

**Technology Transfer Agreements Containing Tacit
Knowledge**

by

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**A thesis submitted in conformity with the requirements
for the degree of Master of Laws**

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2010

Abstract

In the world we live in transfer of technology is of a great importance. The primary means of technology transfer is by imitating and making copies. However, there are cases where copying is impossible or prohibited. In those cases, technology transfer involves contracting. Those agreements may contain both transfer of codified and tacit knowledge (know-how). Technology transfer agreements, containing tacit knowledge, have special characteristics due to the tacitness of the knowledge, and to the need to transfer it.

In this paper, I explore the special measures of technology transfer agreements containing tacit knowledge. I explain why general contract law does not address properly those challenges. I elaborate on the current solutions to these problems, adopted both by the parties and by legislatures, as well as their difficulties. Eventually, I propose possible solutions, either to the legislature or to the judiciary, in order to address those issues in a better way.

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1. Introduction

In the technological world we live in, transfer of technology is of great importance. Technology is transferred all over; from an advanced and industrialized country to a poorer developing country, from a developed country to another developed country and among firms in a developed market. The primary means of technology transfer is by imitating and making copies, which are sold on to purchasers. However, there are cases, as I will discuss further, where copying is impossible, or other cases where copying is prohibited. In those cases, technology transfer involves contracting. Agreements of technology transfer may have several methods. For example, license agreement, supply agreement for products protected by intellectual property rights, technical assistance agreement relating to the training needed to use a specified technology and acquisition of a technology based firm.¹ Two of the main channels of technology transfer are licensing and Foreign Direct Investments (FDI).²

Technology transfer agreements may contain both transfer of codified and tacit knowledge. Codified knowledge is attributed to information that can be translated into a form that can be easily transferred even through long distances, for example written instructions, photos or recorded explanations. On the other hand, tacit knowledge refers to information that cannot be translated into an explicit form or code, and therefore cannot be transferred through long distances, rather it can only be transferred, if at all, through direct connection between humans, orally or by actions.³ This kind of knowledge is also called “know-how”.⁴

¹ Alan S. Gutterman & Jacob N. Erlich, *Technology Development and Transfer: the Transactional and Legal Environment* (Westport: Quorum Books, 1997) at 68.

² Kamal states that not only FDI is the main way by which firms serve customers in foreign markets, but foreign firms that seek to produce in developing markets mostly prefer to use FDI and therefore this is the main route of technology transfer into those markets. See: Kamal Saggi, “Trade, Foreign Direct Investment, and International Technology Transfer: A survey” (2002) 17 *The World Bank Research Observer* 191 at 206, 228.

³ Dale Neef, G. Anthony Siesfeld & Jacquelyn Cefola, *The Economic Impact of Knowledge* (Boston, Mass.: Butterworth-Heinemann, 1998) at 117.

⁴ Pedro Mendi, “Contractual Implications of International Trade in Tacit Knowledge” (2007) 39 *Applied Economics* 1173 at 1174. In this paper I shall assume that all know-how is kept tacit, and I will use the terms “tacit knowledge” and “know-how” interchangeably.

Technology transfer agreements, which contain transfer of tacit knowledge or know-how, have special characteristics due to the presence of the know-how, and to the need to transfer it from one party to another. Those specific measures create a set of unusual problems in the contractual relationship between the parties. They also create difficulties to a third party, adjudicator, while trying to evaluate the contract and the parties' actions in accordance with its provisions.⁵ Since there is not a specific rule, which deals with those contracts, general contract law applies to them.

In this paper, I explore the special measures of technology transfer agreements containing tacit knowledge. I explain why general contract law does not address properly the special challenges inherent in those agreements. After that, I elaborate on the current solutions to these problems, adopted both by the parties and by legislatures, as well as the problems arising out of them. Eventually, I examine the possible solutions and propose a few, either to the legislature or to the judiciary, in order to address those problems in a better way.

2. Technology Transfer Agreements

Technology means any machine, device, material, chemical or biological combination, and/or process that produce a functional and useful result to its user.⁶ A technology transfer is any transaction between parties which involves the procurement of, or the right to legally use, specified intellectual property assets developed, owned, and/or controlled by another.⁷ It includes “any activity where technology is created and/or made available by one organization to another.”⁸ The transfer may include not only the intangible legal rights related to the specific assets, but also the transfer of a tangible technology and other relevant confidential information

⁵ Ashish Arora, “Licensing Tacit Knowledge: Intellectual Property Rights and the Market for Know-How” (1995) 4(1) *Economics of Innovation and New Technology* 41 at 43.

⁶ Ron Idra & James L. Rogers, *Profit from Intellectual Property* (Naperville: Sphinx, 2003) at 150.

⁷ Gutterman & Erlich, note 1 above, at 67.

⁸ Mark Anderson, *Technology Transfer: Law, Practice, and Precedents*, 2nd ed. (Great Britain, Butterworths LexisNexis, 2003) at 2.

necessary to use the legal rights properly.⁹ The primary means of technology transfer is by imitating and making copies, which are sold on to purchasers. However, there are cases, as I will discuss, where copying is impossible or other cases where copying is prohibited. In those cases, technology transfer involves contracting. The purpose of the agreements is to enable the transfer and protect the rights of the parties, including intellectual property rights, if are involved in the transaction. Moreover, when intellectual property rights protection is involved in the transmission, the acts of the transferee might amount to infringement of the intellectual property rights of the owner – the transferor – if the technology transfer agreement would have not existed.

There are several forms of technology transfer agreements. For example, a license agreement, supply agreement of products protected by intellectual property regimes (usually, patents), technical assistance agreement connected to the training needed to use the specified technology and an acquisition of a technology based firm.¹⁰

In general, technology transfer agreements pertain to both codified and tacit knowledge. Codified knowledge refers to information that can be translated into a visual or an explicit form that can be easily transferred even through long distances. Tacit knowledge, on the other hand, cannot be translated into an explicit form, and therefore cannot be transferred through long distances.¹¹ An example for tacit knowledge is skills in a golf game or a performance of an operation. Tacit knowledge is often defined as know-how.¹² Tacit knowledge cannot be sold and bought in the marketplace; rather it can be transferred orally between humans. The transfer of the knowledge should be connected to “social context”.¹³

⁹ Gutterman & Erlich, note 1 above, at 67.

¹⁰ Gutterman & Erlich, note 1 above, at 67-68.

¹¹ Michael Polanyi was the first one to set the term ‘tacit knowledge’, when he explained it as the ability to know more than we can tell. See: Michael Polanyi, *The Tacit Dimension* (New York, Doubleday, 1966) at 4.

¹² Mendi (2007), note 4 above, at 1174.

¹³ Neef et al., note 3 above, at 117.

According to scholars, there is a process of codification of the tacit knowledge, which makes the transfer of the knowledge easier. The shortcoming is that there will always remain tacit knowledge in some degree.¹⁴ On the same issue, Burk argues that many familiar provisions of patent law may be seen as incentives to codify knowledge, that otherwise would have been tacit, and therefore they affect the balance between codified and un-codified knowledge.¹⁵ He explains that codification of knowledge has several important benefits. For example, codified knowledge can be treated as an object of trade or exchange. Codified knowledge can be also reorganized according to its content or other possible measures. On the other hand, Burk continues, codification of knowledge bears costs, and therefore might not be always the preferred option. In order to codify knowledge a proper code is necessary. The development of a code might be costly. Of course, if standard or wide accepted code is used, the cost may be lower dramatically. The use of a code might itself create costs, if the users of the system are locked to the specific code and cannot easily change when other alternatives become available.¹⁶ Organizations also have to maintain the code, and this might cause them stay uniform, rather than fluid.¹⁷

As a result of that, Burk concludes, much of the knowledge remains un-codified not because it is impossible to codify, rather because it is expensive to codify. Codification creates costs of collecting, encoding, recording and preserving the information. These costs might be higher than the potential value of codification, and therefore codification might be inefficient. Thus, this kind of knowledge will remain un-codified unless the costs of codification will drop, or the expected value of the codification will rise.¹⁸

Transfer of tacit knowledge creates problems and challenges, which do not occur on other types of technology transfer. The problems arise mainly out of the fact that the knowledge is un-

¹⁴ Neef et al., note 3 above, at 118.

¹⁵ Dan L. Burk, "The Role of patent Law in Knowledge Codification" (2008) 23 Berkeley Tech. L.J. 1009, 1012.

¹⁶ Ibid, at 1013.

¹⁷ Ibid, at 1014.

¹⁸ Ibid, at 1014.

codified. The next chapter elaborates on the special characteristics of technology transfer agreements containing tacit knowledge (know-how).

3. Contracts Including Transfer of Know-How

Know-how is useful technical information that is known to the transferor, usually the licensor, but not to the transferee, usually the licensee. The technical information may help the licensee implement or manufacture the licensed product. It can be required for the proper understanding and/or use of the main technology.¹⁹ The tacit information is accumulated in one's skills, knowledge or education, and it can be transferred by training of personnel, consulting, guidance, technical assistance, quality control services, inspection or help in establishing a research and development (R&D) unit.²⁰ Due to the inability to translate the know-how into an explicit form, the information is transferred orally between humans, and requires interpersonal relations. Those special characteristics affect the parties between whom the technology is transferred, their interests and mutual relations. As a result of that, the special characteristics affect also the terms and conditions of the contracts signed by those parties. In the following, several special aspects of technology transfer contracts including transfer of know-how are demonstrated.

3.1 Difficult to Specify

As noted above, it is difficult to specify tacit knowledge, since it cannot be written or shown explicitly. As a result of that, tacit knowledge cannot be defined or registered and cannot receive a legal protection against imitation.²¹ On the contrary, patent, for example, can be both codified and licensed and as a result of that - easy to specify.²² The inability to precisely specify know-

¹⁹ Idra & Rogers, note 6 above, at 153; David M. Rogers, "General Considerations Relating to the Licensing of Patents and Know-How" in *Patent Law: Licensing of Patents and Now-How 1975* (the Law Society of Upper Canada, 1975) at 2, 10.

²⁰ Ashish Arora, "Contracting for Tacit Knowledge: The Provision of Technical Services in Technology Licensing Contracts" (1996) 50 *Journal of Development Economics* 233 at 239.

²¹ Mendi (2007), note 4 above, at 1175.

²² Rogers (1975), note 19 above, at 2, 10. However, it is worth noting that in order to register a patent, full and accurate specification of the invention is required. A patent that fails to provide such specification will be refused or found invalid if already granted. See, section 27 of the Patent Act, R.S., 1985, c. P-4.

how may affect the motivation of the licensor in regard with the training or assistance that he should provide the licensee under the terms of the agreement. Since the tacit knowledge is not fully defined, it enables the licensor avoiding fulfilling his entire obligations under the terms of the agreement to transfer the whole know-how, without the awareness of the licensee or without the ability of an adjudicator to determine whether the obligation was met.²³

3.2 Assimilated Good

Know-how is oral information or knowledge which the licensor transfers to the licensee in person. After the licensee receives the know-how, he cannot return it.²⁴ The know-how assimilates in the licensee's personal knowledge and skills and becomes an un-separate part of them. The knowledge cannot be taken from the licensee and it cannot be unlearned. The licensor can try control the use of the know-how under the terms of the agreement, but he cannot take it back or extract the knowledge from the licensee's consciousness when the agreement expires. Even if the licensee breaches the agreement, the licensor cannot oblige him return this information, since it is impossible.

As I will explain later, in order to avoid the risk of un-payment and inability to unlearn the knowledge, the licensor prefers receiving most of the value of the agreement before the transfer of the know-how.

3.3 Asymmetric Information (The Arrow Information Paradox)

Prior to the execution of the licensing the parties possess an asymmetric information regarding the knowledge. The licensor knows what the know-how is, whereas the licensee does not know. The licensee has only expectations and a vague idea regarding the tacit knowledge. The licensee's willingness to pay for the information is based on this vague impression, and he would rather pay after receiving the information and evaluating whether it meets his needs. In situations of asymmetric information there is always a risk that the licensee will be disappointed once he receives the tacit knowledge, since he might realize that it does not meet his needs or does not

²³ Arora (1995), note 5 above, at 43.

²⁴ Arora (1996), note 20 above, at 237.

fulfill his requirements. Considering that, after receiving the knowledge the licensee might try to change the terms of the agreement to fit the real situation that was recently exposed in front of him or even to cancel the agreement, if the knowledge is worthless for him.²⁵ In order to avoid this risk, the licensor might prefer to receive most of the money before the transfer of the know-how. On the same token, as explained above, the licensee prefers paying most of the money after the transfer of the knowledge in order to keep the opportunity to raise claims against the knowledge and to avoid paying for knowledge that does not meet his needs and requirements. Although avoiding any contractual payment might enforce the licensee to act against the provisions of the agreement, the licensee will be in a better position once he did not pay all the payments in return for the knowledge. An experienced or intelligent licensee may include in the terms of the agreement a provision that enables reducing the payment for the knowledge if it does not fit specific needs or requirements.

Furthermore, due to the asymmetric information of the parties there is also a risk that eventually the licensor will not transfer all the promised knowledge to the licensee, without the awareness of the latter. The situation of asymmetric information in markets was identified by Kenneth Arrow, and it is recognized as ‘the Arrow Information Paradox’. Arrow states that there is a basic paradox in the determination of demand for information. He explains that the value of the information for the purchaser is not known until he has the information, but then he has acquired it without cost. The potential buyer is basing his decision to purchase the information on less than optimal criteria. Therefore, Arrow concludes, it is very difficult to create a market for information.²⁶ Arrow claims that since the product cannot be tested before the consuming, there is an element of trust in the relation between the parties.²⁷ Arrow explains that asymmetric information creates incentives for the party with more information to cheat the party with less information.²⁸ As a result, a number of market structures have developed, including insurances,

²⁵ In order to explain this claim I ignore for a moment the fact that after receiving the tacit knowledge the licensee has incentive to quit the agreement, since he has already received the knowledge, that cannot be unlearned or extracted from his consciousness.

²⁶ Kenneth J. Arrow, *Essays in the theory of risk-bearing* (Amsterdam; North-Holland, 1976) at 152.

²⁷ See: *ibid*, at 187, where Arrow discusses the relations between a physician and his patient.

²⁸ *Ibid*, at 203.

warranties and third party authentication, which enable markets with asymmetric information to function.²⁹

3.4 The Quality of the Personal Training

As explained above, since tacit knowledge cannot be written or codified, the only way to transfer this kind of information is through a direct communication between humans. The information can be transferred by demonstrations, training or other technical assistance to be provided by the licensor or his employees.³⁰ Under these circumstances, the licensee's interest is to assure that he receives a sufficient assistance and training in regard with the transferred know-how. The licensee knows that if he does not receive enough training, it impacts his ability to use the technology efficiently, and derive the most out of it.³¹ Therefore, the licensee will aim to receive the best training and assistance that the licensor can offer. For example, the licensee may demand the licensor to send his best trainers and inspectors to transfer the tacit knowledge. On the other hand, once the agreement was signed and the amount was set, the licensor will try to diminish his assistance and training costs, in order to maximize his profits. Under the terms of the agreement, he will try not to send his best people for the training or the assistance, rather he will send his second best employees.³²

3.5 The Amount of the Personal Training

The licensee does not know exactly what does the tacit knowledge include and how complicated is it, before the knowledge is transferred to him. Therefore, it is not unreasonable to assume that the licensee does not know beforehand how much assistance and training he needs. He can only make an assumption how many hours he or his employees need to learn the new technology, or to integrate it in the existed plant. His interest is to guarantee an open ended commitment from the licensor to train and teach the know-how until the licensee and his teams are able to use the

²⁹ Ibid, at 210.

³⁰ Alexander I. Poltorak & Paul J. Lerner, *Essentials of Licensing Intellectual Property* (New Jersey: John Wiley & Sons, 2004) at 69.

³¹ Arora (1996), note 20 above, at 235.

³² Ibid, at 234.

transferred technology.³³ On the other hand, the licensor aims to diminish his costs and expand his profits. The licensor will hesitate to promise an open ended assistance, rather he would prefer to guarantee a specific amount of training, independent in the ability of the licensee and his teams to comprehend and implement the new technology.

Furthermore, in order to save time the licensor might not expose all his knowledge, rather the main or essential parts of the knowledge necessary to use the technology, but not to further develop it in the future, for instance.³⁴

3.6 Affiliated Parties

As a result of a study of a database of 241 contracts signed in 1991 by Spanish firms, involving technology transfer, Macho-Stadler et al. find that know-how is more likely transferred between affiliated parties.³⁵ They suggest that moral hazard on the seller's side is the main force driving these results. Macho-Stadler et al. explain that once the contract is signed it is not easy to control the licensor's behavior in regard with the transmission of the knowledge. The licensor has a moral hazard problem deriving both from the non-verifiability of the transaction, and the licensor's low incentives to disclose the tacit knowledge he possesses.³⁶ Therefore, according to their view, the link between the licensor and the licensee may help overcome this moral hazard and facilitate the transmission of the knowledge.

Few years later, Mendi examines the same database and reaches the same conclusion according to which the probability of transferring know-how between unaffiliated parties is low. According to Mendi *"Two parties are affiliated if either there is a direct participation of the seller of 50%*

³³ Poltorak & Lerner, note 30 above, at 69.

³⁴ Arora (1996), note 20 above, at 234; Gutterman & Erlich, note 1 above, at 122. However, there could be also other reasons for not exposing all the technology, for example, strategic reasons in order to avoid enabling a future competitor.

³⁵ Ines Macho-Stadler, Xavier Martinez-Giralt & J. David Perez-Casrillo, "The Role of Information in Licensing Contract Design" (1996) 25 Research Policy 43, 51.

³⁶ Ibid, at 45.

or more in the buyer's equity or both buyer and seller have a common owner".³⁷ It seems from this paper that it is difficult to transfer know-how between unaffiliated parties due to the possibility of an opportunistic behavior of both sides. On the seller's side, since the knowledge is not codified, the seller might be tempted to transfer less information than required. On the buyer's side, since the knowledge is not legally protected against imitation, the buyer can imitate the technology, after receiving it, and renege on the contract. Therefore, unaffiliated parties tend to sign longer contracts, which include royalty payments, in order to overcome the double sided opportunistic behavior.³⁸ On the other hand, it should be noted that maybe firms want to keep their knowledge in-house, and therefore they are not willing to transfer it to unaffiliated firms, rather they prefer to transmit it to affiliated parties.

In light of the above, it seems quite clear that tacit knowledge raises special challenges. It is not incorrect to argue that those difficulties, or part of them, may arise also in other kinds of contracts. For example, a contract to purchase a used car represents a situation of asymmetric information between the parties. Probably, in this kind of interaction the owner of the car knows more about his car than the anticipated purchaser. Even if the purchaser has the car examined by an independent professional examiner, he might not explore all the relevant information about the second-hand car, and in the time of forming the agreement the parties will have asymmetric information regarding the used car.

Indeed, in his paper on the market for "lemons" Akerlof describes the automobiles market as an example of a market with asymmetric information between buyers and sellers, in which "trust" is important.³⁹ Akerlof uses this market to explore the "Lemons model", and to explain his theory about the costs of dishonesty. Akerlof claims that due to the dishonesty of some of the sellers that sell bad cars, which in America are known as "lemons", honest dealings are driven out of the market. Therefore, Akerlof explains, the cost of dishonesty is not only the amount by which the

³⁷ Pedro Mendi, "The Structure of Payments in Technology Transfer Contracts: Evidence from Spain" (2005) 14 *Journal of Economics & Management Strategy* 403 at 414.

³⁸ *Ibid*, at 422-423. In sub-paragraphs 5.3-5.4 below I discuss how royalty payments and long contracts assist the parties overcome the opportunistic behavior, respectively.

³⁹ George A. Akerlof, "The market for "Lemons": Quality Uncertainty and the Market Mechanism" (1970) 84 *The Quarterly Journal of Economics* 488 at 489.

purchaser is cheated, but also the loss incurred by driving legitimate businesses out of the market.⁴⁰ Akerlof concludes that the difficulty to distinguish between good quality and bad is inherent in the business world. In a market which both qualities are involved, informal unwritten guarantees are preconditions for trade and production. If there is no “trust” between the parties, business will suffer.⁴¹

As explained above, technology transfer agreements containing tacit knowledge suffer also from asymmetric information. Although, Akerlof’s analysis deals with asymmetric information, it does not deal with all the other mentioned aspects of those agreements, such as the difficulty to specify and the assimilation nature. Therefore, Akerlof’s analysis is not suitable and is not enough to characterize technology transfer agreements containing tacit knowledge.

Thus, technology transfer agreements containing tacit knowledge have a unique set of unusual features, such as the inability to specify and return the good and the necessity in personnel training. This exceptional set of special characteristic creates unusual difficulties, which have to be dealt uniquely, as I will explain later. However, since those contracts are after all agreements between parties, general contract law governs them. In the following chapter, I will explain why and how current contract law does not address the mentioned problems properly.

4. Contract Law

In summary, a “contract” is usually a written document records an enforceable agreement between two parties. A contract is formed once the parties had reached a “consensus ad idem”.⁴² The parties of a contract have to fulfill their obligations and warranties under the contract. If one of the parties does not fulfill his obligations or warranties, completely or partially, in certain circumstances the innocent party has the right to terminate the contract. The right to terminate an agreement upon a breach of the other party may be conditioned or unconditioned, depends on the

⁴⁰ Ibid, at 495.

⁴¹ Ibid, at 500.

⁴² John D. McCamus, *The Law of Contracts* (Toronto: Irwin Law Inc., 2005) at 1, 31.

jurisdiction, the essence of the breach and the terms of the agreement. A breach can be of two kinds: fundamental and non-fundamental.⁴³

A fundamental breach is treated differently under Canadian and American doctrines: Canadian common law defines it as a repudiatory breach, while the American doctrine characterizes a fundamental breach as a material breach. However it should be noted that recently, the Supreme Court of Canada ruled in *Tercon Contractors Ltd. v. British Columbia* that the doctrine of fundamental breach should be laid down in relation to the enforceability of exclusion clauses.⁴⁴ Justice Binnie, who wrote the opinion of the minority, also ruled that the categorization of the different kinds of breach is unhelpful and therefore should be abandoned.⁴⁵

Under Canadian contract law, once the agreement is terminated, due to a breach, the innocent party may decide to affirm or disaffirm the contract. Ordinarily, the right to claim for damages and seek for remedies may be pursued in either event. Canadian contract law recognizes two kinds of remedies: common law remedies and equitable relief. In special cases proprietary remedies are also available for a breach of contracts.⁴⁶ Under common law, the available remedies are damages and restitution. The aim of the damages is to fulfill the “compensation principle”. The damages compensate the innocent party for the loss caused by the breach. The “compensation principle” protects the expectation principle, i.e. what the party anticipated to receive out of the contract, or what the contract was about to provide the party. The compensation principle may also include a protection of the reliance and the restitution interests of the plaintiff.⁴⁷ In certain circumstances, the innocent party, who chooses to disaffirm the

⁴³ Non-fundamental breach entitles the victim to receive damages under the agreement while the contractual relation proceeds. Fundamental breach, on the other hand, entitles the victim to terminate the agreement. The way to distinguish between those two kinds of breaches is beyond my discussion in this paper. For an exhaustive discussion about the differentiation between them see John D. McCamus (2005), note 42 above, at 615-641.

⁴⁴ *Tercon Contractors Ltd. v. British Columbia*, 2010 SCC 4, para. 62 [*Tercon v. BC*].

⁴⁵ *Tercon v. BC*, note 44 above, para. 82.

⁴⁶ Angela Swan, *Canadian Contract Law*, 2nd ed. (Markham, Ont.: LexisNexis, 2009) para 6.3; McCamus (2005), note 42 above, at 641.

⁴⁷ Swan, note 46 above, paras 6.11-6.12.

contract, may, as an alternative to the claim for damages, claim for restitution for the value of benefits provided to the party in breach.⁴⁸

The equitable relief usually comes in a form of an injunction to a certain performance. The equitable remedies have separate rules. They are available when the defendant has done something that is “against good conscience”.⁴⁹ Under Canadian contract law, damages are the default, while equitable relief is given in exceptional circumstances. Although, under an equitable relief it is more likely that the victim will receive the initial benefits that the contract was to provide, rather than under damages regime.⁵⁰

As a general principal, under the American doctrine the injured party from a breach of an agreement may choose both to rescind the contract and recover the value of any performance, or stand by the contract and recover damages for the breach.⁵¹ The American law usually awards expectation damages as a remedy for a breach of an agreement. The purpose of these damages is to make the promisee as well off as he or she would have been had the contract performed.⁵² The remedy, money damages, is usually and generally granted to an injured party both at common law and under the Uniform Commercial Code (U.C.C.).⁵³ Specific performance is only granted if the contract involves a “unique” property, for example real estate. However, there is a tendency to encourage granting of equitable relief by enlarging the classes of cases in which damages

⁴⁸ McCamus (2005), note 42 above, at 644.

⁴⁹ Swan, note 46 above, paras 6.297-6.298.

⁵⁰ Ibid, para 6.4.

⁵¹ *American Jurisprudence Contracts*, 2nd ed. (2009) para 708.

⁵² Richard Craswell & Alan Schwartz, *Foundations of Contract Law* (New York: Oxford University, 1994) at 41; for a list of the main judicial remedies available under the American contract law, see: Restatement (Second) of Contracts Section 345 (1981).

⁵³ The Uniform Commercial Code (U.C.C.) is a uniform act that was published in order to harmonize the law of sales and other commercial transactions in all the 50 states of the United States. The U.C.C. itself is not a law, rather it is only a recommendation of the laws that should be adopted by the states. Once enacted by a state, the U.C.C. is codified into the state's code of statutes.

might not be an adequate relief.⁵⁴ Thus, the modern approach is to compare money damages with equitable relief in order to decide which remedy serves best the purpose of justice.⁵⁵

Furthermore, there are also cases where American Jurisdictions impose punitive damages in cases of “bad faith breach”.⁵⁶ As stated, damages for breach of a contract are based on the injured party’s expectation. However, there are two alternatives to the expectation measure – reliance and restitution. The injured party can choose under which heading to seek his damages from the promisor – reliance, restitution or expectation.⁵⁷ Both expectation and reliance assume that the contract is to be enforced against the promisor according to its terms. By contrast, restitution is based on the concept of unjust enrichment, and is measured by the value of the benefits the promisee had granted the promisor under the agreement.⁵⁸

An important aspect of contract law for my discussion is the duty to act in good faith; Section 205 of the American Restatement provides the duty of each party to act in good faith and fair dealing in the performance and the enforcement of an agreement. The situation in Canada is different; all the common law provinces, including Ontario, have not enacted a general duty of good faith. However, in recent years the Canadian courts have mentioned often the duty to perform a contract in good faith, and also stated in several cases that this duty is a part of the Canadian common law of contracts. Courts have recognized three categories of good faith. The first category imposes duties to cooperate in achieving fulfillment of the objectives of the agreement. The second category imposes limits on the exercise of the discretionary power. The last category precludes parties from evading contractual obligations. Anyhow, it is difficult to conclude that a duty of good faith performance is now recognized at common law in Canada.⁵⁹

⁵⁴ See: Restatement (Second) of Contracts Section 359 (1981) and Article 2-716 of the U.C.C.

⁵⁵ Marvin A. Chirelstein, *Concepts and Case Analysis in the Law of Contracts*, 5th. ed. (New York: Foundation Press, 2006) at 178.

⁵⁶ Bruce Chapman & Michael Trebilcock, “Punitive Damages: Divergence in Search of a Rationale” in Craswell & Schwartz, note 52 above, 127 at 128.

⁵⁷ Restatement (Second) of Contracts Section 344 (1981); Marvin A. Chirelstein, note 55 above, at 199.

⁵⁸ Chirelstein, note 55 above, at 200.

⁵⁹ McCamus (2005), note 42 above, at 781-784; Chirelstein, note 55 above, at 117.

Both contract laws - the American and the Canadian - are general, and do not address the special issues of technology transfer contracts containing know-how. For example, although under both contract laws remedies may include both damages and injunctions, under these laws damages are the default. As I will claim later, due to the assimilated nature of the tacit knowledge, damages may not be enough to deter the licensee from breaching the contract.

Moreover, damages are traditionally based on the compensation principle. As discussed above, the aim of these damages is to compensate the innocent party for the loss caused by the breach. However, as I will explain later, there are cases where the innocent party should receive a relief based on the restitution principle, or even a disgorgement of profits, when compensation damages might not be enough for deterrence.

Furthermore, even if under both contract laws the parties should act in good faith, and do their best efforts to fulfill their contractual obligations, this duty may be only an initial solution for the difficulties related to the quality and amount of personal training under an agreement to transfer tacit knowledge. Since the good faith duty is a general obligation, the licensor might interpret it in a way that will satisfy his willingness and interests, not necessarily the solution that fits best the licensee's interests and needs.

Also, due to the un-codified feature of the tacit knowledge and the difficulty to specify it, the adjudicator might confront with difficulties to inspect the actions of the parties in accordance with their obligations under the contract. The adjudicator might have problems to decide whether a contract to transfer tacit knowledge was duly fulfilled, whether it was breached since not all the required knowledge was transferred, and whether it was carried in good faith by both parties. These difficulties might be greater once the knowledge was transferred to the other party.

From the brief explanation about contract laws both in Canada and in the United States it is quite clear, in my view, that the major problems inherent in technology transfer agreements including tacit knowledge do not find a proper and a suitable response among general contract law. For this reason, the parties had to adopt solutions in order to overcome the inherent difficulties arising from the tacitness of the knowledge, and the need to transfer it. In the next chapter I will examine a few of these solutions.

5. Solutions by the Parties

5.1 Bundle with a Patent

It is well known that the traditional role of a patent is to encourage innovation, even at the price of the prohibition of the general use of the patent from the public in the first period. Arora suggests another role for a patent: it assists in transferring technology, even technology that is not protected by the patent rights. In many cases, Arora explains, technology licensing includes more than a permission to use the technology covered by a patent, rather it includes also further information required for the successful utilization of the technology. This further technology is beyond the written drawings and specifications, such as heuristics, rules of thumb and other “tricks of trade”. These routines and rules usually are developed together with the development of the technology over years of use and experience. This useful knowledge is tacit.⁶⁰

Macho-Stadler et al. go further and claim that the need to transfer know-how is related with the limitations and weaknesses of the ‘protection’ system. Although firms wish to register their patent, and they should do it in a coherent way to allow other imitate the patent, firms do not want to expose all their information. Therefore, those firms leave some unregistered information as know-how, which is not patentable.⁶¹

Kitch even argues that most know-how licensing takes place within the framework of the patent rights. He explains that usually the agreement involves both a license for the patent and an obligation to disclose how to use the technology efficiently.⁶² On the same issue, Burk argues that the inventor of a patent does not have to include all the details of the invention in the disclosure. He does not have to include the tacit knowledge in the patent documents. Sophisticated licensees, he stresses, know that each patent has also tacit knowledge which they should negotiate to receive it. Thus, as a common practice, licenses include provisions for the

⁶⁰ Arora (1995), note 5 above, at 42.

⁶¹ Macho-Stadler et al., note 35 above, at 52.

⁶² Edmund W. Kitch, “The Nature and Function of the Patent System” (1977) 20 J.L. & Econ. 265 at 278; see also Rogers (1975), note 19 above, at 2, 10.

transfer, protection and updating of the know-how relating to the patent. Burk explains that the tacit knowledge is necessary to make the patented technology function.⁶³

As noted above, the tacitness of the transferred knowledge creates moral hazards problems to both parties; In order to utilize a technology there is a need in a great deal of know-how, which cannot be codified. Due to the un-codified measure of the knowledge the transfer of know-how is usually costly, since it requires training of personnel, travels by the engineers of the licensor and other services, called technical services. The quality of these services may be changed in regard with the licensor and his efforts. Even though the parties involved may observe the quality of the services, it is difficult to a third party, as a court, to verify variations in quality, especially after the know-how has been transferred. As a result of this inability, the parties may behave opportunistically. On the buyer's side, he may be unwilling to pay the seller after the technology was transferred, since he cannot return it. On the seller's side he might be skimp in the provided technology.⁶⁴

Thus, Arora develops a simple Principal-Agent model and shows that when know-how is bundled with codified technology, as a patent, the transfer of know-how can succeed, despite the moral hazards problems on both sides of the contract.⁶⁵ The author explains that know-how is more common in lump sum contracts, than in royalty contracts. However, even in lump-sum contracts the payment is divided into two parts. In the first phase, the payment is paid after the contract is signed, but before the know-how is transferred. The rest of the payment is paid after the seller has transferred all the know-how. That way, the buyer can protect himself by holding the last payment until the knowledge is provided. On the other hand, the licensor can deny the licensee any right in the patent if he is not satisfied with the licensee's behavior. Since know-how tends to be highly application and context specific, the value of the know-how is higher for the licensee, if it is used together with the patented component of the technology. The author defines this situation as "hostage taking". He explains that the "hostage taking" allows a

⁶³ Burk, note 15 above, at 1021.

⁶⁴ Arora (1995), note 5 above, at 43.

⁶⁵ Ibid, at 44.

successful self enforcing in know-how contracts.⁶⁶ So, Arora shows that intellectual property rights assist in overcoming the problem of double-sided opportunism in transmission of know-how. He also shows that the efficiency of such contracts, the amount of know-how that can be transferred and the payments the seller can receive depend positively upon the strength of intellectual property rights regime.⁶⁷

These results are supported by an empirical research Arora activated based on evidence from 144 technology transfer contracts in India. Arora explains that the protection of the patent on the know-how depends on the connection between the know-how and the technology that is covered by the patent, and upon the strength of the protection on the patent. The stronger the connection between the know-how and the technology is, the better the protection is.⁶⁸ The empirical results further suggest that for the transfer of technologically sophisticated know-how there is a need in both patent rights and more conventional guarantee of turnkey, in order to facilitate the successful transfer of know-how. In other words, when the know-how is technologically sophisticated, bundle with only one input is not enough to guarantee a useful transfer, rather there is a need in more inputs. For example, know-how that is necessary for setting up a new R&D unit usually requires a set of bundled inputs, including both patent rights and a commitment by the licensor to commission the plant for the licensee.⁶⁹

Macho-Stadler et al. also claim that know-how is very important for a patent. They explain that since a patent is not intended to give all the information, know-how can complete the invention with further relevant information. Thus, according to their view, know-how is a useful way to

⁶⁶ Ibid, at 44.

⁶⁷ Ibid, at 54.

⁶⁸ Arora (1996), note 20 above, at 242.

⁶⁹ Ibid, at 246, 253. It is interesting to note that Arora uses the results of his both papers to support and encourage the WTO's agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). He stresses the importance of his results by proving that if the intellectual property rights of developing countries will be stronger, more technology will be transferred to the developing countries. Therefore, in the international level, countries which rely on licensing and technology transfer, as opposed to Foreign Direct Investments (FDI), should improve their intellectual property right protection regime in order to encourage transfer of know-how and make technology transfer more efficient.

include a valuable source of revenues in the licensing agreement complementary to the payment associated with the patent.⁷⁰

5.2 Bundle with Other Input

In light of the difficulties presented above relating to the tacitness of the knowledge, the licensee will try to pay most of the money after finishing the training, and he may attempt to rescind the contract after learning the know-how. While on the other hand, the licensor will seek to diminish his training and transferring costs. According to Arora, this conflict of interests makes it difficult to contract know-how alone. Arora presents empirical evidence from India showing that typical technology licensing agreements usually bundle know-how with other inputs.⁷¹

Arora explains that in order to guarantee the transfer of the know-how the licensor should tie the transfer and the payment for the know-how to a complementary input, whose transfer is easy to monitor. The licensor should promise the transfer of the know-how and allow the licensee to make part of the payment after the know-how is provided. If the licensee does not pay, the licensor can withdraw from the contract and not transfer the complementary input, or withdraw the use of it.⁷²

Thus, in order to overcome conflicting interests of the parties, Arora offers to bundle know-how with other inputs. He states that those inputs have to be complementary to the know-how, for example training (operating procedures) and maintenance of a machine which is also supplied by the licensor, or the licensor has a motivation to supply the input.⁷³ Another example for complementarity between know-how and an input is a plant commissioning that is likely to be bundled with know-how. By bundling the know-how with other product, each of the parties protects himself from an opportunistic behavior of the other party. According to the author, the licensee protects himself by paying some of the payment *after* the know-how was transferred.

⁷⁰ Macho-Stadler et al., note 35 above, at 53.

⁷¹ Arora (1996), note 20 above, at 234. In this paper the author discusses the results of an empirical research of 144 technology transfer contracts in India, in the period of 1950-1975.

⁷² Ibid, at 237.

⁷³ Ibid, at 238.

Whereas the licensor protects himself twice: the first time, when he sells an input together with the know-how, and the second time by receiving higher profits than other suppliers of inputs alone (and know-how alone) because of the know-how (other inputs).⁷⁴

As a result of another empirical research, Mendi states that parties to a contract containing transfer of know-how include a provision of a commitment by the licensor to provide the licensee with the first-best level of technology, if contracting of technological characteristics is impossible, as a way to solve moral hazard problems on the seller's side.⁷⁵ Mendi describes technical assistance services as a commitment device by which the licensor commits to provide the licensee with the first-best level of technology, as long as providing technical assistance is costly to the seller of the technology, and if contracting of technological characteristics is impossible. Mendi clarifies that technical assistance is the natural way to provide know-how, ignoring the moral hazard problems inherent in this kind of agreements. However, in his results, not only technical assistance appears just with know-how and not with patents, rather it also eliminates the effect of the duration of the contract.⁷⁶ He explains that the potential moral hazard problems in know-how transfer contracts are that the licensor will not transfer all the knowledge and the licensee will not pay all the payments after receiving the know-how.⁷⁷ Mendi states that the evidence found support the claim that the parties bundle know-how with a technical assistance services, in order to overcome moral hazards incorporated with the transfer of know-how by mitigating opportunistic behavior of the seller's side and ensuring his cooperation. He concludes that from the fact that when technical assistance is provided, there is less importance to contract duration in determining the possibility of signing an agreement to transfer know-how.⁷⁸ However, Mendi adds, technical assistance services are only a partial solution for the problem of transferring tacit knowledge, but when those services are not provided the probability

⁷⁴ Ibid, at 239.

⁷⁵ Mendi (2007), note 4 above, at 1173. In this paper the author discusses empirical evidence drawn from a sample of 165 contracts for the acquisition of technology by 109 Spanish firms from foreign sources, in 1991.

⁷⁶ Ibid, at 1174. As I will explain later on, another way to overcome the moral hazard problems of transferring know-how is by signing long term agreements. See: section 5.4 below.

⁷⁷ Mendi (2007), note 4 above, at 1175.

⁷⁸ Ibid, at 1181.

of transferring know-how depends on other factors, such as contract duration, which determines, in his view, how acute moral hazard problems are.⁷⁹

5.3 Method of Payment

As noted above, the licensee's interest is to pay most of the money after finishing the training and receiving all the know-how.⁸⁰ By paying the majority of the amount at the end of the period, the licensee assures that he receives all the training and assistance he was promised by the licensor under the terms of the agreement (as much as the licensee can realize). On the other hand, the licensor's interest is to receive all the money, or most of it, when signing on the agreement, before the transfer of the know-how. The licensor's interest is to detach the payment from the ability of the licensee to understand or implement the know-how. He also wishes to avoid the risk by which after the licensee learns the tacit knowledge, he will change his mind and will try to evade the promised payment.

In fact, as a result of an examination of 241 contracts involving technology transfer, signed in 1991 by Spanish firms, Macho-Stadler et al. conclude that contracts contain know-how are more often relay on royalties. They explain this due to the uncertainty related to the transfer of know-how and the importance of risk-sharing.⁸¹ They raise two reasons for inclusion of royalties in know-how agreements. The first reason is to reduce moral hazards of the seller, who might be tempted not to transfer all the required know-how technology, in order to diminish his costs and not disclose all the information. Royalties raise the licensor's incentive to transfer all the know-how in order to create a better ability of the licensee to achieve greater profits. The second reason is to signal a good technology. Since the licensor has more information about the value of the know-how, he communicates it to the licensee through the terms of the agreement.⁸² A royalty

⁷⁹ Ibid, at 1182.

⁸⁰ Arora (1996), note 20 above, at 239.

⁸¹ Macho-Stadler et al., note 35 above, at 45.

⁸² Ibid, at 53.

agreement can indicate a good technology since it can be interpreted as the licensor's confidence in his technology and in the licensee's performance.⁸³

Mendi, who examines the same database few years later, also states that in agreements where tacit knowledge is a part, we should expect to see more out-put based payments, since tacit implies an increasing difficulty to describe the technology, and therefore there is more asymmetric information on both sides. The author explains that out-put based payment provides some kind of insurance to the buyer.⁸⁴ Mendi states that know-how enjoys from a weaker legal protection against imitation than patents, therefore it is more likely to cause opportunistic behavior by the parties. For this reason, models based on moral hazards of the seller's side would predict a greater use at royalty payments than fixed payments.⁸⁵ He clarifies that royalty payments give incentive for both parties to perform the transfer in a better way, and as a result reduce the incentives for opportunistic behavior.⁸⁶ On the seller's side the royalty fee encourages the seller to provide the buyer with the best available technology. On the buyer's side, it induces the buyer to exert marketing effort, while allowing the seller to directly benefit from such effort.

Another possible solution to this conflict is to split the payment into several amounts, and establish milestones in the contract for the payment of each amount. Only after a milestone is achieved, the specific amount, related to the milestone, should be paid. This way guarantees that the amounts are paid during the progress of the transmission and in accordance with it. In order to guarantee the total transaction of the know-how, at least one of the payments should be due after the transfer of the know-how is completed. Arora claims that know-how sales are more closely related to lump sum payments. However, even according to Arora the lump-sum payment is divided into two parts. In the first stage, the payment is transferred after the contract is signed, but before the know-how is provided. The rest of the payment is due after the seller has

⁸³ Ibid, at 44.

⁸⁴ Mendi (2005), note 37 above, at 405.

⁸⁵ Ibid, at 419.

⁸⁶ Ibid, at 404.

transferred all the know-how. That way, the buyer can protect himself by holding the last payment until the knowledge is provided.⁸⁷

5.4 Long-Term Relationships

Transfer of know-how requires time. Training may last several weeks or months, depending on the learned material and the ability of the trainees. Consulting and quality control services may be needed for longer periods of months or years. Also, assistance in establishing research and development unit may last several months or even a few years. All those actions are time consuming activities, which cannot be finished at once. Due to the long periods needed for the transfer of knowledge, the contractual relations between the parties are also long term relations.

According to Mendi, contracts for transfer of tacit knowledge are more probably to be longer than contracts of patent transfer due to another reason. He explains that the cost of breaching a contract is higher when the remainder period of the contract is longer.⁸⁸ Since transfer of tacit knowledge creates moral hazards problems on the licensor's side, the parties reduce these moral hazards by signing long term agreements. Mendi notes that the moral hazard problems in a short duration contract may be so acute that the parties are not able to reach a successful agreement.⁸⁹ After examining more than one hundred Spanish firms, which signed technology transfer agreements including know-how in the year of 1991, he concludes that “[t]he empirical analysis shows evidence that contract duration influences positively the probability of transferring tacit knowledge”.⁹⁰

Arora also claims that long term relationship may be a mean to ameliorate the double sided opportunistic behavior. However, he adds, many licensing contracts do not involve long term relationship.⁹¹

⁸⁷ Arora (1995), note 5 above, at 44.

⁸⁸ Mendi (2007), note 4 above, at 1173.

⁸⁹ Ibid, at 1182.

⁹⁰ Ibid, at 1182.

⁹¹ Arora (1995), note 5 above, at 44.

As we see, the parties try to solve the moral hazard problems arise out of technology transfer agreements containing tacit knowledge by adopting different solutions. The relevant questions that should be asked now are whether these solutions are fair and useful? Whether these solutions are enough to address all the problems specified above in regard with this kind of contracts? If not, what else can be done? The next chapters try to address these queries.

6. The Difficulties of the Parties' Private Solutions

From the above it is clear that technology transfer agreements containing tacit knowledge create moral hazards to each of the parties. Due to the special features of those agreements the parties are in unequal positions, and are engaged in asymmetric relationship, whereas each time one of the parties has a greater power over the other. In other words, during different periods of time each one of the parties has a greater ability to hold up the other party and force it to re-bargain. At the beginning of the relationship between the licensor and the licensee, the former holds the power. The licensor has the knowledge that the other party - the licensee - desires. The licensor knows more about this knowledge, and also has the ability to decide, usually without the awareness of the licensee, how to transfer the tacit knowledge and in which amount. Of course, if the licensor's actions contradict his obligations under the contract, he might be liable for breaching the contract. The balance between the parties is transmitted once the knowledge is transferred to the licensee. At this point, the licensee has a better position, since he received the tacit knowledge. Due to the assimilative nature of the knowledge, the licensee cannot return it back, and he can (as opposed to 'allowed') do whatever he wants with the tacit knowledge. Of course, if the licensee acts in contradiction to his commitments under the contract, he might be liable for breaching the agreement.

As I showed above, the parties try to solve these conflicts in different ways: the first way is to bundle the transfer of the tacit knowledge with a patent (sub-paragraph 5.1 above) or with other inputs (sub-paragraph 5.2 above). The second way, in which the parties try to overcome the conflict of interests, is with the method of payment for the tacit knowledge (sub-paragraph 5.3 above). The parties also create long term contracts in order to resolve the conflicts between them (sub-paragraph 5.4 above). In spite of the fact that these solutions may be helpful in solving the

conflicts between the parties, each one of them is not perfect and creates negative side-effects, as I will explain.

6.1 The First Solution - Bundle with a Patent

Although a solution of bundling know-how with a patent in order to ease the transfer of the know-how sounds reasonable and convincing, it is clear that it cannot be useful in all cases. As explained above, according to Arora, the complementarity of the know-how with the patent allows the licensor to use the protection on the patent to protect himself from an opportunistic behavior of the licensee. The licensor will deny the licensee any rights in the patent if he is not satisfied with the licensee's behavior. On the other hand, the licensee protects himself by the timing of the payment. The licensee pays only part of the payment before receiving the know-how, and the rest of the payment is paid after receiving it, of course, upon receiving it completely for his full satisfaction.⁹²

However, there are cases where the tacit knowledge is not related to any patent, and despite this it should be transferred from one party to another. For example, training how to operate or maintain a machine that is no longer under a patent, or for which a patent was never issued. In those cases, the parties cannot bundle the transfer of the know-how with a transfer of a patent, since there is no related patent. In order for a patent to protect know-how the patent should be complementary to the know-how.⁹³ The parties cannot choose to bundle any patent with any know-how. A patent can protect only related know-how by creating the situation of "hostage taking", as Arora describes it.⁹⁴ Therefore, in cases where there is no a related patent, the parties will have to look for other solutions to guarantee the safe and full transmission of the tacit knowledge.

⁹² Arora (1995), note 5 above, at 41-42.

⁹³ Ibid, at 41.

⁹⁴ Ibid, at 44.

6.2 The Second Solution - Bundle with Other Input

Once the parties are obliged to bundle the tacit knowledge with other input it changes their initial purpose in entering the agreement. The parties entered into the contractual relations in order to transfer/receive tacit knowledge. Due to the inherent problems of this kind of transaction, they have to bundle the transfer with other input. Although this input is complementary to the know-how, it is probably not in the scope of their initial desires. The bundle is the second best solution of the parties, since their first best solution is impossible. The combination of the two different products shapes the relations between the parties in a different way than their original intention.

The combination also might be non-efficient from an economic point of view. For example, there might be cases in which the licensee can buy the other product from another producer at a lower price, or cases in which the licensee does not really need the other product, or he does not have enough resources to buy it and has to look for an extra funding.⁹⁵ The bundling might also affect rivals that have no ability to compete with the sale of the bundled goods and as a result of that have to exit the market.

On the other hand, it should be noted that most of the antitrust experts claim that bundling and tying are efficient, since they reduce costs or improve quality.⁹⁶ Bundling enables producers to offer the bundled products more cheaply or to offer more value to consumers who want the bundled products together. Bundling can provide efficiencies like marginal costs savings, quality improvements and customer convenience.⁹⁷ Under these assumptions, the Chicago school claims that tying creates large benefits from a social perspective with no competition costs and therefore

⁹⁵ See also: Stephen Martin, "Strategic and Welfare Implications of Bundling" (1999) 62 *Economics Letters* 371-376.

⁹⁶ "Tying" is a special kind of "bundling", where a customer cannot buy one product without the other. The practice in which the firm offers only the bundle in a fixed proportion is called "pure bundling", as opposed to "mixed bundling" when the firm also offers some of the products separately. Usually, "tying" is used when the proportion of sale of the two products is not fixed, and "bundling" is used when the proportion between the two products or services sold is fixed. "Tying" may be also used in cases which if a customer wants to purchase one good he must also purchase another good, but the second good can also be purchased separately, as opposed to the first good which is tied to the second, as stated. However, the differences between these two terms are not relevant for my discussion, therefore I use here "tying" and "bundling" interchangeably.

⁹⁷ David S. Evans & Michael Salinger, "Why Do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law" (2005) 22 *Yal J. on Reg* 37 at 39, 41.

should be *per se* legal. However, the post-Chicago theories claim that tying might create anticompetitive effects, and it should *not* be *per se* legal. It seems that the common consent today is that tying may have efficiencies as well as anticompetitive effect. Therefore, under these circumstances the rule of reason approach is more suitable than the *per se* rules, whether of legality or illegality.⁹⁸

However, in regard with technology transfer agreements containing tacit knowledge the initial intention of the parties was to transfer only the know-how. As explained above, the parties had to bundle the know-how with other input or inputs in order to overcome the double sided moral hazards and enable the transmission. The bundling solution is their second best option, since their first best option is impossible. Under these circumstances, the second best solution becomes the more efficient solution available since the first best solution does not really exist. In other words, there is a possibility that if the parties would not have bundled the know-how with other input or inputs at all, they would not be able to reach a successful agreement. Therefore, the bundling solution may be the most efficient solution under certain circumstances. Yet, it should be noted, as showed above, that there are other solutions the parties may adopt to overcome the tacitness of the knowledge and enable the transmission, which might be more efficient under certain circumstances.⁹⁹

6.3 The Third Solution - Method of Payment

As explained above, this solution may strengthen the interest of each party to fulfill all his obligations and commitments under the agreement. Nonetheless, there is always a possibility that one of the parties will breach the contract before it is complete. For example, after receiving a large amount and before transferring the know-how the licensor may decide to renege on the agreement with most of the money in his pocket. On the other hand, after receiving the know-how the licensee might decide to avoid depositing the last payment or payments. In this situation,

⁹⁸ Christian Ahlborn, David S. Evans & A. Jorge Padilla, “The Antitrust Economics of Tying: A Farewell to Per Se Illegality” (2004) 49 Antitrust Bull. 287 at 319, 329, 340.

⁹⁹ The question which solution fits best in certain circumstances is an interesting and important one, but it is beyond the scope of my thesis. In my view, this question should be further investigated.

although the licensor probably received the majority of the payment, he did not receive the entire amount promised in the agreement.

6.4 The Fourth Solution - Long Term Relationship

Long term relationships may solve several problems, as showed above, but at the same time they create other difficulties. Longer contractual relationships create more opportunities to breach the agreement. The longer is the contract, the more possibilities exist to violate it. Furthermore, over the time period of the agreement the situation of the parties, the external conditions and other relevant features change. Those modifications might influence the contractual relationships in a way the parties did not predict, while signing on the agreement. These changes might create more reasons, causes and opportunities to break the contract. These modifications may even cause the contract to be void or voidable. Thus, long-term contractual relationships are, in general, more complicated than short-term relationships and are more difficult to maintain.

In summary, it seems that all the solutions discussed above are second best solutions. All the solutions suffer from side effects and other problems which prevent them from being *the* best solution or *the* best option for the parties transferring/receiving the tacit knowledge. Under these circumstances, I will now verify whether the lawmakers address this issue and solve these problems in a proper legislation.

7. A Specific Legislation

In cases where a legislator realizes that contract law or other general law are not enough to address market failures or unusual difficulties, the legislator might enact a specific rule to address these issues. For example, the relationship between businesses, which sell goods and services, and individual consumers, who purchase them, are problematic. The seller and the buyer have asymmetric information in regard with the product or service that the seller is about to provide to the buyer. Moreover, the seller might implement unfair business practices in order to deceive the buyer and convince him to purchase the product or the service. On the other hand, consumers must receive accurate information about products and services in order for competition to thrive. In this case, legislators that evaluate competition might enact rules to protect both competition and consumers. For example, a government may require businesses to

disclose detailed information about products, particularly in areas where safety or public health is an issue, such as food. An example for a consumer protection law is the Ontario Consumer Protection Act, 2002.¹⁰⁰

7.1 Canada and the United States

Although, as I showed above, technology transfer agreements containing tacit knowledge create difficulties for both parties, the seller and the buyer, and even for third parties, such as adjudicators, I could not find any specific legislation dealing with this kind of agreements, neither in Canada nor in the United States. Also, I could not find a specific legislation addressing the unique problems arise out of these contracts, both in Canada and in the United States.

Maybe, the reason is that both Canada and the United States are common law countries. In those countries, most of the rules are determined by courts on case by case basis, and not by the legislators.¹⁰¹ In light of the importance of this issue, probably the situation in civil law countries is different.

7.2 The European Union

Indeed, on April 27th, 2004 the European Commission (the ‘Commission’), which is the executive body of the European Union (EU), published a new Technology Transfer Block Exemption Regulation (TTBE) and Guidelines (the ‘Guidelines’), which came into force on May 1st, 2004.¹⁰² The TTBE and the Guidelines deal with technology transfer agreements, which include also know-how licensing agreements. The TTBE provides a framework for assessing technology license agreements under EU competition law.

¹⁰⁰ S.O. 2002, C. 30, Sched. A.

¹⁰¹ The question how do courts deal with technology transfer agreements containing tacit knowledge is also an important question, but unfortunately it is beyond the scope of my thesis.

¹⁰² See the official site of the European Union at <http://europa.eu>; the Commission Regulation (EC) No. 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements and the Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements.

It should be explained that Article 81(1) of the Treaty establishing the European Community (the EC Treaty) prohibits agreements that prevent, restrict or distort competition.¹⁰³ Article 81(3) allows for exemption of those agreements, which confer sufficient benefits to outweigh the anti-competitive effects.¹⁰⁴ The Commission can provide such exemption for an agreement or for a whole group or certain category of agreements. Actually, the TTBE identifies those exemptions and provides a "safe harbour" from the application of the European Community competition law for certain technology licenses (i.e., patents, know-how, and software copyright licenses).

In regard with know-how the definitions article of the TTBE states as follows:¹⁰⁵

“"Know-how" means a package of non-patented practical information, resulting from experience and testing, which is:

- (i) secret, that is to say, not generally known or easily accessible,*
- (ii) substantial, that is to say, significant and useful for the production of the contract products, and*
- (iii) identified, that is to say, described in a sufficiently comprehensive manner so as to make it possible to verify that it fulfils the criteria of secrecy and substantiality.”*

Paragraph 47 of the Guidelines explains “substantial” as the necessity of the information significantly contributes to or facilitates the production of the contract products. In cases where the licensed know-how relates to a product as opposed to a process, the know-how should be useful for the production of the contract product. In regard with “identified” the Guidelines recognize that there are cases in which the know-how cannot be described in manuals or other written form, rather the licensed know-how may consist of a practical knowledge possessed by the licensor's employees. For instance, the licensor's employees may possess secret and substantial knowledge about a certain production process which is transferred to the licensee in

¹⁰³ The EC Treaty can be found in the official site of the European Union at <http://europa.eu>.

¹⁰⁴ On December 1st, 2009 the Lisbon Treaty came into effect. Due to the Lisbon Treaty the EC Treaty has been renamed the "Treaty on the Functioning of the European Union (TFEU)". Article 81 of the EC Treaty was also re-numbered to Article 101, without textual changes. The consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union can be found at <http://europa.eu>. For the sake of simplicity in the following, I will continue using the former name and numbers.

¹⁰⁵ Article 1(1)(i) of the TTBE.

the form of training of the licensee's employees. In such cases, the Guidelines affirm, it is sufficient to describe in the agreement the general nature of the know-how, and to list the employees that will be or have been involved in passing the knowledge on to the licensee.

Article 1 of the TTBE identifies as well “technology transfer agreement” as including know-how licensing agreement, and “intellectual property rights” as including know-how.¹⁰⁶ Other articles of the TTBE also recognize the inherent characteristics of the un-codified know-how. For example, Article 4(1)(d) of the TTBE affirms that an agreement that restricts the licensee's ability to exploit its own technology, or restricts the ability of any of the parties to the agreement to carry out research and development, in cases which the restriction is essential to prevent the disclosure of the licensed know-how to third parties, is exempt from the provisions of Article 81(1) of the EC Treaty. In regard with this Article the Guidelines explain, in paragraph 94, that in cases where a licensee receives know-how from a licensor it should adopt necessary and appropriate measures against disclosure of the know-how. For instance, where the agreement mentions particular employees of the licensee to be trained in and responsible for the use of the licensed know-how, it may be sufficient to oblige the licensee not to allow those employees to be involved in research and development with third parties.

Furthermore, paragraph 112 of the Guidelines, that relates to Article 5(1)(c) of the TTBE, recognizes the difficulty of know-how that once it is disclosed, it is likely to be impossible or very difficult to recover the licensed know-how.¹⁰⁷

As we can see, from the provisions of the TTBE it is clear that the Commission is aware of the special features of un-codified know-how, like its assimilative characteristic, the difficulty to specify it and the importance of keeping it secretly. However, the TTBE deals with this subject from the aspect of competition law and technology transfer agreements. The TTBE does not try to solve the problems inherent in technology transfer agreements containing tacit knowledge, or the difficulties that might arise from these agreements to the involving parties. Rather, the TTBE distinguishes between competitive and anticompetitive agreements under the EU

¹⁰⁶ Articles 1(1)(b) and 1(1)(g) of the TTBE, respectively.

¹⁰⁷ Article 5(2) of the TTBE and paragraphs 114 and 201 of the Guidelines also relate to know-how.

competition law, among which there are also know-how licensing agreements. Over the course of that distinguishing process the TTBE pays attention to special characteristics of know-how licensing agreements.

In light of the above, the question that should be asked now is whether the absence of a specific legislation addressing directly the inherent problems of technology transfer agreements containing tacit knowledge, indicates that these situations cannot be managed by legislation, although legislatures are aware of the difficulties arise out of these agreements? Alternatively, it might be that lawmakers are indeed aware of those difficulties, but they do not figure these issues as justifying a separate legislation. Another option might be that legislators just have not realized the problems, which this kind of contracts creates, and as a result they did not enact a specific legislation yet.

Anyhow, in my opinion, a specific legislation is required and is important in that situation. A suitable and a particular law can solve, at least, some of the problems inherent in this kind of contracts. The possibility to solve the above-mentioned problems, or part of them, justifies the enactment of a specific legislation. Therefore, in my view the non-existence of a relevant legislation indicates that the legislatures have not paid enough attention to that issue. Later in this paper, I will explore my suggestion in regard with a specific legislation dealing with technology transfer agreements containing tacit knowledge.

However, as I will show a specific legislation is a second best solution, since it cannot address properly all the relevant issues. Of course, first best solution, if possible, is always preferable than second best solution. In the following, I will discuss the possibility to offer a first best solution.

8. A Normative view – Offered Solutions

8.1 The First Best Solution: Protecting the “Good”

Nowadays, tacit knowledge is not protected by a law. Rather, it can only be protected by the parties, upon an agreement between them. In my opinion, the first best solution to the double sided opportunistic behavior of both parties, described above, is to secure the “good” directly. In other words, grant a protection to the knowledge itself.

In 'protection' I mean prevention from use by all the members of the society, not only from use by a specific contractual party or parties. The general protection may assist the owner of the knowledge fully exercise the value of the knowledge, and receive refund for his investment in its development. Since presumably the owner invested a lot of money in the development of the tacit knowledge, it is fair to let him derive profits from the knowledge. On the other hand, under such a protection, members of the society cannot use the tacit knowledge, unless one receives an authorization and even then only he can use the knowledge, in accordance with the terms of the permission. The prevention of the general use might cause loss to the society, which can profit from the tacit knowledge. Not to mention, that upon using the tacit knowledge it can be further developed by its users, others than the owner. That further development may profit both the society and the original owner.

The protection may be granted in a way of registering the knowledge in a governmental institute, similar to the registration of patents. Once the tacit knowledge is registered, it is easy to define it just by referring to the registration number or sign. The registration will prevent the use of the protected knowledge without an authorization from the owner. If someone uses the knowledge without such an authorization, he will be liable under the law. The registration may also protect the licensee in a way that he will know the scope of the knowledge that he should receive from the licensor, and eventually he will be able to verify that he has received all the required knowledge. By the same token, the registration may prevent the moral conflicts of the licensor, and encourage him to transfer all the promised tacit knowledge, and not a part of it. The registration will also solve the problem of the tacit knowledge as an assimilated good; even though the licensee is familiar with the know-how, he should not use it after the termination of the agreement without an authorization, not only because of the termination of the agreement, but also since it is protected by the law. If the licensee wants to continue using the tacit knowledge, he has to contract the licensor again. Of course, this is relevant only within the protection period. Once the protection period expires, everyone is entitled to use the knowledge, without an agreement or an authorization.

Obviously, there are disadvantages and difficulties in this suggestion. For example, a massive bureaucracy might be involved in the registration of the knowledge, and the need to maintain and update the information. Even if the process will be voluntary, and the owners of the know-how will not be obliged to register their tacit knowledge at the governmental office, it will not solve

the problem, since only registered knowledge can enjoy the benefits of the registration, as explained above.

Another notable difficulty of this suggestion is concerned with the definition of the know-how. As explained (see: section 3.1 above), tacit knowledge cannot be written or shown explicitly. Therefore, it is difficult to characterize and register the knowledge itself. In order to overcome this problem one can offer to register the knowledge under a general and outlined definition, such as ‘the operation instructions for X’, ‘the way of using Y’ etc. The definition may also be escorted by photos or a film. However, a wide description may create difficulties since it may contain multiple ways of using or operating. It also may create a wide protection on the knowledge, more than is needed, which may harm the society more than required in the circumstances. Additionally, the owner of the knowledge may abuse this opportunity and describe the knowledge more widely than needed, in order to protect related knowledge that may be found, by him or by others, in the future. A wide definition might also cause uncertainties and controversies. The members of the society, including other owners of know-how, will not be aware of the boundaries of the knowledge exactly, which might cause more disputes regarding the definition of the knowledge and its scope and as a result of that more litigations.¹⁰⁸

Moreover, in my opinion the central issue in regard with this solution is whether this knowledge should be protected at all? Whether the society should recognize a specific person or persons as the owner of the knowledge and restrict the community from using the knowledge without the owner’s or the owners’ consent? Whether the society should grant the creator of the knowledge rights for her creation? Since know-how is an intellectual property I will examine the justifications for granting intellectual property rights and verify whether they suit this kind of knowledge.

Over the years lawmakers and scholars have discussed several justifications for recognizing intellectual property rights such as patents, copyrights, trademarks and trade secrets. Fisher categorizes these theories into four approaches: Utilitarianism, Labor Theory, Personality Theory

¹⁰⁸ Compare to Burk and Lemley, who describe a situation in the United States according to which many disputes occur in recent years over the meaning of patent-claim terms and the scope of patents, although patents should be described precisely and in details. See: Dan L. Burk & Mark A. Lemley, “Fence Posts or Sign Posts? Rethinking Patent Claim Construction” (2009) 157 U. Pa. L. R. 1743, pp 1744-1746, 1748-1761.

and Social Planning Theory.¹⁰⁹ The Utilitarianism Theory is the most popular approach. According to this approach the aim of the lawmakers, when shaping property rights, is to maximize the net social welfare. While doing so, they balance between the power of exclusive rights to encourage innovation and creation, on one hand, and the tendency of such rights to diminish the full enjoyment of the society from the new creation, on the other hand.¹¹⁰ In regard with tacit knowledge, the question that should be asked is whether we want to encourage creation of tacit knowledge. As explained above, the tacitness of the knowledge causes many difficulties in transferring the knowledge and expands the costs of the transmission in comparison with codified knowledge. It is not unreasonable to assume that granting exclusive rights to owners of tacit knowledge might broaden the amount of tacit knowledge. Under the abovementioned circumstances, large amount of tacit knowledge may not enlarge the net social welfare, and therefore might be undesirable.

Supporters of the Labor Theory recognize that a person who works on sources has a natural property right for the fruits of his efforts. According to this theory, the state must respect and enforce this natural right.¹¹¹ That theory may suit tacit knowledge, since the knowledge is often created and recognized by a person who put some kind of efforts in achieving it. However, given that in order to transfer the tacit knowledge, the creator of the knowledge, or someone on behalf of him, should be involved in the transmission, the inventor can receive a compensation for the knowledge over the course of the communication with the receiver of the knowledge. In this case, a wide recognition in the natural rights of the owner of the tacit knowledge might be too burdensome and too costly to the society.

Scholars of the third approach, the Personality Theory, believe that private property rights are crucial for the satisfaction of some essential human needs.¹¹² For example, the artists' right to control the publication of their work, to withdraw their work from public use, to receive

¹⁰⁹ William Fisher, "Theories of Intellectual Property" in Stephen R. Munzer ed., *New Essays in the Legal and Political Theory of Property* (UK; Cambridge University Press, 2001) at 168, 169-174.

¹¹⁰ Ibid, at 169.

¹¹¹ Ibid, at 170.

¹¹² Ibid, at 171.

appropriate credit for their work and protect their work from injury. The justification for the protection is that the work of art embodies the creator's personality or will.¹¹³ Some of the human needs, which they identify are, peace of mind, privacy, self-reliance, self-realization as a social being, self-realization as an individual, security and leisure, responsibility, identity, citizenship and benevolence.¹¹⁴ In regard with tacit knowledge, here again, since the creator of knowledge must be involved in its transmission he can control how, when and to whom the knowledge is transferred. That way, he can protect his own rights, in accordance with his own will and desire.

The last approach, the Social Planning Theory, is rooted in the proposition that property rights in general, and intellectual property rights in particular, can and should be shaped to assist in achieving a just and attractive culture.¹¹⁵ As argued above in regard with the Utilitarianism Theory, tacit knowledge creates difficulties. For this reason, it might be better that tacit knowledge will not be a part of the culture, and will not be recognized as a right.

As can be seen, it is not easy to adjust the justifications of intellectual property rights, or even one of them, to tacit knowledge. In light of this, together with the other problems inherent in granting a general protection to tacit knowledge, described above, it seems that the first best solution is almost impossible to achieve. Therefore, we should look for a second best solution to cope with transmission of tacit knowledge. In the next sub-chapters, I propose second best solutions that should be adopted either by the lawmakers or by the courts.

8.2 A Second Best Solution: Protection by Law – Protecting the Parties

Since the relationship between the parties to technology transfer agreements which contain tacit knowledge have special features and create special problems, general contract law is not fully capable of governing those relations and solving those problems. Those relations need a specific rule. The necessity for a specific rule is not unusual in the Canadian legislation. Provincial and

¹¹³ Ibid, at 174.

¹¹⁴ Ibid, pp. 189-190.

¹¹⁵ Ibid, at 172.

territorial legislatures in Canada have realized several times that the imbalance between the contractual parties, their conflict of interests and different positions require specific rule, other from the general rule of contracts. For example, the Ontario Consumer Protection Act, 2002 aiming to protect both competition and consumers, as explained above (see the text annexed to note 100). Another example of protection on competition and on consumers by ordering producers to provide full and accurate information is the Ontario Wine Content and Labelling Act, 2000.¹¹⁶ This act establishes minimum content and labeling standards for the manufactures of wine in Ontario.

In my opinion, a special statute should be enacted to govern the contractual relationship between the parties to a technology transfer agreement, which contains tacit knowledge. This statute will govern the contract and the relations between the parties; it will balance between the interests of both parties. The statute will not establish necessary formalities, thus the parties will not have to comply with all its provisions. Rather, the parties can either choose which of the provisions they want to adopt when they find it preferable, and which other conditions and obligations they prefer to create by themselves in accordance with their own circumstances. The statute will govern in cases where the parties did not agree otherwise, or where the contract is silent.

The parties will also use the statute as a guideline for the legislature's offered solution in different cases. The statute will deal with the transfer of the tacit knowledge, including the quality and amount of the training. The status will determine that the transferor should use his best measures to transfer the knowledge, when possible. Only if the transferor cannot allocate his best resources, because of just reasons, he would be permitted to use his second best measures for the transmission.

The law will also offer milestones for payments in exchange for the tacit knowledge. As discussed above, a fair amount of the payment should be paid after the knowledge is transferred. But, a down payment is also important and should be paid while signing on the agreement or close to it, even though the knowledge was not transferred yet.

¹¹⁶ S.O. 2000, C. 26, Sched. P.

The rule will specify which damages and remedies the parties will be entitled to receive in case of a breach of the contract by each of them. In my opinion, due to the assimilative characteristic of the good, the damages should be relatively high in a case of a breach by the licensee, after the information, or part of it, was transferred to him. The high damages should de-motivate the licensee from breaching the agreement, once he receives the knowledge. Actually, the damages should be based on the restitution principle, and not on the compensation principle. The reliefs should also include a claim for a disgorgement of profits.

The court should be able to grant injunctions as well, when appropriate, against the use of the tacit knowledge, once the agreement is breached. As opposed to the current situation according to which injunctions are not usually available under common law, rather they are available only as equitable reliefs.¹¹⁷ Moreover, usually injunctions are granted only in exceptional circumstances, whereas damages are the default.¹¹⁸ The proposed statute will create a mechanism to enforce these injunctions, and verify that the tacit knowledge is not used by the licensee without an authorization.

Due to the protection by a specific rule, the parties will not have to bundle the transfer of the know-how with a patent or another input, and will not have to create a long-term contract, if they do not need it for the sake of guidance or teaching. The statute will be their confidence that the other party will not break the contract, due to conflicting interests. The statute creates the confidence in several ways; first, it contains severe damages and strict injunctions. Second, it imposes provisions that protect each of the parties, even if the parties did not think about them, and did not include them explicitly in their contract. Third, it creates guidelines for the parties of recommended balance between them and recommended provisions, which the parties can apply into their relationship and written agreement. It is mostly important when the parties, or one of them, have no experience in this kind of contracts.

Thus, it seems that a new specific law for technology transfer agreements containing tacit knowledge may solve most of the conflicts between the parties. Nevertheless, I am aware of the

¹¹⁷ Swan, note 46 above, paras 6.11, 6.3.

¹¹⁸ Ibid, para 6.4.

fact that the above mentioned offered legislation is not fully able to solve one of the main problems arises when dealing with this kind of agreement. The problem I refer to is the difficulty of a third party, whether a court, arbitrator or other tribunal, to detect a breach of an agreement containing tacit knowledge. The difficulty arises since tacit knowledge is not codified, and therefore it is difficult for a third party to decide if the knowledge was transferred to the other party and in which amount, and if it was transferred according to the provisions of the agreement. It is even more difficult to rule on these issues after the knowledge was transmitted.

Yet, the offered legislation may resolve other difficulties inherent in those agreements, which may ease the task of the judicator in detecting a breach. For example, the proposed legislation encourages the parties to determine milestones for payments in their agreement. Achieving those milestones, or part of them, can give a (nearly) accurate picture of the current situation of the agreement. Furthermore, the purpose of the offered legislation is to reduce the number of breaches of agreements containing tacit knowledge by providing the parties tools to cope with this kind of agreements. Hopefully, if the parties use these tools, it will reduce the number of breaches, and as a result of that courts will have to deal less with this kind of infringes.

Anyhow, courts are competent in judging cases of controversies between parties and opposing opinions in which a part of the evidence is concealed. For example, civil cases of product liability or criminal cases in which the accused refuses to cooperate with the prosecution and to expose relevant evidence. In those cases courts have to use circumstantial evidence, instead of direct evidence, to rule. The same resolution might be applicable to our case.

8.3 A second Best Solution: Protection by Courts - The Remedies for the Licensor

At the current situation know-how is not protected by a law. It can only be protected by a contract between parties. In my view, the main problem of the tacit knowledge is that it is an assimilated good. As explained above (section 3.2), once the licensee receives the good he cannot return it, even if the contractual relations between the parties are terminated. I can assume that this feature of the knowledge is known to the parties. Therefore, it might impose a moral conflict on the licensee; the licensee may try to terminate the agreement after receiving the knowledge. That way, even if the agreement expires, he has received the knowledge, and can use it beyond the terms of the agreement that no longer exists between the parties. The unauthorized

use may cause the licensee – the breaching party – a great benefit; he continues using the knowledge without fulfilling his obligations under the agreement, while usually the ability to observe and/or prevent the unauthorized use is restricted.

The breaching party can also further transfer unlawfully the knowledge to a third party, which diminishes even more the ability to observe and prevent the unauthorized use by the third party. The third party is not bound by the terms and obligations of the original agreement between the transferor of the tacit knowledge and the receiver, since the agreement binds only its parties. Moreover, although the owner of the knowledge may sue the third party for an unjust enrichment, there are practical difficulties in exposing the third party and revealing the unauthorized use. The inability to bind a third party to the provisions of the agreement and to restrict him from using the tacit knowledge without an authorization from the owner is another limitation of the contractual solution. This limitation highlights even more the necessity to provide the parties an external assistance by the courts.

Therefore, courts should use their power and impose sanctions on a liable licensee in order to prevent him from acting in contradiction to his obligations and breaching the contract. The sanctions against the licensee should be composed both from monetary damages and injunctions. Monetary damages alone are not enough, since the illegal use may be very beneficial to the licensee in a way that exceeds the damages the court might impose on him. The court should restrict the illegal use, whether by the licensee or by a third party, with proper injunctions.

8.4 A second Best Solution: Protection by Courts - Disgorgement Relief for the Licensor

If the licensee breaches the agreement, and uses the tacit knowledge illegally, without an authorization, he might be obliged to pay damages to the innocent party - the licensor - under the contract law. In order to impede the licensee from doing so, he should know that if he acts this way he might be obliged to pay great damages to the licensor because of the unauthorized use of the knowledge. Since the benefit that the licensee may derive from breaching the agreement after receiving the know-how is significant, as explained above, especially if he transfers the knowledge illegally to a third party, the expected payments should be burdensome. The more beneficial the breach is, the greater the sanctions should be, in order to prevent the breach. The payments should be like punitive damages.

The payments should be calculated on the basis of the amount of the expected benefits to the licensee from using the knowhow illegally. The expected benefits are the benefits the licensee has derived, and will derive from using the know-how during the prohibited period. Of course, these sums might be beyond the amount of the traditional expectation damages and may leave the promisee better off than if the contract had been performed, but their major aim is to discourage the promisor, the licensee, and prevent him from breaching the agreement. Actually, this is a disgorgement relief. McCamus defines a claim for disgorgement of profits as a claim to receive the profits secured by the breaching party as a result of the breach of the contract. He notes that such a claim is probably recognized under the Canadian law for a breach of contract.¹¹⁹ According to some scholars the justification for that relief is to avoid the unjust enrichment of the perpetrator of the contract.¹²⁰

It should be noted that there are other known damages in contract law, which prefer the interests of the promisee better than the interests of the promisor. For example, liquidated damage clauses set at a high amount or punitive damages are also more favorable to the promisee than expectation damages, and may leave him better off than if the contract had been performed.¹²¹

8.5 A second Best Solution: Protection by Courts - Injunctions against the Licensee

Since the licensee cannot return the knowledge to his owner, and monetary damages might not be enough in case of a breach by the licensee, the court should impose appropriate injunctions on the licensee. The injunctions should prevent the licensee from using the know-how without an authorization from the licensor. Since the know-how cannot be specified, the court should give a general prescription of the knowledge and refer to the contract by which it was transferred between the parties. By imposing an injunction, even if the know-how is not protected by a law, its use will be prohibited for the licensee or for a third party within the specific relationship

¹¹⁹ McCamus (2005), note 42 above, at 963.

¹²⁰ John D. McCamus, "Disgorgement for Breach of Contract: A Comparative Perspective" (2003) 36 Loy. L.A. L. Rev. 943, 944.

¹²¹ Craswell & Schwartz, note 52 above, at 41.

between the parties. The prevention from using the knowledge should last until the know-how is published or transferred to the public in one way or another.

The court should also create a mechanism of maintaining the prohibition of the unauthorized use by the licensee and third parties, if relevant. It is not enough to issue an injunction, someone has to verify that it is enforced. The best person to do it is the owner of the knowledge; often he can know better than everyone else if the licensee or the third party fails to follow the court's order, and continues to use the knowledge without a proper authorization. Therefore, the doors of the court should stay open for of the licensor – the owner – to claim for an illegal use of the knowledge by the licensee, or a third party on behalf of the latter. In those cases, the licensor can claim for a contempt of court's order under the applicable rules.

8.6 A second Best Solution: Protection by Courts –the Burden of Proof on the Licensor

As stated, the seller is subject to moral conflicts. Since the know-how is not codified, the buyer does not know exactly what he supposes to receive. As a result of that, the seller might be tempted not to transfer the whole information, required in the agreement between the parties, rather only a part of it. Furthermore, in order to reduce costs the seller might choose to transfer the knowledge not with his best staff, rather with his second degree personnel, in contradiction to the terms of the agreement.

While dealing with contracts for a transfer of know-how courts should be aware of these moral conflicts of the seller's side. Courts should also be aware of the fact that due to the un-codified nature of the knowledge it might be very difficult to prove claims relating to the transferred knowledge, and to the way and the amount it was transferred. Therefore, the burden of proof in those matters should lie on the seller. Since the seller probably has the relevant information and the related evidence, he should prove that he transferred all the required information with all the appropriate measures, in accordance with the terms of the agreement. The seller has to satisfy this burden first, before it shifts to the buyer.

That burden is difficult to satisfy. Thus, this burden might encourage the seller, from the outset, transferring all the information in an appropriate manner in order to avoid dealing with the case in front of a court. Only after the licensor proves his claim, the burden shifts to the licensee to

prove that he did not receive the whole information and/or he did not receive it in the required measures.

Actually, I propose creating a rebuttable presumption according to which any licensor will be presented to have breached the contract if the licensee claims so. Of course, this presumption can be rejected by proper evidence.

At last, if the court finds that the seller did not transfer all the required information and/or did not provide his best suitable trainers or other needed measures in contradiction with the terms of the agreement, the court should order the seller to do that. Here, again, an injunction might be more suitable than monetary damages, of course in accordance with the circumstances.

9. Conclusions

As we have seen above, tacit knowledge in technology transfer agreements creates special difficulties both to the parties of the agreement and to the society. As a result of the un-codified measure of the knowledge, a third party might confront with difficulties while trying to verify whether the whole knowledge was transferred, as agreed in the agreement. These inability to properly inspect the transfer of the tacit knowledge might encourage the parties behave opportunistically. The transferor, usually the licensor, might try to transfer only part of the technology, or to transfer it with his second-best men or measures. The receiver, usually the licensee, on the other hand, might try to avoid paying the entire required amount after receiving the desired technology and rescind the contract, since he cannot return the knowledge due to its assimilative feature.

As I showed above, the general contract law does not deal with these issues properly. However, usually the parties are aware of these problems and they try to address them within their contractual relations. For example, by bundling the transfer of know-how with a patent or with other inputs, by signing long term agreements or by the way the transferee pays for the technology. Each of these solutions, as I claimed earlier, has its own problems.

As can be derived from the Technology Transfer Block Exemption Regulation (TTBE), the EU legislature is aware of this issue and its inherent problems. Yet, the EU legislature does not try to solve the difficulties occur out of technology transfer contracts containing tacit knowledge

directly, rather it deals with those agreements in the framework of a statute distinguishing between competitive and anticompetitive agreements under the EU competition law.

Since, in my opinion, a proper solution for the difficulties arising from technology transfer agreements containing tacit knowledge does not exist, in this paper I propose a few solutions for these problems. Unfortunately, the first best solution of protecting the knowledge itself is almost impossible due to several reasons, as discussed above. Therefore, I propose second best solutions which should be adopted both by the courts and by the lawmakers. In my view, these solutions, which may protect the parties and the transmission of the knowledge, are fair and important as they can address most of, if not all, the difficulties, discussed earlier.

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