Report on the Importance of Trade Secrets for Chemical Companies

15 November 2012

FOREWORD

This report aims at illustrating what are trade secrets or confidential business information and their importance for the chemical sector, by providing better insight on the way they are used. It also contains a description of the problems encountered by companies due to the lack of effective protection at EU level.

As outlined by Dr Hubert Mandery, Cefic Director General: *"It is important for our industry to effectively fight against theft of confidential business information, which is an important, intangible asset of companies. Greater protection will help their competitiveness and empower them to continue to more confidently invest in research and innovation in Europe."*

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A. Industry Fundamentals[1]

- The European Union is a leading exporter and importer of chemicals in the world accounting for 40% of global trade in 2011. EU chemical sales were valued at €539 billion in 2011 with a record trade surplus of €37 billion.

- The EU chemicals industry accounts for €31.5 billion in investment and an average annual level of €7.7 billion in R&D spending. The industry is the key to providing sustainable solutions to today's economic and environmental challenges.

- In 2011, the EU chemical industry was the third largest manufacturing sector in terms of added value. Chemical companies in the EU employ about 1.16 million total staff through direct employment and generate about twice as many indirect jobs via the value chain.

- The main sectors of the EU chemical Industry are base chemicals (petrochemicals, basic inorganics and polymers sold to industries), specialty chemicals (auxiliaries for industry, paints & inks, crop protection, and dyes & pigments) and consumer chemicals (soaps, detergents, perfumes and cosmetics).

- As one of the largest and most diversified industries globally, the EU chemical industry supplies virtually all sectors of the economy and plays a central role in providing all manufacturing sectors as well as construction, health and agricultural sectors with essential products and services.

- In 2011, SMEs make up 96% of EU chemical companies and are responsible for 28% of all sales and 35% of all employment.

B. The Role of Trade Secrets in the Chemical Industry

Although widely used "trade secrets" or "confidential business information" (CBI) currently elude any precise or uniform definition within the European Union, and consequently they risk being misunderstood and undervalued. A general definition of "undisclosed information" exist in Articles 39(1) and (2) of TRIPS[2] and provides that the information must have commercial value as a secret, is not generally known and must have been subject to reasonable steps to be kept confidential.

Trade secrets or CBI may consist of practically any type of technical information and know-how. Technical CBI can include specific technology, manufacturing processes and formulae with confidential chemical identities constituting some of the chemical industry's most valuable trade secrets. R&D knowledge, often obtained through significant costs and years of trial and error, is also crucial in such a pioneering industry and even negative information such as research options that have been explored unsuccessfully make up valuable assets in guiding future creation.

Furthermore, in house know-how and the application of considerable expertise gradually accumulated over the years often permit the establishment of competitive exceptionality beyond a formula.

[1] Data sourced from Eurostat and CEFIC statistics.

[2] Agreement on Trade-Related Aspects of Intellectual Property Rights (Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization, signed in Marrakesh, Morocco on 15 April 1994.)

Example

Process know-how: *a company manufactures a number of products on a large scale which are well known from literature and already sold for a long time. For such products the principal manufacturing process is often also known from literature.*

However, the commercial competitiveness of that company on a global market is substantially influenced by very specific process know-how owned by them which goes far beyond the process as generally known and publicly available. With regard to such very specific process know-how it can be essential to keep it as a trade secret on a case-by-case basis, in particular if the end product does not allow to drawing any conclusion regarding the manufacturing process details.

In addition and contrary to common belief, trade secrets are not limited to technical items and related know-how but include any confidential business information which provides an enterprise with a competitive edge. Such information includes sales and distribution methods, advertising and marketing strategies, financial projections and data compilations including consumer profiles and lists of suppliers and clients. Such information is commercially valuable as it is often the differentiating factor, enabling an enterprise to compete: confidential market intelligence such as an understanding of consumer preferences allows an enterprise to develop more targeted products while supplier lists can be essential for steady supplies of quality raw materials.

Example

Customer list, business plans, financial models and organizational charts: *what is frequently overlooked in the discussion of trade secrets is the class of secrets that are based neither on technology nor manufacturing. The most prominent example would be customer lists. Customer lists are often a powerful competitive asset, and these lists can require a significant effort and investment over a long period of time to generate. Often, the most valuable asset that a sales representative will develop is a customer list. Similarly interesting classes of trade secrets include business plans and financial models. In the hands of an unscrupulous competitor, these assets would provide a significant unfair advantage. Further, organizational charts, especially charts that correlate names to positions within an organization, are typically considered confidential, and could be considered a weapon if disclosed or revealed to a competitor.*

Trade secrets or CBI differ from patents for, although they both seek to protect valuable intangible property, the protection of trade secrets does not generate monopolies: unlike in a patent, the trade secret owner is not granted exclusivity to the information, but rather is only protected against improper acquisition and exploitation of the information. As a result, others are free to discover a trade secret by any fair means including research, independent derivations or reverse-engineering: trade secret protection only seeks to shield the owner from commercial espionage and theft. The use of confidentiality does not limit innovation by others but is used to protect competition.

Furthermore, trade secrets or CBI may be used in addition to patent protection.

Example

*The **synthesis of an additive** may be covered by patents. However, to complement this protection which covered a range of possible values for each production parameter a company may choose to keep the exact value of production parameters as trade secrets.*

Trade secrets can protect a broad range of immaterial assets including inventions or manufacturing processes that are not sufficiently inventive to meet the patentability criteria or can consist of combination of characteristics and components, each of which by itself is in the public domain, but where the unified process, design and operation of such characteristics or components, in combination, provides a competitive advantage.

Example

Technical know-how: *this example is provided for polymers for which the type of technical information that qualifies as trade secrets is mainly related to manufacturing technology but in some instance it could also relate to formulation or composition of matter. Most of the key ingredients, e.g. monomers, additives, catalysts etc, necessary to make a certain polymer are usually well known.*

However, the optimum conditions (temperature, pressure, solvent etc…) and the order in which the different ingredients are added to obtain the best results is part of "know-how". Also, the design of some manufacturing equipment may be kept as trade secret. This is for example, the case for extrusion. Extrusion of thermoplastic polymers is a process used to create objects of a fixed cross-sectional profile. A thermoplastic polymer is pushed or drawn through a die of the desired cross-section, usually with the mean of a screw. The design of the screw is usually kept as a trade secret as it has a significant influence on the processing conditions and is dependent on the sequence in which the different ingredients are added. The screw design thus allows obtaining the optimum results during the extrusion process.

The composition of matter or formulation of a specific polymer grade is also usually kept as a trade secret. Of course, the downside is that if the trade secret is uncovered through reverse engineering, there is no protection once the trade secret has been revealed. However, in some instances, reverse engineering is not possible or is very resource consuming. For example, in the case of thermoset polymers, because the different components (e.g. curing agents) are reacted together it is almost impossible once curing has taken place to determine the quantity and nature of the components used.

C. The Importance of Trade Secrets in the Chemical Industry

C.I Importance for Enterprises

Securing Competitiveness and Livelihood

Trade secrets or CBI often represent a substantial portion of a firm's value and performance and are essential to a company's growth, competitive advantage and sometimes even its survival. Trade secrets are valuable business assets as they can confer competitive differentiation and advantage over competitors through a particularly innovative step or through a combination of incremental advances. Such knowledge can enable the specific company to produce an end-product in an efficient manner, at high productivity rates and exhibiting high physical characteristics whereas a new entrant or company with low experience or R&D capabilities may be able to produce the same material but would not necessarily achieve the same productivity rates, physical properties or *je ne sais quoi* that distinguishes a product above that of a competitor and thus appeals to the customer. However, developing trade secrets is often complex and costly and it will often have taken years and high levels of investment in R&D to perfect a manufacturing process, refine an exact combination of complex processes or develop a specific chemical identity.

Example

Licensing technology know-how in petrochemical production technology: *typically, a company would out-licence petrochemicals production technology and at the same time sell proprietary consumable for use in such process (eg catalysts, additives and spare parts). This market may be qualified as mature commodity petrochemicals production businesses.*

The technologies business sells the company consumables under secrecy and non-analysis agreements to maintain the confidentiality of our formulations. This is a key means to (i) minimise the risk of customers reverse engineering or copying these consumables and (ii) enforce rights should they breach the agreements.

These out-licensed technologies involve the licensing of principally patent rights and know-how rights. However, the company has some process technologies where there are very few if any patents remaining and third parties are willing to pay to access the package of trade secret information and know-how to ensure their future successful operations.

Many of these process technologies have been operated (and licensed) for many years and in some cases there exist licensees which have expired secrecy provisions. The company maintained the value (and competitiveness) of these licensed processes through continuous innovation to ensure that their body of trade secrets remains valuable even whilst some of the original trade secrets may be eroding. In certain cases the company builds the value of their trade secrets by identifying preferred "sweet-spots" that may well be a preferred combination or selection of a set of information, each individual component being public knowledge but the preferred combination or selection being proprietary.

A failure to protect trade secrets or CBI from theft or industrial espionage can jeopardize the survival of a company as it generates unfair competition by illicitly providing competitors with immediate access to certain technological advances or know-how they may not have had the capability to develop, saving them years of R&D and enabling these competitors to undercut the original company by offering the same product at a cheaper price due to the absence of any time or costs incurred. Undercut businesses will often suffer crippling financial losses and will be forced to eliminate jobs and scale back or even terminate their operations as, given the narrow applications for which specialty chemicals are used and the niche markets they serve, the confidentiality of chemical identity is often all a specialty chemical producer has to remain in business.

The protection of trade secrets or CBI is therefore essential in preserving the competitiveness and growth of the European chemical companies and securing the 1.16 million direct jobs and the indirect employment it provides. It is important to prevent the industry being undercut by competitors, often overseas, who have misappropriated the information, obtaining it unethically and exploiting it to the detriment of the individual companies and the European economy as a whole.

Protecting Small and Medium sized Enterprises (SMEs)

In particular, trade secrets or CBI play a vital role protecting the competitiveness and livelihood of SMEs because, in the event of trade secret misappropriation, the illicitly obtained information is often the sole critical asset of the business and there is no other trade secret, product or any large-scale commodity business to offset the SME's losses. Trade secret misappropriation is more likely to lead to bankruptcy and devastation in an SME and it is therefore important to ensure that enterprises can effectively protect their trade secrets.

The importance of protecting trade secrets is amplified by the fact that SMEs often rely on confidentiality as a means of protecting their valuable trade secrets and often have little experience managing trade secrets. Trade secrets are particularly attractive for SMEs which frequently do not have the resources to create and manage a portfolio of registered Intellectual Property rights. Trade secrets can be protected without registration, procedural formalities or transaction costs making them preferable, even if the trade secret is patentable, particularly if the SME wishes to avoid significant administrative and cost requirements in the multiple countries in which it seeks protection. Moreover, there are instances in which there are no IP rights and confidentiality is the only solution available.

Example

Very often spin-off or start-up companies are obliged, for economic reasons, to **subcontract research** or specific analyses to universities. The use of confidentiality agreements is common in these cases to protect trade secrets. Similar agreements are also used in the development of specific formulations or new grade of products for customers. SME are also frequently looking for subsidised research programmes in particular at EU level. These programmes are indeed encouraging SME participation. Confidentiality agreements are signed between research partners.

The results of such research are not always patentable but the **generated knowledge or know how** could be very interesting and ideally should be kept secret. However, the sample provided to partners in research programmes even if the agreement specifies that their use is limited is often circulated to other laboratory without informing the provider of the samples.

These agreements are theoretically protective but not in practice at European level due to the difference in national legislation, the costs to prosecute, the delay of judgment and the possible publication of the confidential information by the court.

Furthermore, a greater protection of trade secrets could support the growth and development of SMEs by encouraging effective cooperation. Protection of trade secrets would improve the flow and exchange of information in platforms and partnerships in which SMEs cannot currently cooperate fully as they have to prioritize concealing their information to avoid misappropriation. Many SMEs are involved in niche and/or high tech markets, in which competition can be very strong. Their advantage and growth in these sectors are often based on very specific know-how which must be protected to avoid devastation of their particular position.

C.II Importance for Growth & Employment

Driving Innovation and Growth

Trade secrets or CBI are vital motors driving innovation and growth in the chemical industry, encouraging research and development by providing protection for creativity and investments. Protection from misappropriation is necessary to ensure that innovative ideas can be turned into a continuous stream of new competitive products and services that benefit consumers and create economic growth and employment. Innovation is particularly important in an industry which has the commercialisation of new technologies, products and processes as its core with the European chemical industry having the second highest innovation rate in Europe after pharmaceuticals. The European chemicals industry has had a record of developing new products which, in many areas, have transformed the life styles and well-being of consumers.

Example

Company manufacturing standards: *for a manufacturer of mass-market branded consumer products, a key business objective is to provide consumers with products that are innovative and superior performing. Such products can command a premium in the marketplace yet still must deliver high value to the consumer.*

An important part of the value equation that is essential in the mass-market is the requirement to have an efficient manufacturing process, typically operating on a large scale. Process operating standards and quality standards are written documents which provide essential instructions to operating personnel, and which are examples of essential trade secrets. Process operating standards and quality standards determine, for example, when products are deemed fit for shipping, and, conversely, when products must be scrapped or recycled. Thus operating standards and quality standards are essential to control a cost efficient process, whilst guaranteeing the quality of performance that the consumer expects of this type of branded product.

Trade Secrets of this kind encourage innovation in the area of processing and manufacturing, and promote the incentive to deliver superior product performance and value to the consumer.

Trade secrets play an important role in preserving the incentives to engage in innovative activity by preventing others from free-riding on innovation and undercutting the owner's returns for the ingenuity, efforts, time and costs incurred in the development of the trade secret. While innovation is more than R&D, the link between research in chemistry and innovation is particularly strong in the chemical industry and represents significant spending (with an average annual level of €7.8 billion during the period from 1998 to 2008).

Converting new ideas into useful and beneficial products is often a speculative business involving the expenditure of significant cost and resources to achieve a business outcome which, in the early stages, is far from certain: the chemical industry is particularly vulnerable as innovation processes are often very complex and require particularly high levels of investments with innovations taking many years before reaching market maturity and requiring a long time to break even as profit margins are low.

Example

Innovation and trade secrets involved, step by step

The 7 steps below describe how typical innovation processes go for a particular product (paints): one has marketing information, developed into ideas, resulting in research projects, the company would source raw materials so they can make the products, the research and raw materials resulting in paint formulations that are used in manufacturing processes, which result in a product that is marketed along with application know-how and technical services and then sold to the customer. These steps include the following trade secrets:

1. *Market information, including customer lists and customer needs;*
2. *Ideas for innovation, including ideas, concepts and testing material relating to new products, new manufacturing processes and new marketing initiatives;*
3. *R&D and marketing innovation, including information relating to research and development into new products and product improvements and new marketing plans and marketing materials;*
4. *Raw materials, their source, price and contribution to the product;*
5. *Product formulations and compositions;*
6. *Manufacturing processes and know-how;*
7. *Application know-how, including information how to best use our chemicals in combination with other products, in certain applications, in certain environments, in synthesizing new products, etc.*

Chemical manufacturers need to know that the millions of euros they spend on R&D to create the products that improve our everyday lives will not be jeopardized by free, unfettered access to legitimate trade secrets before (or after) the product even hits the marketplace. Without sufficient protections, particularly at early stages of development when innovations are not protectable by any other means, companies whose trade secrets are disclosed will lose their competitive edge and with it, virtually all investor confidence and market-based incentive to be the first to develop a new product, technology or process.

Securing Growth in Adverse Market Conditions

The importance of trade secrets or CBI in promoting competitiveness and growth is even more vital as a driving force towards recovery. The European chemical industry was one of the manufacturing sectors most affected by the economic crisis largely due to the severe downturn in its most important customer sectors (automotive, construction, machine tool producers); SMEs in particular have been hit hard by the economic crisis. Despite the crisis, the chemical industry remains one of the motors of the European manufacturing industry and the protection of trade secrets has a significant role to play in aiding sales and production levels to recover to their pre-crisis levels and beyond.

Furthermore, the position of the European chemicals industry in the world is changing and the crisis has accelerated this change. International trade is vital for growth and employment yet emerging economies are outpacing industrial countries in chemicals production. The strong growth of the emerging BRIC[3] countries – particularly China, creates many opportunities but it also leads to the creation of new, competing industries. These industries benefit from lower costs, access to certain strategic raw materials and closeness to the new growth markets creating strong competition. In

[3] Brazil, Russia, India and China

particular, Asian chemicals production has surpassed that of the rest of the world and the Asia-Pacific region is attracting the bulk of chemicals investment.

New competitors have also arisen in the petrochemicals industry, where, in particular, industries in the Middle East benefit from significantly lower raw materials costs and very favourable investment conditions. Consequently, the EU's competition position is at risk and its share of global chemical production is decreasing in several segments: the competitive pressure on the industry is underlined by the fact Europe's share of the global market has almost halved in the last 20 years.

In light of these circumstances, it is clear that trade secrets are a major asset as the production of more specialized and sophisticated chemicals can benefit from the competitive advantages in Europe, in particular the long experience of the industry and large integrated sites and clusters which offer infrastructure and knowledge. In addition, EU companies must constantly innovate because others are rapidly catching up: it is worrying that R&D intensity in the European chemical industry has shown a decrease in the past decade while some emerging countries have strongly increased their efforts. The European industry has an initial competitive advantage as a provider of environmental-friendly and sustainable solutions: it is important to uphold investor confidence through trade secret protection in order to fully exploit this rapidly growing market opportunity.

C.III Importance beyond the Chemical Industry

Providing Sustainable Solutions for the Future

Trade secret protection is even more important as a driver of innovation in light of the European chemical industry's pivotal role in addressing the major societal and environmental challenges of modern society.

The chemical industry continually develops innovations, generated by research, for a wider range of practical applications and can provide pioneering solutions to address the present and future challenges faced by the EU. The top challenges for humanity require new solutions, many of which can only be implemented through new materials and substances: innovation is indispensable. Furthermore, innovation in the chemicals sector not only provides Europe with raw materials and consumer products, it also leads to the development of advanced materials and advanced process technologies that enable more flexible production with more efficient use of energy, feedstock and water.

The industry has an important responsibility for the move towards a sustainable use of natural resources and a reduction of energy demand, pollution, waste and emission of greenhouse gases. In order to support chemical companies in their efforts to meet the new challenges of sustainability, it is vital to safeguard incentives for innovation by consolidating the protection of trade secrets.

Reverberation Effects throughout the Value Chain

Trade secrets or CBI also have a key enabling function throughout the entire value chain. The European chemical industry has a pivotal position in the industrial value chain: it is a purchaser of raw materials and feedstock and a supplier of virtually all sectors of the economy, particularly the manufacturing and agricultural industries, with chemical inputs and products.

Example

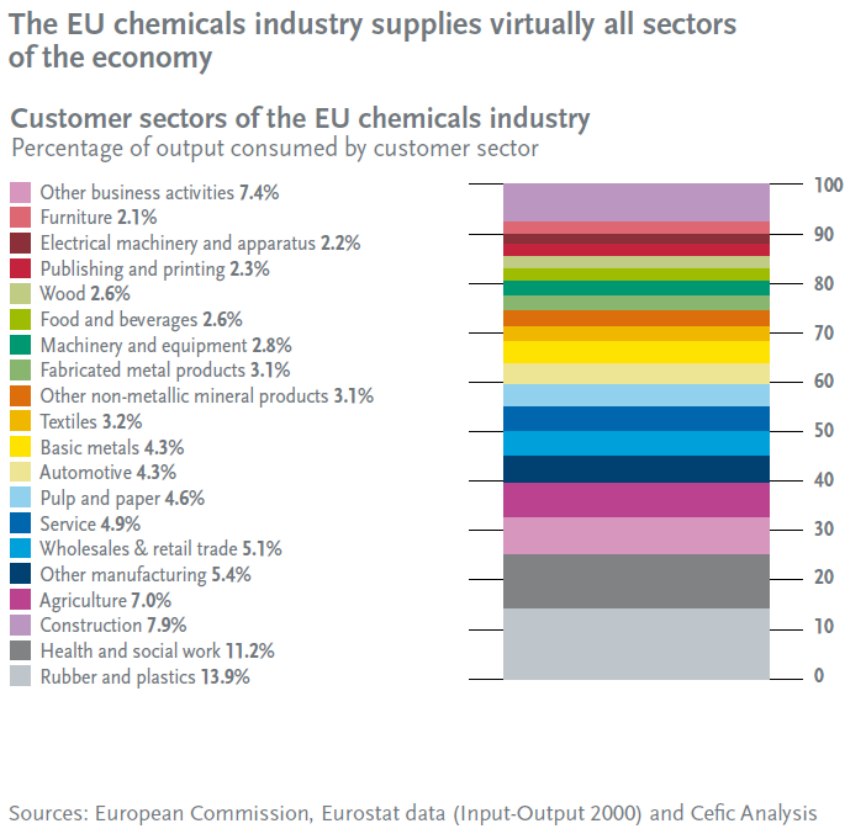
Trade secrets in crop protection: active compounds are usually patented and their name is identified on the packages and the regulatory documents. However, a lot of know-how is "hidden" behind the processes for manufacturing the active compounds (e.g. type of catalysts, process conditions to drive higher yields and selectivity, etc.). There is also a lot of know-how behind the product formulations.

Only 30% of the combined output of the chemical and pharmaceutical industries is sold to private households and other end users: the majority of the rest goes to other industries.. Consequently, the chemical industry is a key driver of economic development and wealth creation as direct innovation and growth in the chemical sector will generate indirect growth and employment in other parts of the economy. Furthermore, protecting trade secrets from misappropriation is essential to support the chemicals industry's role as a major innovation motor.

Example

Trade secrets in nutrition & health and industrial bioscience: knowledge about processes and process conditions is generally considered trade secrets as for example: (i) knowledge related to the fermentation technology and particularly how to get high yields (including high activity of the enzyme or strain) from the fermentation, (ii) knowledge related to the processes for purification and stabilisation of the products obtained by fermentation, (iii) production strains (if not public through commercialisation of the product like for instance a cheese or yogurt) and processes to extract active components from natural raw materials like algae, vegetable oils, plant, and wood.

By developing new materials and processes, such as an efficient method of separating or combining different materials, innovation in the chemical industry can provide solutions to both upstream and downstream user problems and can generate mutual competitive success. The chemical industry is an irreplaceable provider of innovation not only for itself but also throughout the value chain, often driving upstream innovation and inspiring product development in downstream sectors. In addition, by increasing the energy efficiency of its own processes, the chemical sector can in turn enable energy and resource efficiency in virtually all sectors of the economy.



D. The Vulnerability of Trade Secrets in the Chemical Industry

D.I Inadequacies of the Current System

Inconsistent and Fragmented Legislative Protection

Despite the extremely valuable nature of trade secrets and know-how, the protection from misappropriation has been much overlooked in the European Union. The Hogan Lovells *"Report on Trade Secrets for the European Commission"* highlights the patchwork of very different approaches taken by Member States and underlines the lack of recognition this area of law has received with only Sweden having specifically dedicated legislation as opposed to the scattered or non-existent provisions in other Member States. The study revealed that the different Member States rely on a diverse range of legal instruments using both criminal and civil provisions in different fields of law.

Even at national level, trade secrets protection is scattered across various areas of law including labour law, unfair competition law, criminal law, tort law, contract law, duty of confidence etc... The law is also fragmented in some States in that different courts are competent to hear different aspects of a trade secrets case. Furthermore, although several countries include definitions of trade secrets in their legislation, many do not and there are disparities across the EU in what can be protected and in which circumstances.

For example, there is a lack of consistency against whom action can be taken and in some countries action may not be taken against anyone who has received confidential information but is only available against those with whom some contractual relationship exists: this is problematic as many cases of serious industrial espionage involve individuals or companies with whom no such relationship exists. Responsibilities of third party recipients differ and, in addition, although most jurisdictions provide for contracts of employment to be enforced against employees during the term of their employment, the position differs as to what can be done in relation to an ex-employee who uses or discloses secrets after leaving employment. What the courts can or will do also differs with some countries treating misuse of a trade secret as a criminal act punishable by a prison sentence or with a fine. In other countries only civil remedies are available and in some cases the court procedures provide only limited relief. Furthermore, in one or two countries there is simply no basis for any effective remedy.

In contrast to the U.S. which has developed both a Uniform Trade Secrets Act to codify the law across the different states and the Economic Espionage Act which makes certain types of trade secret theft a crime punishable by severe penalties; the situation in the European Union is in great need of adequate protection and coherence.

Ineffective Enforcement

Currently, the law provides insufficient protection from misappropriation for, even where adequate legal protection is in place, the efficacy of legislation and enforcement are often an issue. It is not sufficient to ensure the law is in place if it does not also provide practical means which enable breaches to be detected, misappropriation to be proved, stolen "documents" to be located and seized and the perpetrators identified. The lack of effective procedural tools is noted in The Hogan Lovells *"Report on Trade Secrets for the European Commission"* which identifies several enforcement issues.

For example, legal procedures which do not exclude the public from hearings or which publish publically available judgments or court documents discourage any action in court as, unless the information has already become generally known, it is not worthwhile to pursue a case and risk further disclosure of the trade secret or CBI. On top of that the costs and duration of legal procedure are discouraging in particular for SMEs.

The report also identifies that there can be considerable difficulties in obtaining sufficient evidence of misuse as, the burden of proof is very high and cannot be overcome in practice. In certain Member States, search orders can be difficult to obtain and court officials conducting searches may not be able to identify relevant materials, particularly if the subject matter is technically complex. Moreover, the issue is aggravated by the fact that people dealing in other people's confidential information are frequently dishonest and will often conceal or destroy documents or files. The report also identifies that there are evidentiary problems in proving the loss incurred and insufficient compensation for the irreparable damage that is difficult to calculate. Furthermore, enforcement inefficiencies, such as the absence of adequate remedies or injunctions against further dissemination and third party misuse of confidential business information may cause considerable damage to the owner.

D.II How Current Discrepancies are undermining the Internal Market

Undermining the Protection and Competitiveness of the Internal Market

The significant differences in national laws on the nature and scope of trade secrets protection, as well as regards the enforcement and available means of redress and respective remedies, inevitably results in different levels of protection throughout the single market. There is an urgent need for legislators to systematically improve the legal protection and enforcement of confidential proprietary company data and ensure that companies throughout the single market are properly protected against dishonest practices of trade secret misappropriation.

Moreover, a coherent system between the various EU Members is needed as the current disparities between the Member States' systems undermine the proper functioning of the internal market and weaken the enforcement of the substantive law. This is particularly true for SMEs that are involved in EU research projects. These projects are interesting on a scientific and technical point of views and always involve partners in many Member States in which the legal conditions applicable to Trade Secrets are not necessarily compatible.

Infringements taking place outside of the EU are a major source of concern and are posing increasing problems for the EU industry. Any current internal protection is undermined when misappropriated trade secrets are used to produce goods abroad as the goods can undercut the genuine companies in overseas markets.

Furthermore, the fragmented protection and approach makes it difficult to prevent goods produced abroad to be shipped into the EU through one of its 'weaker' borders or simply through a different EU country due to the lack of coherent and coordinated protection between Member States. Even if there are possibilities to challenge the theft itself, there are no EU measures to prevent infringing products from entering the market, competing unfairly and undercutting the genuine products. Amending the Customs Regulation to include trade secrets may be of some assistance in controlling the flow of unlawfully manufactured goods undercutting businesses within the EU.

More importantly, a coherent and coordinated approach is needed across the EU to prevent the disparities undermining existing protection and enabling everyone to understand their roles and responsibilities in the protection of trade secret misappropriation.

The discrepancies across the EU also undermine the protection of the internal market as disputes may have to be resolved in different national courts which, as well as being extremely expensive and time-consuming, risk producing different decisions in different Member States, creating legal uncertainty. This legal uncertainty means that businesses trading in some parts of Europe are in danger of losing significant revenue to their competitors and opportunists. Since investors in industry are more willing to invest in countries where they believe that their secrets are adequately protected from misuse or misappropriation, some companies within Europe are benefitting from the legal discrepancies that make them better equipped than others to face the threat of misappropriation.

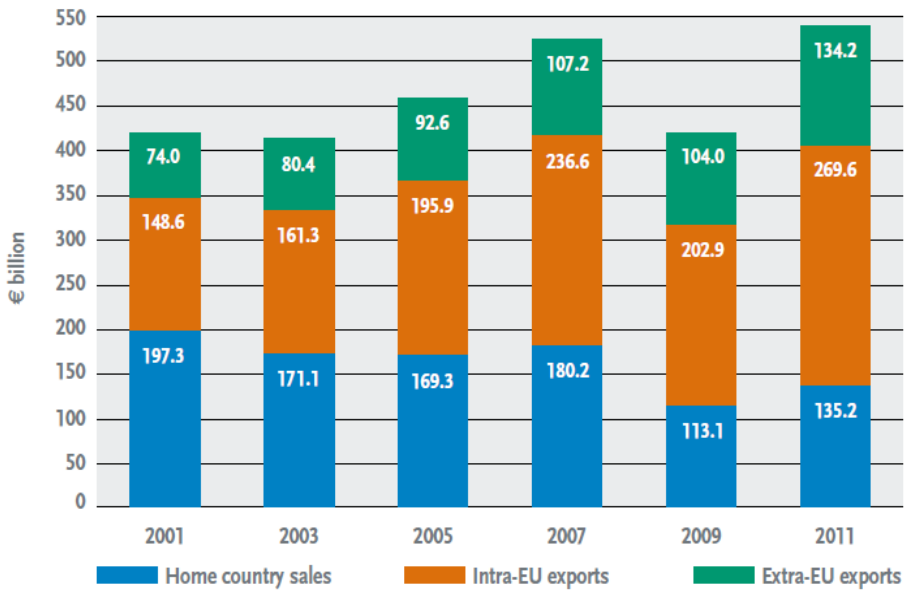
However, often, the fragmented state of protection leads to loss of confidence in the entire internal market, lowering investment and innovation and threatening the survival and competitiveness of all European companies.

Undermining Effective Cross-Border Operations within the Internal Market

Divergence in trade secret laws in various national states and the difficulties of achieving effective enforcement lead to barriers in cross-border activities in the internal market. A coherent protection within the market is particularly essential to any company operating cross-border as the current fragmentation inflates transaction costs for cross-border protection and exploitation of know-how.

Trade secret protection is currently a very complicated issue for chemical companies which need to operate within highly integrated supply chains across the EU. An adequate and coherent protection of trade secrets could remove the internal market bars and could have positive effects in knowledge sharing, safer licensing agreements and productive use by third parties. This issue is particularly crucial to the European chemical industry which is driven by intra-EU trade which represented 269.6 billion € trade in 2011.

EU internal market drives intra-EU chemicals trade



Source: Cefic Chemdata International

Current differences in the protection of trade secrets from misappropriation significantly impair integration and cooperation in networks and clusters by preventing the flow and exchange of information within the internal market. Establishing a coherent system and encouraging effective cooperation could stimulate growth, accelerate development and facilitate cross-cutting innovation throughout the value chain and across borders.

The propensity of the European chemical industry to integrate along value chains is one of the industry's main competitive advantages. The majority of the 300 European production sites are located in 30 clusters and the success of these clusters depends on having a valid combination of key assets in place including shared use of infrastructure and services, access to major transport modes and proximity to markets and customers. Companies in well performing clusters benefit from an optimised cost structure and better access to resources.

However, companies cannot currently cooperate fully as they have to prioritize concealing their trade secrets to avoid misappropriation consequently, complete supply chain integration within clusters is often not yet achieved and the interconnection between clusters is insufficient. Lack of trust and cooperation is particularly problematic for the European chemical industry for, as a producer of enabling products the industry depends on its downstream value chain partners to incorporate its chemical products into final consumer items.

Value chain partners (both upstream and downstream) need to be involved in the development of chemical industry innovations to ensure their success and improve competitiveness. Generating confidence by protecting information exchange across the value chain would allow technology and know-how to be shared and ensure a co-operative exchange to develop solutions, facilitate innovation and enhance resource efficiency throughout the internal market. This is particularly true for the development of SMEs as they are most often working in niches speciality or high tech markets. In these areas cooperation with customers is essential.

D.III Vulnerability of Enterprises' Trade Secrets

Cefic interviewed some of its company members, including SMEs, to seek examples of trade secrets (as included in this document) and asked them to evaluate the vulnerability of their competitiveness in case of misappropriation of trade secrets or CBI.

Up to 30% of potential loss of turnover was often mentioned.

This percentage could reach up to 80-100% when trade secrets or CBI are the foundation of the product differentiation or the manufacturing process. For these businesses, a theft of key aspect of their trade secrets or CBI could have a significant impact on their future, especially if the stolen trade secrets end up in the hands of a competitor or of a potential new market entrant who would thereby gain an unfair advantage by not having to invest the time and money to develop such knowledge. This could, also within a matter of years, lead to major restructuring including plant shut downs and delocalisation to lower cost countries if differentiation or process/productivity advantage is lost and it becomes all about manufacturing costs only. This means that some of the most developed and mature markets with high R&D spend are at risk and jobs may be lost.

E. The Need for Optimal Protection from the Growing Threat of Misappropriation

Differences in protection across the EU fail to provide the optimal level of protection that could be achieved through a coherent and coordinated system. While today's business environment has increased the importance of trade secret protection, several trends have resulted in an escalated risk and prevalence of trade secret theft. There is a great need for optimal and enhanced protection to face these new challenges, which are magnified by global sourcing and expansion.

The Threat of Digitalization

The need for adequate protection has probably become even more important because of the ease with which large quantities of documents and data can be downloaded, copied and transmitted. Someone intending to steal information, instead of having to photocopy hundreds of documents and load them into boxes to leave the building can simply download the information within seconds onto a thumb size storage device which fits easily into a pocket, or attach the information to an e-mail sent to an outside account where it can later be easily retrieved. A disgruntled employee can literally walk out the door with the company in his pocket.

Technological developments have also emboldened cyber thieves, who are discovering new reasons and ways to steal corporate data and can even act from other countries. Furthermore, any misappropriation is harder to detect and track because information in digital form can be stored and processed in so many ways. The web also poses a greater risk of dissemination as a trade secret can be exposed to potentially millions of people within seconds.

Once the trade secret becomes public, the trade secret owner may be rendered powerless to stop third parties, including competitors, from using it, and the trade secret owner also faces the complete loss of trade secret status. Accordingly, the grave risks posed by these technologies cannot be left unaddressed.

Trends in Mobile Employee

Although generally restrictions imposed by the law during employment are similar from state to state, the position varies to some extent post-employment: this is important because a large proportion of cases involve ex-employees. In some countries there is no protection post-employment or only in extreme circumstances and this limited or lack of protection can cause problems which are accentuated by the increased mobility of employees. Employees no longer spend their entire careers within the same firm and it is commonplace for professionals to move, taking with them what they have learnt and sometimes what they have stolen.

Example

Trade secrets are relied upon when for example ***well-known products are blended*** *or formulated according to specific formulae and such blending or formulation cannot be determined easily from the commercial products. Trade secrets are of great value in such cases, so long as the same information is not developed or acquired by someone else lawfully or unlawfully. The latter could occur through breach of secrecy by an employee, which can be mitigated through employee training programs and employment contract terms. In other instances, however, the same information may also be developed or acquired, without any breach of secrecy, if competitors are actively trying to solve the same technical problems or are actively developing similar products.*

Movement of employees occur very often in the chemical industry and we would not like to stop this of course. However, when a person/employee (having left a company or not) is involved in misappropriation, appropriate means of remedy should exist, and a coherent protection of trade secrets is needed all over the EU.

This is particularly important for SMEs when based on spin off from universities because the starting point is often linked to research carried out by students, in a very open environment as it exists in universities. These students are usually linked to the project in the spin off but their colleagues not. In these spin off the recruitment is mainly oriented to young graduates who will often move very quickly to other companies with their specific knowledge.

Contacts: Nicole L Maréchal
Cefic Senior Legal Counsellor & Governance Officer
nma@cefic.be Tel ++ 32 2 676 72 18