS misappropriation to have increased (38%) or remained constant (44,5%). The perception of a significant increase is particularly strong in the chemical (29%) and pharmaceutical (29%) industries.*

8. Differential treatment of TS across countries




*This issue is obviously relevant only for firms that have strong ties with non-domestic subsidiaries/partners. Affirmative responses (weakly) outnumber the negative ones in the chemical, pharmaceutical, electricity, et al., motor vehicles, and financial and insurance sectors.*

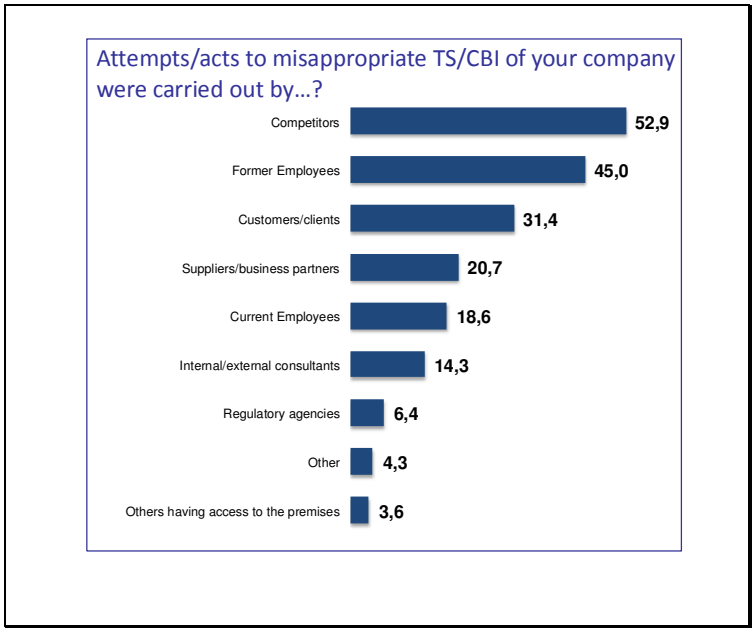
9. Attempts/acts of misappropriation



*Out of 537 respondents, 110 (20.5%) have suffered at least one attempt/act of misappropriation in the EU. The share of the companies with such an experience is largest (about one out of three) among the chemical, motor vehicles, pharmaceutical sectors, and least (one in 10) among the telecommunications, electricity and gas, and computer sectors.*

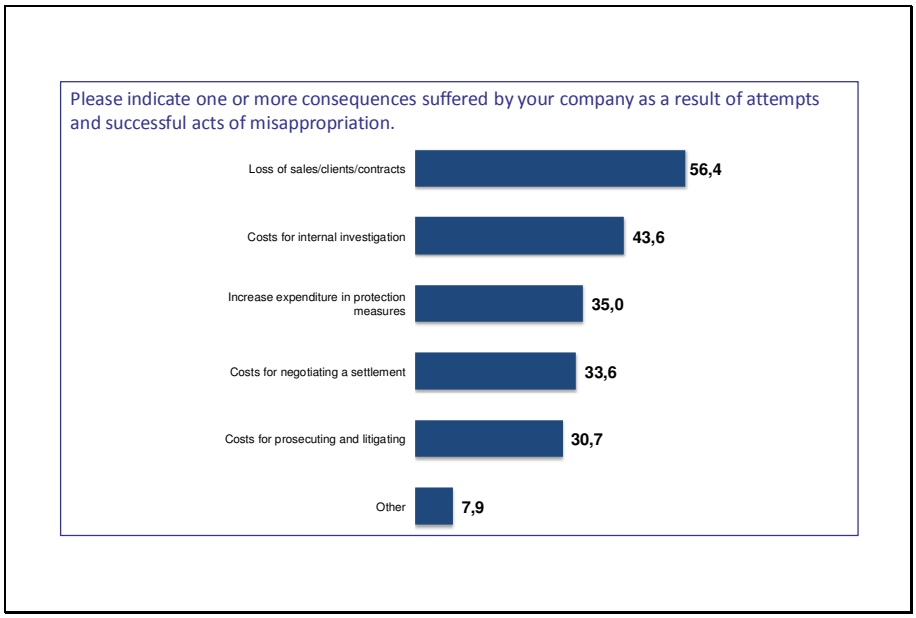
*Attempts/acts of misappropriation outside of the European Union have a similar – albeit slightly lower – frequency (91 cases). Exceptions are the motor vehicles, scientific research and chemical sectors, where companies report more frequent attempts/acts outside of the EU.*

*Large firms report higher frequencies both within and outside the EU.*



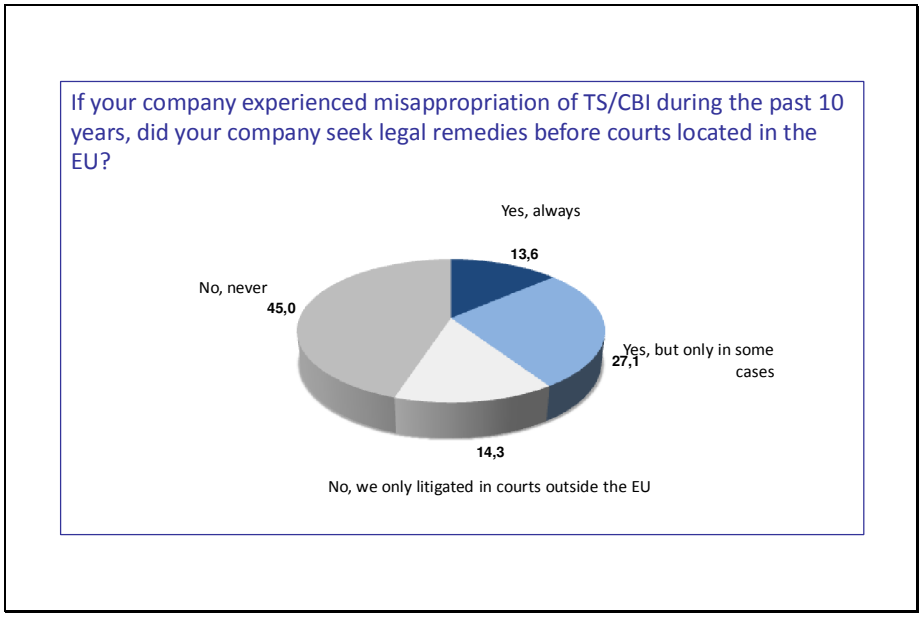

*Parties responsible for the acts/attempts of misappropriation are primarily: competitors (53% of positive response), former employees (45%), and customers' clients (31%), with some differences across sectors. Cases involving former employees are marginally more frequent in large companies. Occasional problems with regulators are reported both by the chemical and pharmaceutical industries.*

## 10. Consequences of misappropriation

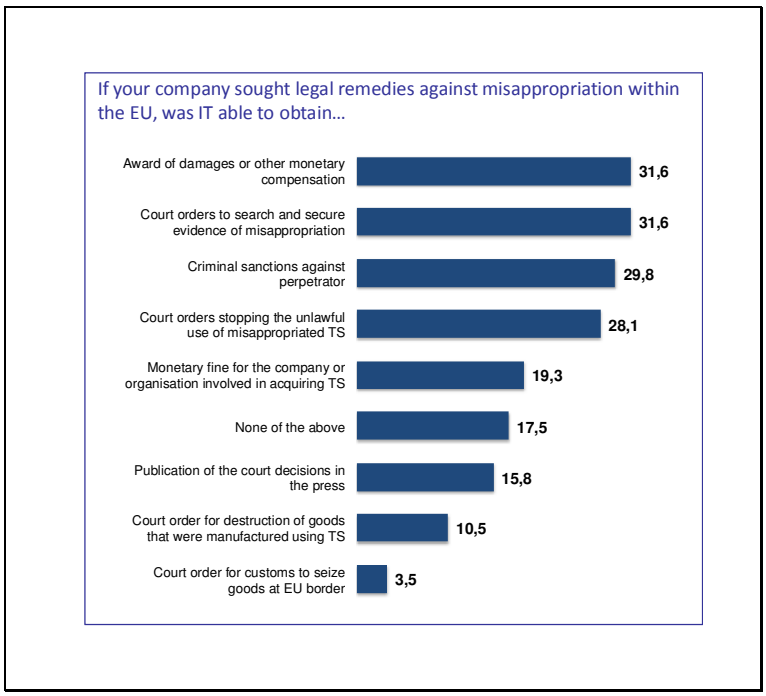



*Acts/attempts of misappropriation have resulted mostly in loss of sales/clients/contracts (56% of cases). Also relevant are the cost for internal investigation (44%), the increase in expenditure for protection (35%), the costs for negotiating a settlement (34%), and the costs for prosecuting and litigating (31%).*

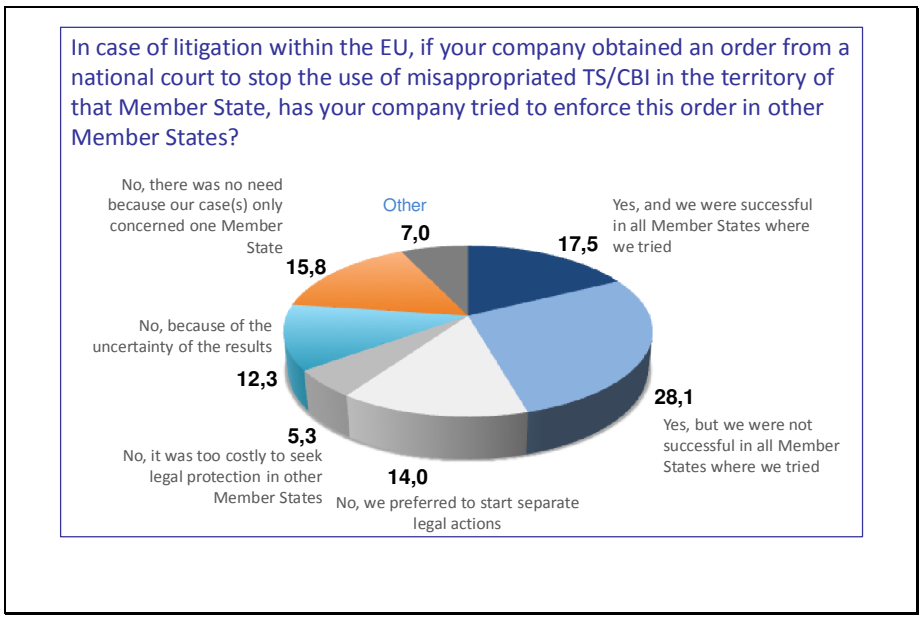
## 11. Litigation




*Out of the 140 companies that report misappropriation, 57 sought legal remedies before courts located in the EU; 83 did not.*

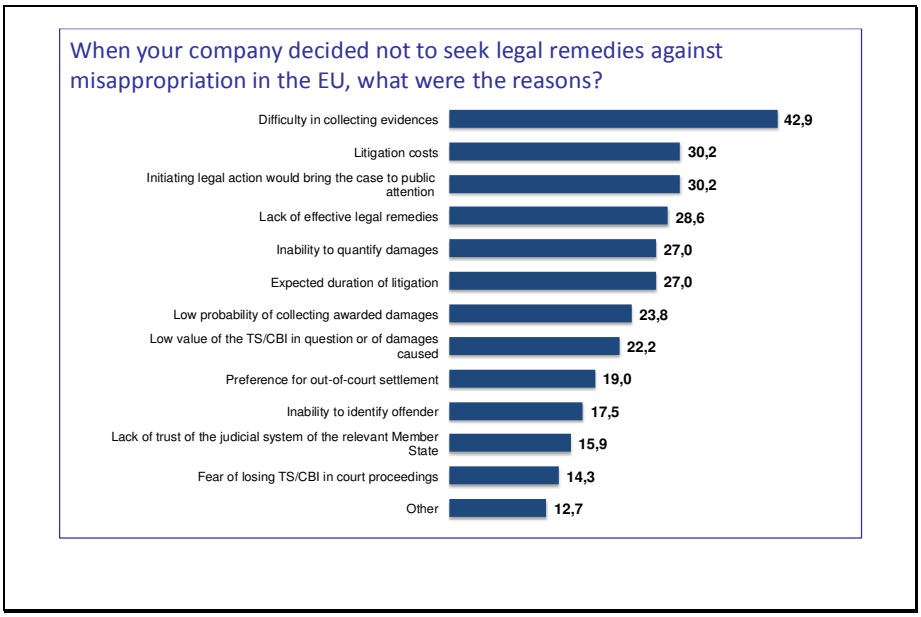



*Companies that sought legal remedies before courts located in the European Union were able to obtain nearly one-third of the cases: court orders to search and secure evidence of misappropriation (32%), award of damages or other monetary compensation (32%), and criminal sanctions against perpetrator (30%). With a slightly lower frequency: court orders stopping the unlawful use of misappropriated trade secrets (28%), and very seldom court order for customs to seize goods at EU border (3.5%). In a noticeable 17.5% of the cases, they obtained "none of the above".*




*Out of the 57 companies concerned, 10 were successful in all Member States, 16 we were not successful in all Member States, 8 preferred to start separate legal actions, 3 reported*

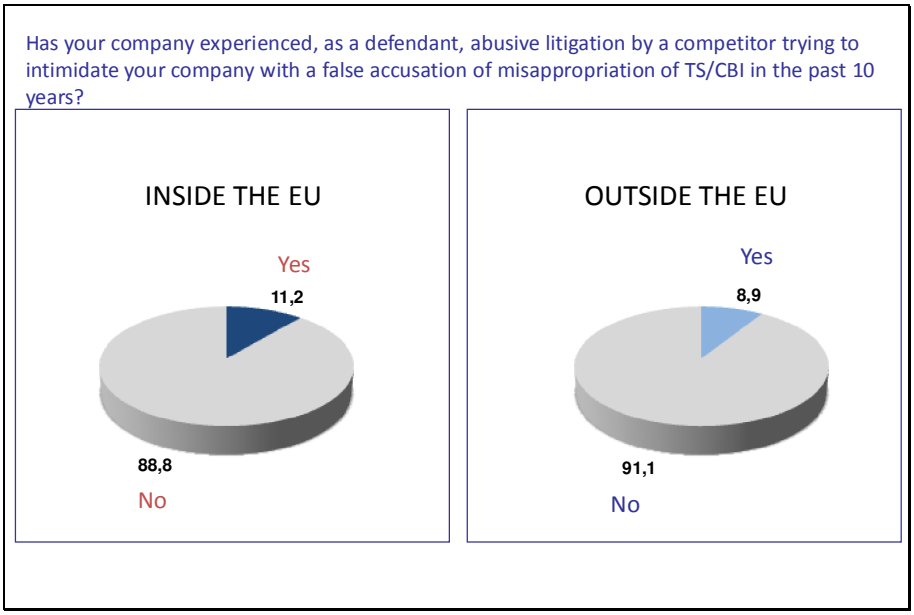
*that it was too costly, 7 reported that the uncertainty was too great, 9 reported that there was no need.*




*Companies that decided not to seek legal remedies (67), attached some weight to all factors mentioned. Of particular importance: the difficulty in collecting evidence (43% of positive responses), reputation (30%), and litigation costs (30%).*

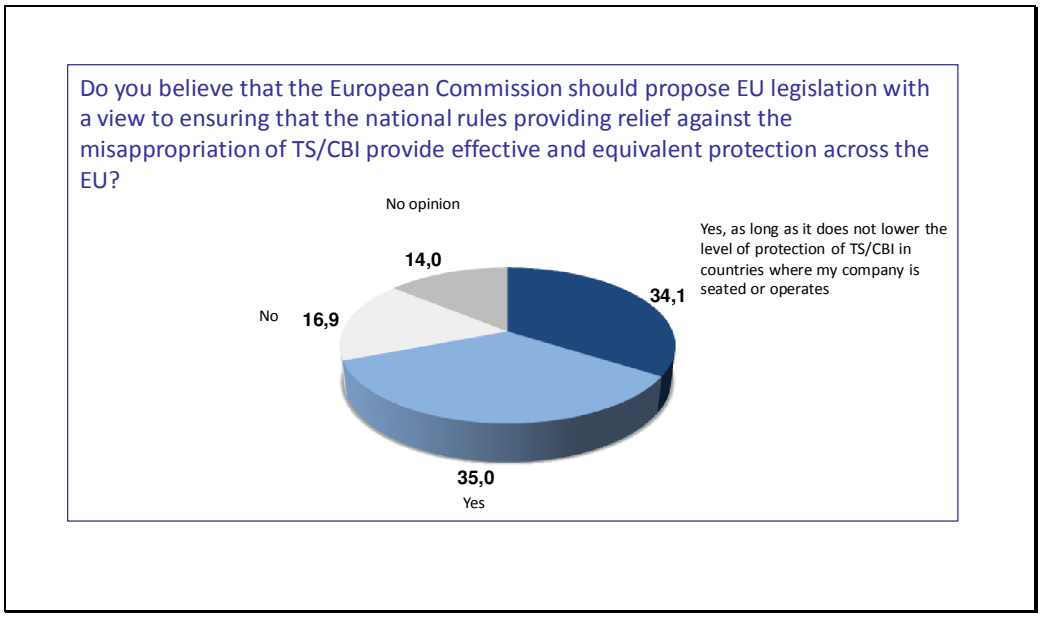
*Somewhat less relevant: Fear of losing TS/CBI (14%) and lack of trust (16%).*

## 12. Abusive litigation



*Abusive litigation is of some concern: 60 companies out of 537 report abusive litigation within the European Union. This problem is particularly significant in the motor vehicles (33% of respondents), chemicals (19%) and pharmaceutical (18%) sectors.*

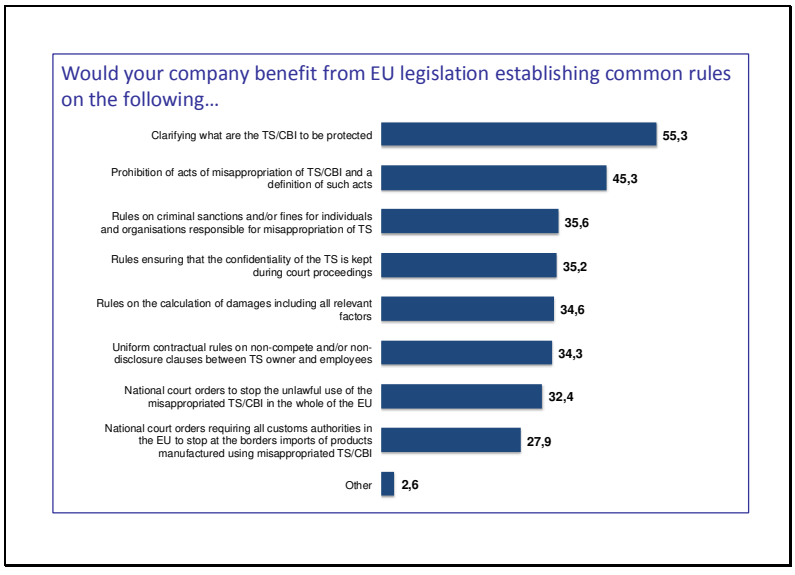
13. Support for EC intervention




*69% of respondents support a European Commission proposal. In all industries, companies supporting the initiative outnumber those objecting it or indifferent about it. Support rates are particularly high in the motor vehicles (83%), chemicals (79%) and wholesale (79%) sectors.*

*Conditional and unconditional support are roughly equally intense (34% and 35%, respectively). Large firms are marginally more supportive.*

14. Scope of European Commission's intervention



*Companies seem to derive some benefit from all the measures listed. The measures that obtain the largest positive rates are: clarifying what TS/CBI is to be protected (55%) and prohibition of acts of misappropriation of TS/CBI, and a definition of such acts (45%).*

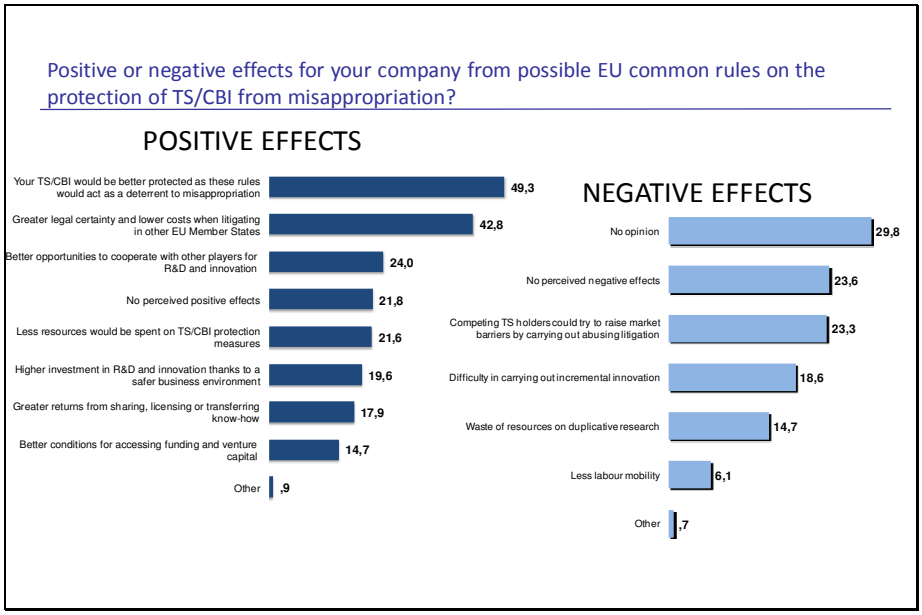
*Clarification of TS/CBI to be protected is regarded as providing a benefit by majority of the companies in the advertising (81%), pharmaceutical (71%), chemicals (71%), scientific research (65%), transportation and storage (58%), publishing (57%), legal (54%), and machinery (53%) sectors.*

*Prohibition of the acts of misappropriation of TS/CBI and a definition of such acts is regarded as providing a benefit by the majority of the companies in the chemical (67%), motor vehicles (61%), pharmaceutical (57%), legal (53%), advertising (52%) and scientific research (50%) sectors.*

*Rules on the calculation of damages are regarded as providing a benefit by majority of the companies in the chemical (52%), scientific research (50%) and legal (50%) sectors.*

*National court orders rank the least (28% of positive rates). Still, they are regarded as providing a benefit by majority of the companies in the pharmaceutical (50%) and motor vehicles (50%) sectors.*

15. Costs and benefits of intervention




*This question tries to identify potential costs and benefits of EU common rules.*

*On the positive side, companies regard deterrence as the most important factor (49% of positive responses), followed by greater legal certainty (43%). Somewhat less important is attached to better opportunities to cooperate (24%), less resources on company-specific protection measures (22%), higher investment in R&D and innovation (20%), greater returns from sharing, licensing or transferring know-how (18%), and better conditions for accessing funding (15%).*

*Responses vary greatly across industries. Deterrence is highly ranked in the chemical (73%), motor vehicles (61%), pharmaceutical (61%), advertising (57%), machinery (55%), wholesale trade (54%) and legal (50%) sectors, while it is less highly-ranked in the telecom (28%), electricity (30%) and information services (30%) sectors.*

*Better opportunities to cooperate rakes exceptionally high in the pharmaceutical sector (60%).*

*The sector which seems to benefit less from EU common rules are the information service activities, where 48% of the companies perceive no positive benefits, and the electricity sector (38% of the companies perceive no positive benefits).*

*In average, 78% of the companies perceive some positive benefits (74% of small/medium firms, 85% of large firms).*

*On the negative side, companies rank the following factors as potential costs. First of all, nearly one in four companies believes that "Competing trade secret holders could try to raise market barriers by carrying out abusing/intimidating litigation or similar behaviour" (23% of positive responses). A smaller fraction of companies think that EU common rules will make it difficult to carry out incremental innovation (17%), that there will be duplicative research (15%) and that there will be less labour mobility (6%). The latter factor is of some importance in the machinery sector (16%).*

*Across industries, none of the factors listed are able to obtain a positive rate above 40%. The factor most highly-ranked is incremental innovation in the motor vehicle industry (38%).*

*In average, 76% of the companies perceive some potential negative effect (77% of small/medium firms, 75% of large firms).*

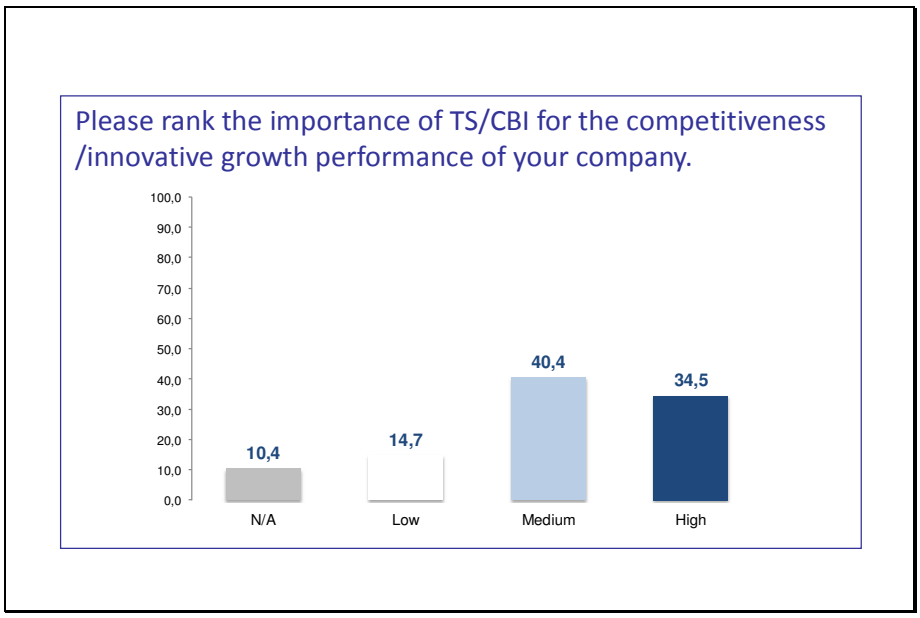
## Subsection 2.3. Findings

The survey of European companies relating to trade secrets and their importance in Europe was implemented as requested, resulting in a large number of responses (537) from European companies. Survey responses were from all of the major industry groups identified in Subsection 2.3. We first summarize highlights of the survey results below, and then discuss implications of the survey results for the overall study findings.

## Highlights Survey Section A: Your Trade Secrets

### *Importance*

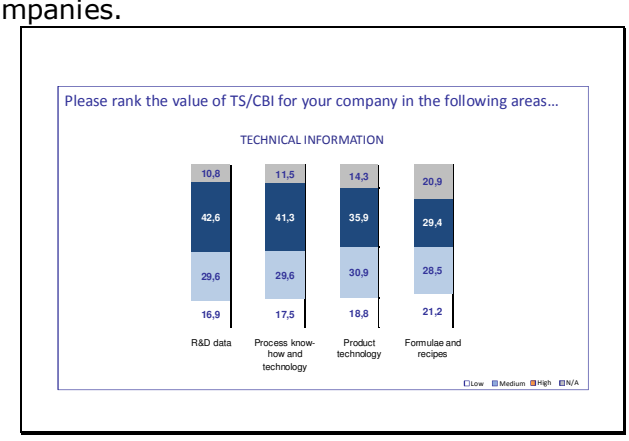
The survey results strongly affirm the observations from the legal and economics literature that trade secrets and confidential business information ("TS/CB") are critically important to the growth, competitiveness, and innovative performance of European companies.

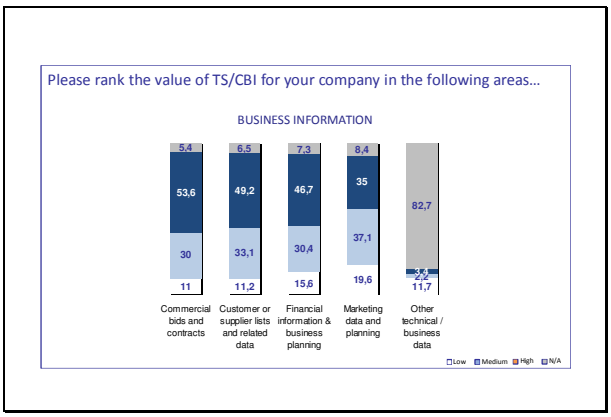



Overall, 75% of the survey respondents ranked TS/CBI as being strategically important to their company's growth, competitiveness and innovative performance. The survey results also confirm the importance of TS/CBI to individual business sectors, although their relative importance varies by industry sector as previously observed. Sectors providing the largest share of "High Importance" responses are scientific research and development (55%), chemical manufacturing (52%), and motor vehicles manufacturing (44%). The industries with the lowest share of "high" responses include publishing activities (21%), information services activities (19%), wholesale trade (other than motor vehicles) (17%), and legal and accounting services (7%). Overall, the survey results indicate that TS/CBI represent very important components of intellectual property to both large and small/medium firms.

### *Nature of Trade Secrets*

The survey responses confirm that TS/CBI of all types are viewed as valuable to European companies.

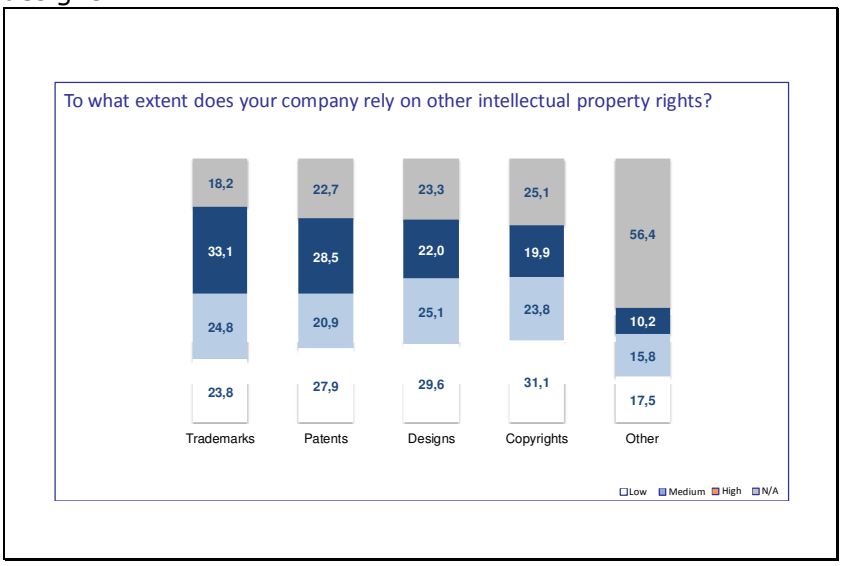





The most highly-valued types of TS/CBI relate to "Commercial bids and contracts, contractual terms", followed by "Customer or supplier lists and related data", and then "Financial information and business planning". TS/CBI information related to "R&D data", "Process know how and technology", "Formulae and recipes", "Product technology", and "Marketing data and planning" were also ranked by respondents as highly valuable. As suggested by prior economic research, there are significant differences among industries in terms of the relative importance assigned to different types of TS/CBI. Commercial bids and contracts are ranked as the most valuable in the chemical, computer, wholesale trade, telecommunications, fast-moving consumer goods, and scientific research and development sectors. In pharmaceuticals, the most valuable TS/CBI is associated with marketing data and planning, while customer and supplier lists are perceived as high value for the machinery and equipment, motor vehicles, transportation and storage, advertising and market research, and legal and accounting service sectors. Overall, large firms seem to attach greater value to each category of TS/CBI than small/medium firms, but the survey results make clear that all types of TS/CBI are important to firms of every size.

### *Relationship with other IPRs*

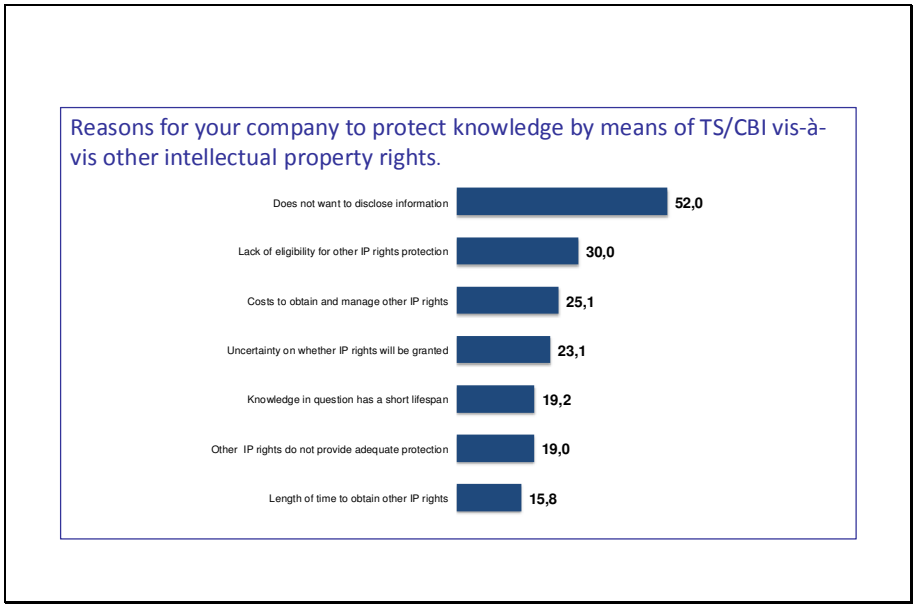
Consistent with the findings of the economics research summarised earlier in this Report, the survey results confirm that European companies rely upon many forms of intellectual property protection in addition to TS/CBI, such as copyrights, patents, trade marks, and designs.



Survey respondents indicated that copyrights were of medium-to-high importance (combined 43.7% of medium and high importance responses). Patents were also viewed as of medium-to-high importance (combined 49.4%) in addition to TS/CBI. As expected, reliance on other forms of intellectual property protection varies substantially across industries. Copyrights rank highly in the pharmaceutical, advertising, publishing, and telecommunications, and computer programming industries, whereas patents rank highly in the pharmaceutical, chemical, machinery and equipment, and scientific research sectors. Firms of all sizes rely upon other forms of intellectual property protection in addition to TS/CBI.

We note, however, that a significant number of respondents assigned low importance to other categories of intellectual property rights, or otherwise indicated that such other categories were "Not Applicable". The large number of responses in these categories suggest that many firms may rely on trade secret protection exclusively, or to a much greater degree than reliance on other forms of intellectual property protection. Firms that rely exclusively or principally on trade secret protection may therefore benefit from strengthened protection independently of Commission initiatives with respect to other forms of intellectual property.

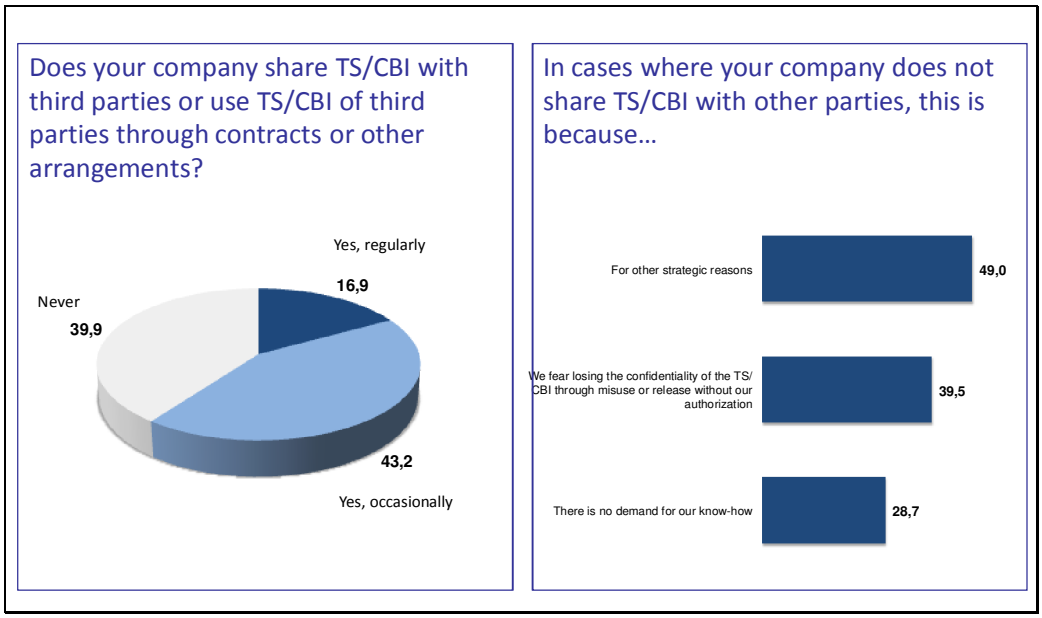
The survey confirms that there are many considerations faced by companies when choosing to rely on TS/CBI as compared to other potential forms of intellectual property protection.




The most important reason identified by survey respondents for relying upon TS/CBI concerns the preference to avoid disclosure of valuable information (52% positive responses). Non-disclosure was ranked as the most important reason for protecting knowledge by almost every industry sector (with the exception of motor vehicle manufacturing). The second most important reason for reliance on TS/CBI relates to the lack of eligibility of the knowledge for protection under other protection means (30% positive responses). The least important reasons for reliance of TS/CBI as compared to other intellectual property rights relates to the short duration of information (19%) and inadequate protection of other intellectual property rights (19%).

***Trade Secrets sharing***

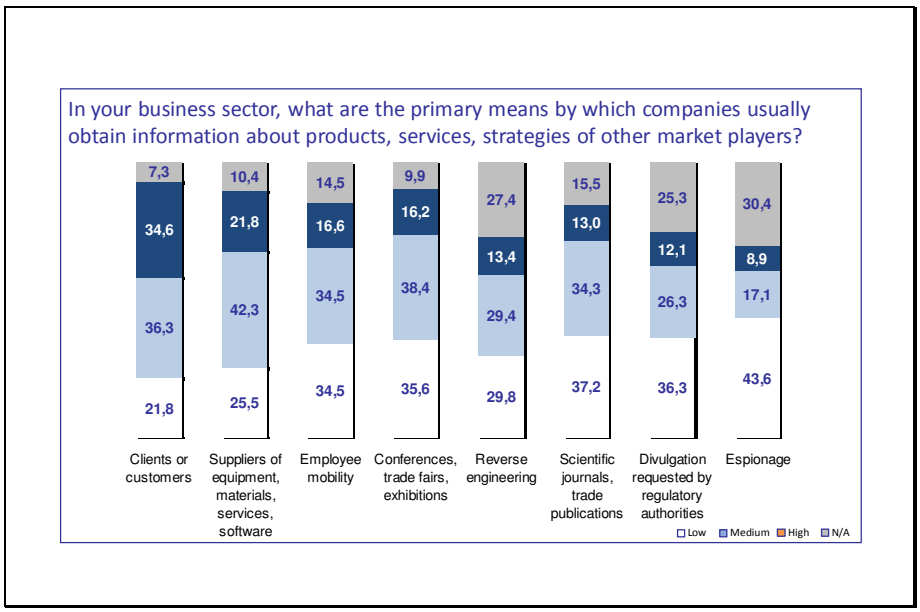
Approximately 60% of survey respondents stated that they used or shared TS/CBI regularly or occasionally with third parties.




The sectors with the greatest amount of sharing occur in the scientific R&D, motor vehicles, and chemical sectors. Both large and small firms share TS/CBI with third parties, although larger firms appear to share more than smaller firms. Focusing on reasons why companies do not share TS/CBI with third parties, companies cited strategic reasons (49% positive responses) and concerns over losing confidentiality of information (39% positive responses) as the most important reasons. Concerns over confidentiality are viewed as most important to the chemical (67%), motor vehicle (61%), and pharmaceutical (57%) sectors. Fears over the loss of confidentiality and other strategic reasons are important to firms of all sizes, but were cited more heavily by large firms compared to small/medium firms.

**Highlights of Survey Section B: Threats to Your Trade Secrets**

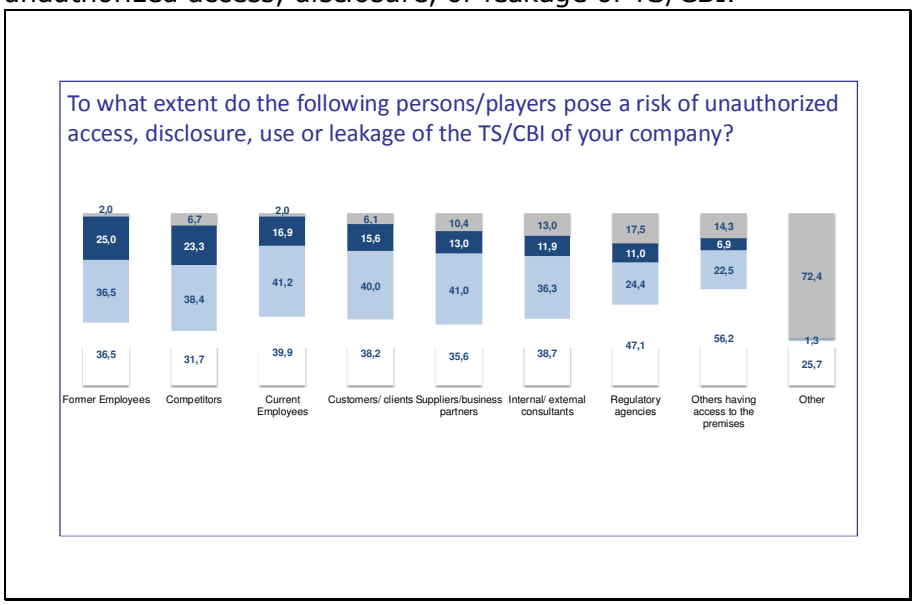
Asked about primary means by which companies usually obtain information about products, services and strategies of other market players, survey respondents identified clients and customers as the most important means (34% of high responses), followed by suppliers (22%), employee mobility (17%), and conferences (16%).




Of special importance are acts of espionage. Survey respondents in the motor vehicle (39%) and pharmaceutical (21%) industries ranked espionage as high concern. Divulgation by regulators is regarded as particularly important by respondents in the pharmaceutical and motor vehicle sectors.

***Threat of misappropriation***

Companies were also asked about the extent to which various persons posed a risk of unauthorized access, disclosure, or leakage of TS/CBI.

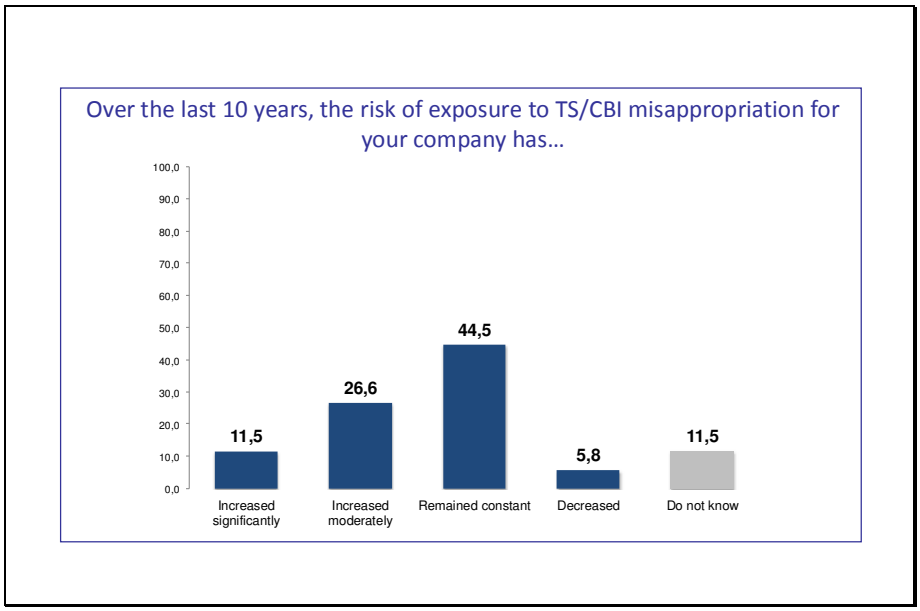



Survey respondents indicated that threats were presented from many sources, including current and former employees, competitors, customers, and suppliers. In the telecommunications and financial sectors, former employees are considered of special concern to companies, whereas in the pharmaceutical, publishing, and financial sectors,

competitors are of greatest concern. Regulatory agencies are also of concern to the pharmaceutical sector.

***Risk of misappropriation over time***

Companies were also asked whether the risk of exposure to TS/CBI misappropriation has increased over the last 10 years.

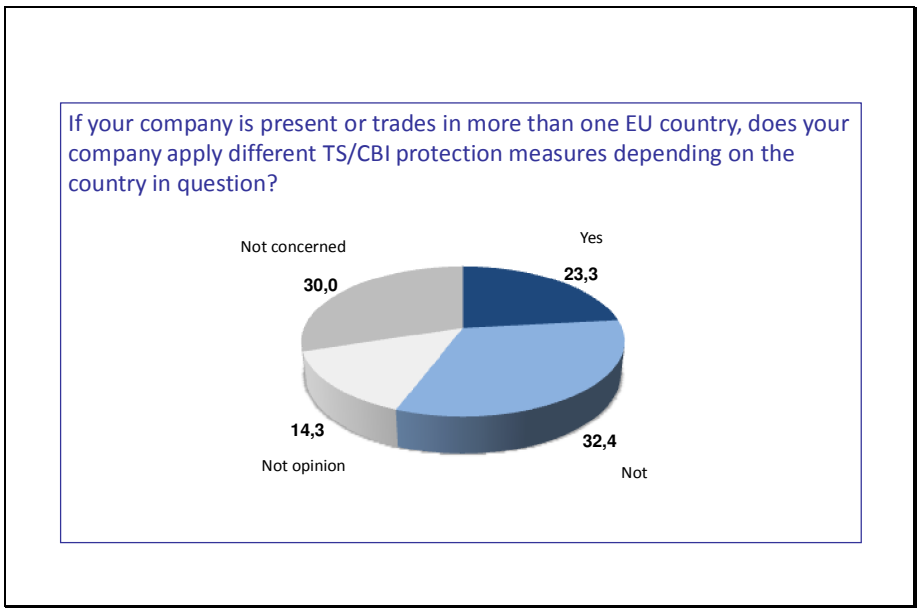



The majority of survey respondents perceives the risk of misappropriation as having increased over the last 10 years (38% affirmative responses) or remained constant (44.5% affirmative responses). The perception that the risk of misappropriation has increased is particularly strong in the chemical and pharmaceutical sectors.

**Highlights of Survey Section C: Protection and Misappropriation of Your Trade Secrets**

***Differential treatment of TS across countries***

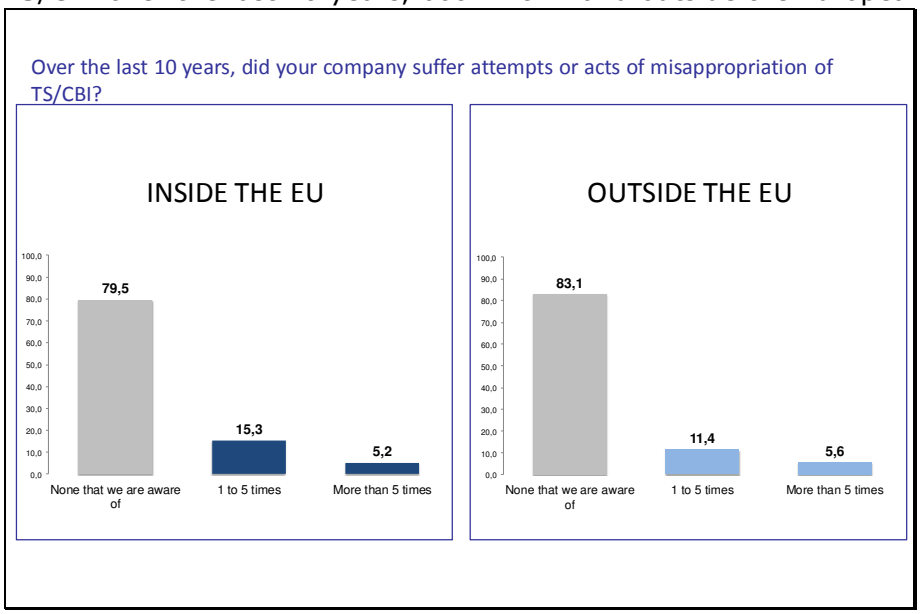
Survey respondents were asked, if trading in more than one EU country, whether they apply different TS/CBI protection measures (e.g., confidentiality agreements, non-compete covenants, physical access restrictions, etc.) depending on the country in question.




In the aggregate, only 23% of survey respondents responded that they apply different measures. The percentage of affirmative responses varies significantly by industry, although the chemical and pharmaceutical industries show the highest level of affirmative responses. It is interesting to note, however, that the survey results vary significantly across member countries. For example, 41.5% of the survey respondents in Germany indicated that they would apply different TS/CBI protection techniques in different countries, whereas only 8.1% of Italian companies operating in more than one country reported that they apply different protection techniques.

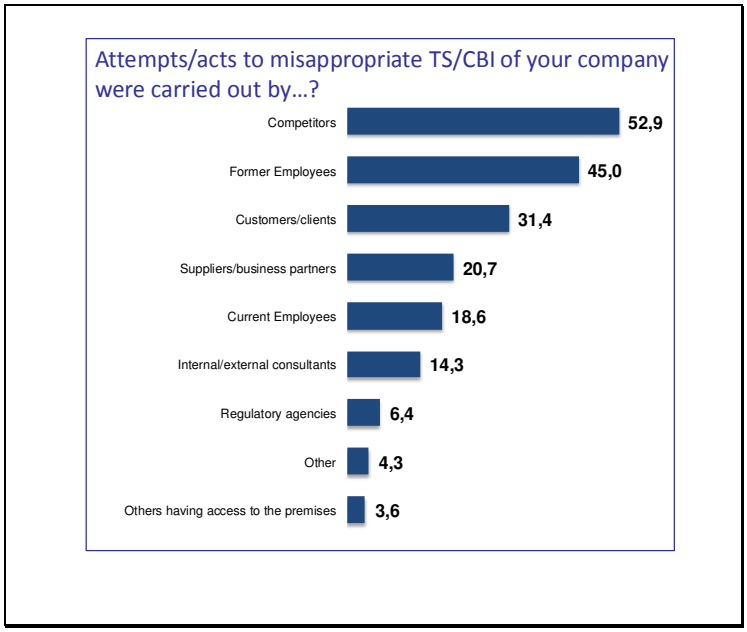
***Attempts/acts of misappropriation***

Survey respondents also confirm they had suffered attempts or acts of misappropriation of TS/CBI over the last 10 years, both within and outside the European Union.



Out of the 537 respondents, 110 (20.5%) have suffered at least one attempt of misappropriation within EU countries. Companies experiencing such acts are found to be highest in the chemical, motor vehicle, and pharmaceutical sectors, with slightly lower rates in the telecommunications, electricity and gas, and computer sectors. Attempts or acts of misappropriation outside the European Union also occurred frequently in the last 10 years, albeit at a lower frequency (91 instances out of a sample of 537 companies). The motor vehicle, scientific research, and chemical sectors reported the highest rates of attempts or acts of misappropriation outside the EU. Larger firms report a higher frequency of attempts or acts of misappropriation than small/medium firms both inside and outside the European Union.

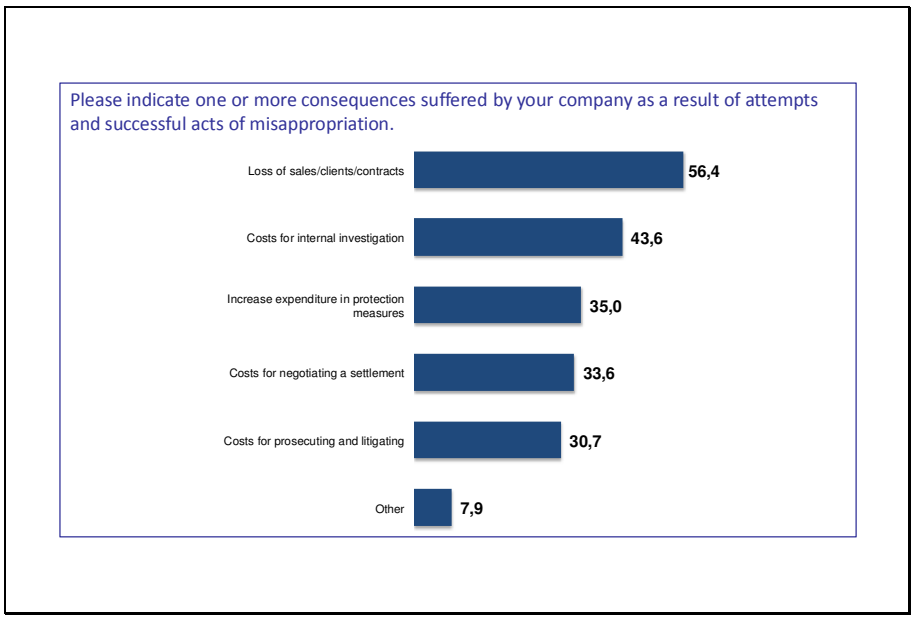
The parties identified as being primarily responsible for the attempts or acts of misappropriation are the competitors (53% of positive responses), former employees (45%), and customers (31%).




Consistent with other survey questions, the results vary widely across sectors. Instances involving former employees are slightly more frequent for large firms. Occasional problems with regulators are reported by both the chemical and pharmaceutical industries.

**Consequences of misappropriation**

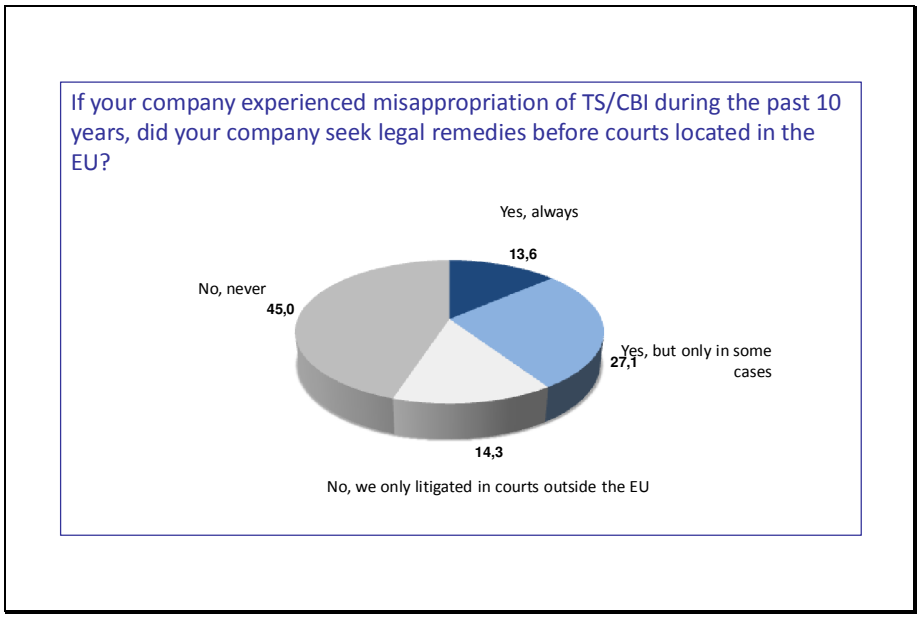
Companies report substantial adverse consequences as the result of attempts of acts of misappropriation of TS/CBI. Asked to indicate the consequences suffered as a result of attempts or acts of misappropriation, survey respondents indicated they had suffered a loss of sales, clients, and contracts (56% of affirmative responses); costs for internal investigation (44%); increased expenditure for protection (35%); costs for negotiating settlements (34%); and costs for prosecuting and litigating (31%).




The loss of sales, clients, and contracts are reportedly important in a wide variety of industries, including the chemical, pharmaceutical, computer, and machinery and equipment manufacturing sectors, and to both large and small/medium firms.

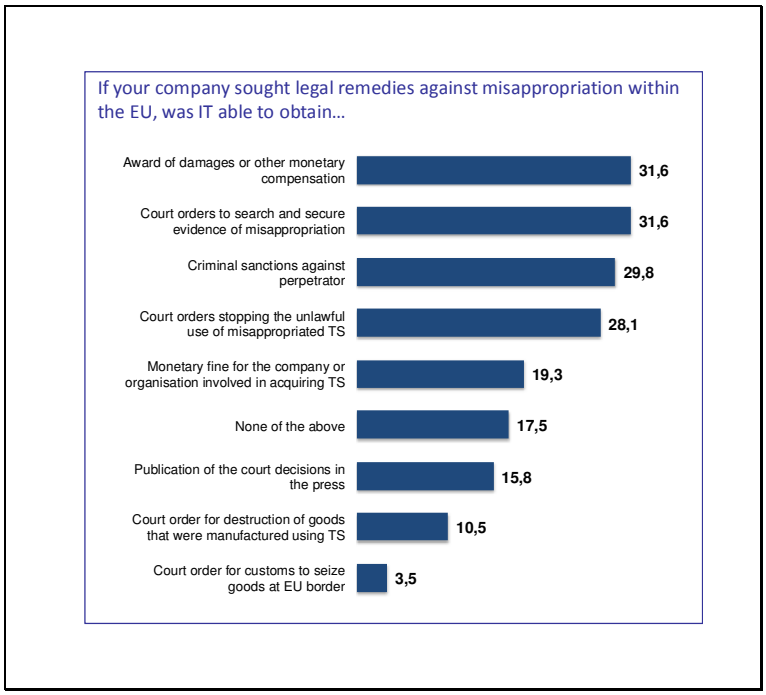
## Highlights of Survey Section D: Litigation to Protect and Defend Your Trade Secrets

Of the 140 companies that reported attempts or acts of misappropriation in response to the Section C survey questions, only 57 (40.7% of responses) sought remedies in EU courts.

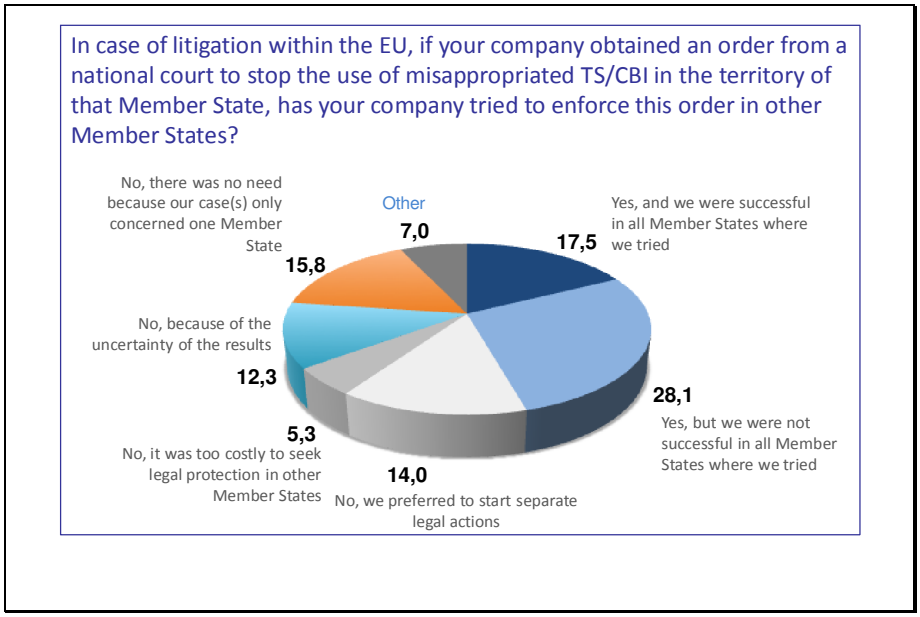



Of the 57 companies that sought remedies in EU courts, the following remedies were obtained by companies: Court orders to search and secure evidence of misappropriation (32%); award of damages or other monetary compensation (32%); criminal sanctions

against the perpetrator (30%); and court orders stopping the unlawful use of misappropriated trade secrets (28%). Companies seldom obtained relief from a court order to seize goods at the EU border, and, in a significant percentage of instances (17.5%), companies listed "none of the above" for the remedy sought.



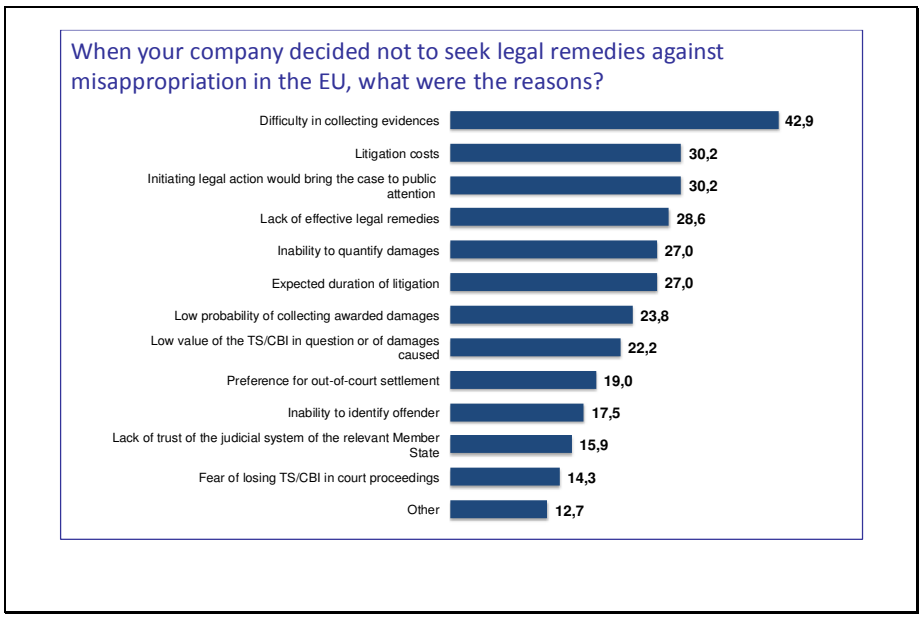

Survey respondents who indicated that they had obtained a court order from a national court to stop the use of misappropriated TS/CBI in the territory of the respective Member State were further asked whether they had sought to enforce the order in other Member States.




Out of the 57 companies concerned, 10 companies were successful in enforcing the orders in all Member States; 16 companies were not successful in all Member States; eight

preferred to start separate legal actions; three companies reported that it was too costly; seven companies reported that the uncertainty was too great; and nine reported that there was no need, although the reason for not needing were not specified.

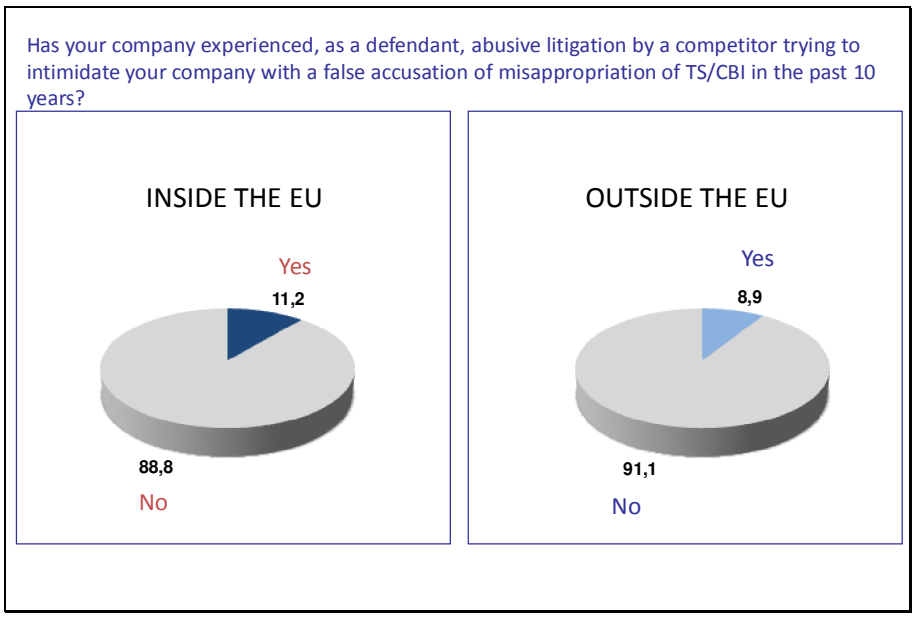
Companies deciding not to seek a legal remedy against misappropriation in the European Union cited a wide variety of reasons for not doing so.




Of particular importance, companies cited difficulty in collecting evidence (43% of positive responses); reputation (30% of positive responses); and litigation costs (30%). Less important factors were lack of trust of the judicial system of the relevant Member State; fear of losing TS/CBI during the court proceedings; and inability to identify the offender. Companies were also asked whether they had experienced in the past 10 years, as a defendant, abusive litigation by a competitor trying to intimidate the company with false accusations of misappropriation.

### *Abusive litigation*

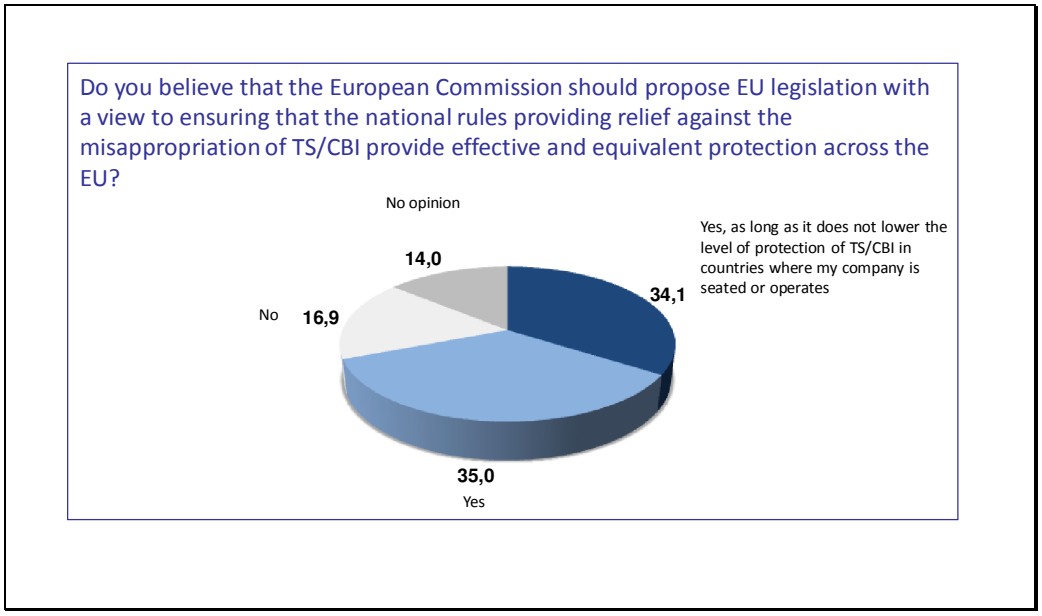
The survey responses indicate that abusive litigation is of some concern.




Sixty companies out of a sample of 537 report instances of abusive litigation within the EU. This concern appears to be particularly important to the motor vehicle, chemical, and pharmaceutical industries.

**Highlights of Survey Section E: Added Value of Any EU Action in this Area**

Surveyed companies were asked whether they believe that the European Commission should propose an EU legislation with a view to ensuring that the national rules providing relief against misappropriation of TS/CBI provide effective and equivalent protection across the EU. Significantly, 69% of the respondents indicated support for an EU proposal.

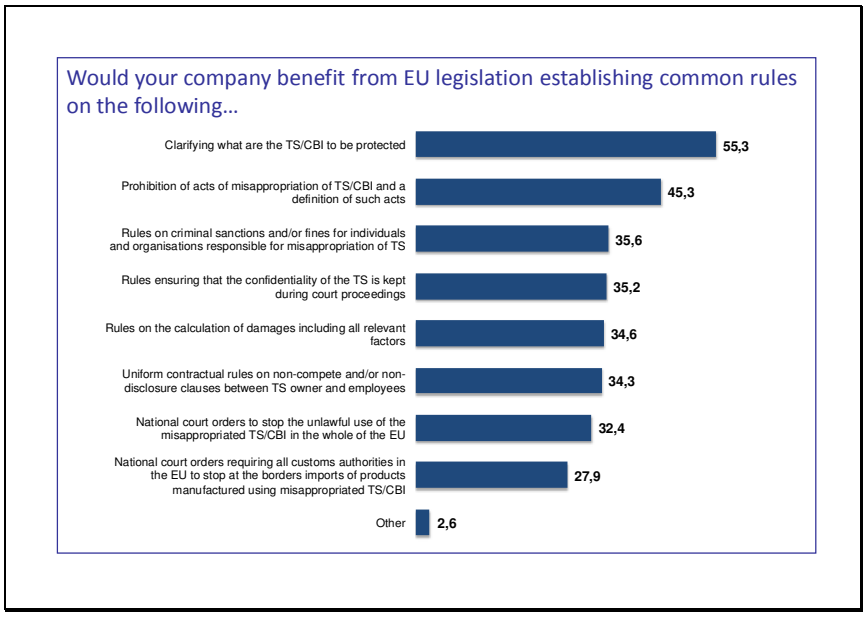



Companies supporting such an initiative outnumber those objecting or indifferent to such a proposal in all industries. Support rates for such a proposal are particularly high in the

motor vehicles (83%), chemical (79%) and wholesale (79%) sectors. Conditional and unconditional support are roughly equal (34% and 35%, respectively). Large firms are marginally more supportive than small/medium-sized enterprises, although firms of all sizes appear to support such a proposal.

***Scope of EC intervention***

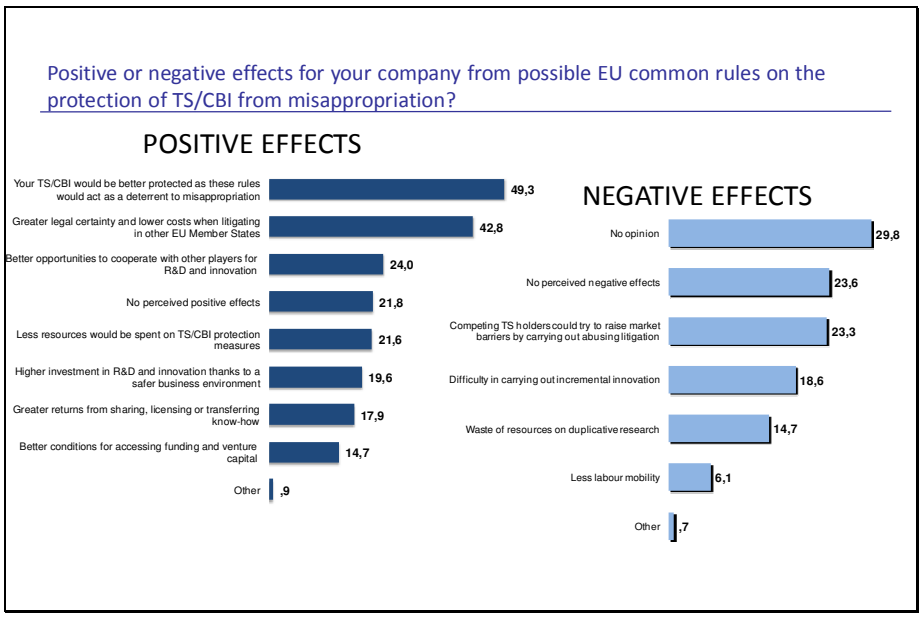
Companies were further asked whether they would benefit from common rules on various policy actions, such as clarifying the nature of TS/CBI to be protected, prohibition of acts of misappropriation of TS/CBI, and a definition of such acts, etc.




The survey responses indicate that companies would derive some benefits from all the measures listed. The measures that obtain the largest positive rates are: clarifying what TS/CBI is to be protected (55%), and prohibition of acts of misappropriation of TS/CBI and a definition of such acts (45%). Clarification of TS/CBI to be protected is regarded as providing a benefit by the majority of the companies in the advertising (81%), pharmaceutical (71%), chemical (71%), scientific research (65%), transportation and storage (58%), publishing (57%), legal (54%), and machinery (53%) sectors.

Prohibition of acts of misappropriation of TS/CBI and a definition of such acts is regarded as providing a benefit by the majority of the companies in the chemical (67%), motor vehicle (61%), pharmaceutical (57%), legal (53%), advertising (52%) and scientific research (50%) sectors. Rules on the calculation of damages are regarded as providing a benefit by the majority of the companies in the chemical (52%), scientific research (50%) and legal (50%) sectors. National court orders rank the least (28% of positive rates). Still, they are regarded as providing a benefit by majority of the companies in the pharmaceutical (50%) and motor vehicle (50%) sectors.

The final survey questions seek to identify potential costs and benefits of EU common rules with respect to the protection of TS/CBI.




On the positive side, companies regard deterrence as the most important factor (49% of positive responses), followed by greater legal certainty (43%). Somewhat less important is attached to better opportunities to cooperate (24%), less resources on company-specific protection measures (22%), higher investment in R&D and innovation (20%), greater returns from sharing, licensing or transferring know-how (18%), and better conditions for accessing funding (15%). Responses vary greatly across industries. Deterrence is highly ranked in the chemical (73%), motor vehicle (61%), pharmaceutical (61%), advertising (57%), machinery (55%), wholesale trade (54%) and legal (50%) sectors, while ranked less high in the telecommunications (28%), electricity (30%) and information services (30%) sectors. Better opportunities to cooperate ranks exceptionally high in the pharmaceutical sector (60%). The sector which seems to benefit less from EU common rules are the information service activities, where 48% of the companies perceive no positive benefits, and the electricity sector, where 38% of the companies perceive no positive benefits.

On the negative side, companies rank the following factors as potential costs. First, nearly one in four companies believe that "Competing trade secret holders could try to raise market barriers by carrying out abusing/intimidating litigation or similar behaviour" (23% of positive responses). A smaller fraction of companies think that EU common rules will make it difficult to carry out incremental innovation (17%), that there will be duplicative research (15%), and that there will be less labour mobility (6%). The latter factor is if some importance in the machinery sector (16%). On average, 76% of the companies perceive some potential negative effect (77% of small/medium firms, 75% of large firms). Nearly 30% of the respondents expresses no opinion.

## Subsection 2.4. Conclusions

The overriding conclusion of this Study is that trade secrets represent valuable business assets of European companies. As valuable business assets, trade secrets play an important role in economic growth and fostering innovation, as they represent an important means for companies to appropriate the returns to investments in innovation. The survey of European companies summarised above provides quantitative support, fully consistent with the surveyed economics literature, for the view that trade secrets are of fundamental

importance to the growth, competitiveness and innovative performance of European firms. As confirmed by the survey, trade secrets are important to all European business sectors and contribute materially to the overall economic performance of EU member economies , and to cross-border investment and growth.

The survey of European companies confirms that companies routinely choose to rely on trade secret protection as compared to other forms of intellectual property protection due principally to the perceived benefits of non-disclosure. As discussed in the economics literature, the ability to prevent non-disclosure of valuable innovations assists in preserving the returns to innovation investments, thereby incurring firms to invest in innovations that may not be eligible for and adequately protected by other forms of intellectual property protection. Survey respondents confirm that they sometimes choose trade secret protection because some inventions are not eligible for protection by other means. Trade secret protection is confirmed by the survey to be an integral and important part of the overall system of intellectual property protections available to EU firms.

The economic studies summarised in this Study indicate that innovators, rather than relying exclusively on patents and other formal IP rights, often choose to protect innovations (and the returns to innovation) using trade secrecy. The survey results support the conclusion that trade secrets play an important role in protecting the returns to innovation, , and thus preserve incentives for further innovation and cross-border investment and growth among EU member countries. The implication is that failure to protect trade secrets can materially impact the rewards to innovative activity, and may adversely impact the level of innovative activity.

As previously noted, economists have conducted various surveys of US, European, and Japanese firms, seeking to understand the relative use of patents, trade secrets and other means to appropriate the returns to innovation investments. All of the studies consistently find that innovators routinely use means other than, and in addition to, patents to protect innovations and appropriate the returns to their innovation investment. The use of trade secrets is prominent among these alternative protection methods. This observation drawn from the survey of economics literature relating to trade secrets is supported by results of the survey of European companies summarised above.

The bulk of the available empirical evidence from the economics literature survey relates to the manufacturing sector, where economists have conducted numerous surveys of firms regarding the importance of trade secrets in appropriating the returns to innovation investments. Although more limited in depth and scope, empirical evidence suggests that trade secrets are also important to service sectors, particularly business services such as advertising and marketing, business consulting, financial services, and miscellaneous business and consumer services. Empirical evidence suggests, in addition, that trade secrets are important to the wholesale and retail trade sectors as well. The results of the survey of European companies fully supports observations from the economics literature that trade secrets and their protection are important to a wide variety of manufacturing and non-manufacturing sectors in Europe. The survey results further support the view that the importance of trade secrets varies from sector to sector.

As summarised in the economics literature section of this Report, economists have observed that trade secrets appear of specific importance to SMEs because innovations by SMEs tend to be more incremental in nature and of core significance to firm value and performance. The perceived higher cost of patent ownership and the material impact that disclosure may have on SME firm's value and performance encourage the use of secrecy as a protection

mechanism. These observations from the economics literature are fully supported by the results of the survey of European companies summarised above.

As noted above, attempts or actual acts of misappropriation of trade secrets have been increasing, resulting in lost sales, contracts and clients. These lost sales have undoubtedly affected EU member firm performance relative to other countries, and are likely to have adversely affected cross-border investment and growth among EU member countries. Companies have also incurred substantial costs for internal investigation and protection, litigation and settlement involving trade secret misappropriation. Such activities and costs detract businesses from other more productive activities, potentially diminishing the returns to innovation investments and the growth and competitive performance of firms.

The survey results suggest favorable views among European businesses toward further Commission action in this area. Survey respondents clearly indicate a preference for EU action with respect to the protection of trade secrets with a view to ensuring that the national rules providing relief against misappropriation of trade secrets provide effective and equivalent protection across the European Union. The most important criterion for the adoption of common rules is that they should not lower the level of protection of trade secrets in the country where the company resides or operate.

Survey respondents indicated that the strongest reason in favor of common EU rules on misappropriation of trade secrets is the deterrent effect that such common rules would imply. Other perceived benefits cited by a substantial number of companies include clarifying what trade secrets are to be protected; the prohibition of acts of misappropriation of trade secrets and the definition of such acts; national court orders requiring all customs authorities in the European Union to stop at EU borders imports of products manufactured using misappropriated trade secrets; rules on the calculation of damages; and uniform contractual rules on non-compete and non-disclosure clauses between trade secret owners and employees. Many companies also perceive a positive effect of greater legal certainty and lower costs when litigating in other EU member states to protect trade secrets. Based on the survey findings, EU member firms would also benefit from increased sales, contracts, and clients as the results of enhanced and harmonized legal rules regarding the protection of trade secrets. Based on the survey results, companies do not perceive substantial negative effects from the adoption of common rules regarding trade secret protection in the European Union.

## Chapter IV. Findings and Recommendations

### Section 1. Findings

The Study confirmed that the relevance of trade secrets in the new global economy is steadily growing: they are pervasive key factors for maintaining competitive advantage in all business sectors, for both innovative and non-innovative firms, regardless of their size. In this context, trade secrets protection effectively fills the gap between copyright and patent protection, the two traditional pillars of intellectual property, for purposes of appropriating the results of investments in innovation. There are straightforward economic justifications for creating a sound legal environment to protect trade secrets: empirical evidence and stakeholders' opinions converge on the conclusion that an initiative of the EU Commission in that direction would contribute to fostering economic growth, competitiveness and innovation in the Single Market.

The vast majority (69%) of companies involved in our Internal Market survey, particularly in the motor vehicle (83%), chemical (79%) and wholesale (79%) sectors, evidenced the need for common legislation to ensure an effective and equivalent protection against the misappropriation of trade secrets within the European Union. The lack of a uniform legal regime and protection model in the EU creates uncertainty and negatively impacts on business behaviour.

Member States adopt different notions of protectable trade secrets and illicit conduct; the general definition provided by Article 39.2 of the TRIPS Agreement has been expressly acknowledged by only a few countries[113]. In this respect, the Internal Market survey has shown that more than 55% of companies consider that they would benefit from common definitions clarifying what information can be protected and what conduct qualifies as infringement.

A call for regulation clearly emerges also with respect to employment relationships, which is confirmed as a critical area for trade secrets leakage. Former employees are a major cause of concern (for approximately 45% of respondents) and uniform rules for non-compete and non-disclosure obligations applying both during and after employment are considered a priority.

Uncertainty also affects actions and remedies available to trade secret owners in the case of misappropriation. The type of actions available and the requirements for initiating civil or criminal litigation for trade secret infringement vary from country to country depending on many factors. The scenario is also highly fragmented in terms of what remedies the competent courts can apply and under what circumstances.

This is reflected in a general reluctance to take legal action for trade secrets violation: less than half of the companies reporting misappropriation (140 companies out of 537) decided to seek legal protection. When asked to indicate which elements played a role in their decision, more than 42% of the companies participating in the survey indicated the difficulty in meeting legal requirements to prove the violation; more than 28% mentioned the lack of effective remedies and 27% referred to the inability to quantify damages[114]. Even in cases where litigation is considered a concrete option, the Study shows the lack of effective

[113] Czech Republic, Greece, the Netherlands and Spain.

[114] A peak of 75% is reported in the pharmaceutical sector.

instruments to stop the unlawful use of misappropriated information, particularly in cross-border cases. The fact that violation of trade secrets often leads to compensatory remedies only is a serious issue: apart from the difficulty to quantify damages due to dis-homogeneous criteria, damages awards possibly obtained following lengthy litigation can hardly represent an appropriate compensation for the loss of competitive advantage.

The lack of adequate protection against the dissemination of confidential information during legal proceedings is also perceived as an element limiting the possibility to seek legal relief. In fact, the plaintiff is generally required to substantiate its claim by submitting to the court documentation of the allegedly infringed trade secret, but in most cases no effective measures are adopted to ensure confidentiality.

On top of this, a further element of concern for trade secrets owners is the extreme difficulty of cross-border litigation and enforcement. Out of 57 companies that started litigation before a Member State court, only 10 managed to enforce the decision in other Member States; 16 respondents requested enforcement in other Member States but did not succeed, while the remaining companies preferred not to engage at all in cross-border enforcement.

The criminal legal protection system is also fragmented, albeit to a lesser extent. Our Study supports the case for criminalization of trade secrets violations both by companies and individuals, supplementing civil remedies for specific serious conduct. This view is confirmed by stakeholders: 35% of respondents recognized the strong deterrent effect - and consequent immediate benefit for business - of criminal sanctions based on common rules and consistently applied across the EU.

Again, the existence of shared definitions of what is protectable and against whom, and the provision of common jurisdictional rules and remedies would greatly assist civil and criminal courts in the effective management of cross-border cases, allowing more effective and less costly enforcement.

Clearly, the above-described scenario has a negative impact on costs for companies operating in more than one Member State. Firms are often required to adopt different measures to protect their trade secrets depending on the relevant jurisdiction; in case of infringement, they have to initiate separate proceedings in each jurisdiction where their trade secrets have been violated. These costs are not sustainable for SMEs, and for all firms the consequence is a reduced inclination to share secret information and cooperate with other players for R&D and innovation purposes. As the survey results show, inefficiency of trade secret protection not only has an adverse economic impact on R&D activity and investment, but also directly results in lost sales. Overall, the Study provides convincing evidence that the current fragmented system undoubtedly has adversely affected the aggregate level of engagement in innovation by EU firms and cross-border investment and growth.

Based on the above, we found that an initiative at the EU level to harmonise national legislation is perceived as beneficial. Establishing a common standard of efficient protection is considered by stakeholders as an effective deterrent to misappropriation (49.3% of the companies contributing to the Internal Market survey), allowing greater legal certainty and lower costs of enforcement in different Member States (42.8%) and providing better opportunities to cooperate with other companies in R&D and innovation (24%).

Our comparative analysis of non-EU legal systems provides an additional benchmark and may help concretely to verify assumptions and identify best solutions. Comparing the

fragmented EU framework with the US legal system supports the view that harmonised trade secrets protection at a supra-state level is feasible and necessary in a multistate economy.

## Section 2. Recommendations

The following main areas of attention for EU policy initiatives emerged consistently from our economic review, country legal analysis and Internal Market survey.

Definition of trade secrets

A uniform definition of trade secrets should be adopted, providing clear elements to identify what type of information qualify for trade secrets protection. Stakeholders suggest that commercial secrets should not be given lower priority than technical or other confidential information. Finding the right balance and avoiding excessively widening the scope of protection is critical to prevent undesirable conflicts with competition law rules.

The definition under Article 39.2 of the TRIPS is - more or less officially and to different extents - recognised in all EU jurisdictions. It is the obvious starting point to be considered, looking at the experience of countries that have a dedicated law on trade secrets[115].

Identification of illicit behaviour

A detailed description of what types of conduct are punishable is necessary to increase legal certainty and to prevent, at the same time, the proliferation of abusive/intimidating litigation by trade secret holders[116].

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[115] E.g. in the EU, Sweden: "*For the purpose of this Act a trade secret means such information on business relations or operating conditions of a business in somebody's business which is kept secret and of which the disclosure is aimed at causing damage to the business proprietor from a competition point of view*".

[116] An example of an analytical definition of relevant unfair conduct can be found in the Japanese Unfair Competition Prevention Act, as follows:

"*- acts of acquiring a trade secret by theft, fraud, duress or other wrongful means (hereinafter referred to as "acts of wrongful acquisition"), or the act of using or disclosing a trade secret so acquired (including the act of disclosing such trade secret in confidence to a specific person or persons; the same shall apply hereinafter);*

*- acts of acquiring a trade secret with the knowledge that such trade secret has been acquired through acts of wrongful acquisition or without the knowledge of such matter due to gross negligence, or acts of using or disclosing a trade secret so acquired;*

*- acts of using or disclosing a trade secret after becoming aware or not becoming aware of such matter due to gross negligence, subsequent to its acquisition, that such trade secret was acquired through wrongful acquisition;*

*- acts of using or disclosing a trade secret, which has been disclosed by the business operator holding such trade secret (hereinafter referred to as the "holder"), for the purpose of acquiring an illicit gain or causing injury to such holder;*

*- acts of acquiring a trade secret with the knowledge or, without the knowledge due to gross negligence, that there has been an improper disclosure of such trade secret (which means, in the case prescribed in the preceding item, acts of disclosing a trade secret for the purpose prescribed in said item, or acts of disclosing a trade secret in breach of a legal duty to maintain secrecy; the same shall apply hereinafter) or that such trade secret has been acquired through improper disclosure, or acts of using or disclosing a trade secret so acquired;*

The definition should also address the need for harmonised protection in case of "innocent recipients" using trade secrets acquired in good faith, at least providing for injunctive relief, e.g. cease-and-desist orders, against unauthorised use.

Civil proceedings

*Simplified ad hoc model*

Adoption of a simplified *ad hoc* legal protection model reconciling to the maximum possible extent the different and overlapping types of civil action currently applicable in Member States and favouring effective cross-border enforcement.

*Pre-requisites to commence action*

Establishing affordable common standards regarding the evidence required to bring an action for trade secrets violation, as well as other requirements including those depending on the individual capacity of the alleged offender or on the existence of a contractual relationship.

*Competent Courts*

Establish common rules to prevent and solve conflicts among both national courts competent for different profiles of trade secret cases and international concurrent jurisdictions. Specialised courts should be identified in each Member State to deal with trade secrets litigation.

*Remedies - General*

Ensure effective protection through a uniform and comprehensive set of remedies - both interim and final - clearly available to owners and judges in all Member States - mirroring the IPR Enforcement Directive.

*Evidence gathering*

Design effective tools to facilitate and secure the gathering of evidence, including disclosure orders and *ex parte* search orders for premises and IT systems.

*Protect secrecy during proceedings*

Ensure that trade secrets and confidential information filed with the competent court are adequately protected against unauthorised access and disclosure, possibly by means of non-public hearings and appropriate measures to protect court files, such as the German "Düsseldorf Procedure", securing evidence against destruction, restricting access to authorised experts and attorneys bound to confidentiality, and preventing each party from accessing the confidential information of the other.

*Damages*

Harmonise and clarify evidence requirements and calculation criteria for compensation.

Administrative remedies

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*- acts of using or disclosing an acquired trade secret after becoming aware or not being aware of such matter due to gross negligence, subsequent to its acquisition, that there has been improper disclosure of such trade secret or that such trade secret has been acquired through improper disclosure."*

Introduce administrative remedies - similar to the US International Trade Commission complaint procedure - to block at Customs goods made using misappropriated trade secrets. Reviewing the Customs Regulation to include consideration for selected/qualified trade secrets might be an option to explore.

Employee non-disclosure obligations

Provide guidance and a harmonised legal framework for non-compete and non-disclosure obligations, applying both during and after employment, balancing the conflicting interests of employers and employees.

Criminal protection

Design a common framework to reconcile the concurrent provisions contained in various national legislation affording criminal protection to trade secrets. Conduct amounting to a serious trade secret violation should be defined and criminalized, giving rise to individual and corporate liability. Prerequisites and conditions for action need to be uniform and preference should be given to *ex parte* initiatives as opposed to *ex officio*. Courts across the EU should be able to use a common set of compulsory powers and effective remedies both in the preliminary and final phases of the proceedings. Among such remedies, confiscation of the proceeds arising from the offence should be considered as a mandatory penalty to be imposed both to individuals and companies.

Interference with competition law

Clarify the issue of antitrust interference and the room for intervention by Competition Authorities in cases where trade secrets operate as a decisive factor for market access.