

# The Role of New Institutional Economics in Licensing Contracts

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## Abstract

*New Institutional Economics (NIE) provides one of the foundations for licensing contract design. Predicting the performance of contractual relationships is mostly built on (NIE) insights into how agency and moral hazards, dynamic capabilities, and institutional environment influence the process of licensing agreements. But this school of thought has been less concerned with social behaviors—phenomena in which sociology scholars are deeply interested. Understanding non-contractual behaviors from relational contract theory is vital to the prevention of opportunism.*

**Key words:** licensing contracts, New Institutional Economics, non-contractual behaviors, relational contracts.

## Introduction

The exchange of technologies and technological knowledge— through, partnerships, licensing, and cross-licensing contracts—have becoming main features of a new organizational phenomenon (Mowery et al, 1998). Accordingly, organizations are gradually changing their strategies to technology trading and licensing. Thus, licensing activities appear to be increasing nowadays. For example, since 1980, it is estimated that “licensing of innovations has contributed to the establishment of 2, 200 firms, creating between 250,000 and 300,000 jobs and has added 30.40 billion dollars annually to the U.S. economy” (Karlsson, 2004, p.11). How the intellectual property is licensed determines how organizations will benefit from a relationship. By increasing understanding of the relationship between type of licensing contracts and relational behaviors, in particular, non-contractual behavior can be vital to enhancing contract efficiency.

Research across new institutional economics has proposed different models of contractual behavioral patterns. These behavioral models differ. Some are founded on informed rationality or

psychological variables (Simon, 1961), and others emphasize contextual factors from individual experiences to organizational strategy (Cohen & Levinthal, 1990). Areas of difference and similarity among various theoretical approaches and their practical implications can be illustrated by describing how practitioners engage in their contractual relationships.

Building on insights from new institutional economic corroborated by recent evidence, a new social mechanism is required (Jone et al., 1997). Both economic and social scholars emphasize an economy that is based on both transactional cost and social relation of contract enforcement, where collaborative relationships increase both productivity and exposure to hold up. The fundamental collaboration challenge nowadays is how to identify non-contractual behaviors—the behaviors under the deal rather than detailed in the contract.

The purpose of this study is to strengthen academic understanding by investigating behavioral criteria and inducting schemes in light of theoretical approaches. To do this requires an expanding new institutional economic literature research to connect knowledge transfer and non-contractual behaviors. The result of the research would yield an important insight for improving the innovation speed and efficiency in organizational behaviors.

As an introduction to its theme, this paper will first present short reviews of the earlier contract laws. Then, the paper covers new institutional economics perspectives on licensing. Lastly, the paper examines the limitation of existing literature and how non-contractual behaviors have great influence in licensing agreements.

## **1. Contract Law and Licensing Contracts**

The complexity of practicing technology licensing in Knowledge Economy requires a more detailed understanding of contract laws. The problem of licensing contracts often refers to the breach of contract laws—a promise of agreed-upon the exchanges within a certain period of time. For example, if licensors act today to grant their inventions, and licensees take the actions; both agree on the exchange of the invention by paying the licensors royalty or providing a return service. How can licensors be sure that licensees will in fact do as they promise? In order to cope with this licensing problem, organizations have to focus on the role of enforcement mechanisms to support the enforcement of contracts. Contract laws are one of major enforcement mechanisms that regulate licensing agreements. Without this greater detail and sophistication in

understanding of these laws, researchers cannot investigate the relative factors and develop useful theories for improving licensing practices.

Licensing practices require both licensor and licensee to be contractually bound by the agreements that are explicitly written, based on the expectations of both parties (i.e., a classical contract). A classical contract states a general rule for trading practices. For example, licensees need to pay a royalty so that licensors will not sue for infringement. Under the classical contract, the subjects of trading or exchanging assume to be a short-term, specific and limited content in a given of time (Macneil, 1978). For this reason, classical contracts do not predetermine future selection processes. With increasing duration and complexity of licensing practices, the classical contract agreements are often incomplete. Licensing contracts have begun to include the notion of long-term contractual relations with a specified plan and the flexibility—a neoclassical contract (Macneil, 1978). This type of contract Nowadays Knowledge Economy has opened up the world and facilitated the flow of information and knowledge; thus the speed and complexity of business relationships have increased, as well as the diversity of technological transactions. This requires the greatest adjustment of the licensing contract. The emerging licensing practices have shifted from a single and stable relationship to multi-cooperative relationships. Thus licensing contracts have been refined as a sophisticated social relationship of exchanging—relational contracts (Macneil, 1980). The relational contract is well known by its use of norms, or behaviors shared by a social relation system that creates the force of a social obligation rather than a legal sanction (Macneil, 1983).

To understand the dynamics of licensing activities, it is essential to understand the classical, neoclassical, and relational contract linkages of licensing negotiations. When drafting the licensing contract, organizations have to develop a relationship with their contractual parties that is characterized by a classical contract (including royalty payment, property rights and obligations, and the like) and a relational contract (including shared values, norms, mutual expectations, and the like). The licensing contract involves these classical and relational contracts. As Ring and Van de Ven (1994) note, licensing contracting should not be considered as a discrete transaction, rather an ongoing relationship with both explicit and implicit components.

Even though relational contracts offer an important advantage over classical or neoclassical contracts, implementing the best feasible licensing contract requires understanding different types of licensing. Depending on the licensed rights, fees and royalties, duration of license, and place, there are many different types of licensing contracts and many different ways to reach the contractual agreements between licensor and licensee. A different license may greatly affect contractual behaviors.

Although the contract presented above illustrates that licensing has grown to become a highly visible strategic alliance, there have been few empirical analyses of existing contractual agreements in theoretical developments (Masten & Saussier, 2001). Until recent, new institutional economics studies have emphasized different categories of contractual relations. These studies concentrate on the theoretical developments in understanding the licensing regimes.

## **2. The Notion of Licensing Contracts in New Institutional Economics Analysis**

New institutional economics was introduced by Williamson (1975). He extended its origins from Coase's "the theory of firm" (Coase, 1937), along with contributions by Simon (1947). Coase, Williamson, and North are the best-known representatives of this new school. New institutional economics is an interdisciplinary doctrine combining economics, law, organizational theory, and sociology. This school of thought studies all economic phenomena such as the institutions' formal and informal rules, business practices, and contracts. It emphasizes transactional efficiency, the mitigation of opportunism, and allocation of contractual risks as the primary elements used to maximize the value of licensing contracts.

Licensing contracts are strongly related to the strands of the new institutional economic. David and North (1971), the primary new institutional economists, proposed the concepts of institutional environment and institutional arrangements, which fit well with structure of contracts. The institutional environment refers to the formal and explicit rules that guide individuals' behaviors. These rules are explicitly written in the licensing contracts as provisions and clauses. In contrast, the institutional arrangements refer to Williamson's terminology "governance structures"; those focus on how to mediate the economic relationships. The informal or implicit rules such as social norms and beliefs, which cannot be regulated by the contracts, are examples of institutional arrangements. These arrangements such as the partners

with close social ties can be superior to contractual dispute resolutions (Ellickson, 1991). Thus, informal norms, in some cases, can substitute for the contract provisions.

Today, the literature on the new institutional economics is a diverse field involving several common themes relating to licensing contracts. These include moral hazards and agency, dynamic capabilities, and institutional environment. Relevant theories contribute to each theme. For example Smith and King (2009) found that incomplete contract theory and agency theory are the most popular subjects in studying moral hazards and agency and that the two theories share a similar perspective on the purpose of licensing contracts (reciprocity). The theories, however, differ in focus: agency theory on incentive alignment; incomplete contract theory on opportunist behaviors. Both theories have greatly impacted the study of discretion behaviors in licensing contracts, which will be discussed below.

## **2.1 Moral Hazards and Agency with Licensing Contracts**

Licensing contracts are contingently incomplete because contracting parties are unable to fully foresee all of their rights and obligations under the contract (Williamson, 1985). The processes of drafting licensing contracts require organizational alertness and judgment beyond uncertainty. Thus, the licensing processes are viewed as a discovery process, which involves the notions of asymmetric information—one party involved in the transaction with another, has more or superior knowledge and information than the other. This causes two major problems in licensing contracts: faulty agency relationships and moral hazards. For example, when asymmetric information exists, it can potentially harm the contractual relationship, as one with more information can take advantage of the other's lack of knowledge and thereby manipulate the other party. The literature has identified two key theories relating to asymmetric information: (1) incompleteness theory, and (2) the agency theory (Brousseau & Glachant, 2008)

Incompleteness theory focuses on the contractual processes of how the transactional costs are developed and how the parties renegotiate the terms of their contracts. In so doing, the theory intertwines organization boundary issues with the ownership of technology and the strategic-oriented approach to licensing. Moreover, agency theory focuses on the information systems, outcome uncertainty, incentives, and risk, particularly with complementary perspectives.

### *Incomplete Contract Theory*

As early as the 1930s, Coase was the first economist to examine the idea that the coordination cost exists within the various coordination mechanisms (1937); this became the core concept of contractual theories. Following his analysis, Williamson (1985, 1991), has focused on governance mechanism in relation to transaction cost. He assumes that organizations are profit oriented and that minimizing costs are always the primary concern. The nature of implementing contract agreement highly depends on how the governance mechanisms mitigate the cost of each transaction. Williamson (1985) also extended neoclassical economics by introducing the notion of incomplete contracts— the contracts are inevitably incomplete, and they rely on control rights to reduce opportunistic behaviors.

The reasons for incomplete contracts are varied. One of the reasons is related to the costs of writing a contract, such as the direct costs of time and effort spent negotiating. Crocker and Reynolds (1993) discovered that the degree of incompleteness is influenced by the contracting cost. The increased contracting costs would lead to more incomplete agreements. In addition, the contract is incomplete when both contractual parties understand that their transaction will be based on speculation. Hart (1995) emphasized that the degree to which contracts are incomplete depends on how contractual parties anticipate the hazards of opportunistic behaviors.

The issues of asymmetric information have also received significant attention in the recent economic literature. According to Ayres and Gertner's analysis (1989), contracting parties may sometimes leave contracts incomplete on purpose. When the parties negotiate a contract, they always anticipate that they may need to modify later. As a result, the parties choose terms that will structure the subsequent outcomes in favor of future bargains. In this regard, Bernheim and Whinston's research (1998) followed the study mentioned above. They focused on the incompleteness of strategic alliances.

Another group of economists concentrated on the issue of the allocation of property rights (Grossman & Hart, 1986; Hart & Moore, 1990; Aghion & Tirole, 1994). They predicted that licensing contracts would be of necessity incomplete contracts due to the moral hazard problems (opportunism). Moral hazard effect is an important determinant of contract duration because it depends on how the two parties make a reciprocal commitment. Such a commitment becomes the challenge of a managing agency relationship.

### *Agency Theory*

Since the publication of Jensen and Meckling's seminal work in 1976, agency theory has become an important topic in the modern economic literature. The theory refers to the issues of uncertainty and the conflicts of interest in dealing with partnerships. In more specific terms, agency theory is derived from the issues of self-interest with the delegation of authority in any cooperative relationship. For example, principals (licensors) want the agents (licensees) to act in the principals' interest; the agents, however, are expected to have their own interest, and as a result, they may not act in the principals' best interests. Conflicts of interest cannot be avoided in contractual relationships. Agency theory shows how contracting parties design contracts to minimize the costs associated with such problems according to two key concepts: (1) asymmetric information (Eisenhardt, 1989) and (2) creation of incentives (Jensen, 1976). The first illustrates the problems of information processes and how these problems affect the form of the contract and how the costs of contracts can be minimized. The latter focuses on how market and institutional mechanisms affect the contracting process. Many theoretical studies have been based on these two concepts to examine the challenges of designing licensing contracts (Gallini & Wright, 1990; Jensen & Thursby, 2001).

Licensing contract tends to involve information asymmetry—one party has more or better relevant information than the other. This creates an imbalance of power in transaction that would cause cancellation of the licensing deals. Examples of this problem are adverse selection (hidden information) and moral hazard (hidden action) (Arrow, 1985). The adverse selection refers to the ignorance of the party who lacks the information to negotiate a contract agreement, whereas moral hazard refers to the ignorance of the party who will be cheated. For instance, adverse selection engages the circumstance in which the licensees have intention to hide their information from the licensors. It is impossible for licensors to know *ex ante*, the private information of licensees, such as their preferences or the limits of cost. Consequently, the licensors cannot fully ascertain whether or not the licensees are interested in their respective properties. That raises the conflicts. In general, moral hazards arise between the parties with a conflict interest. Moral hazards can be present when licensors provide misleading information about their properties and cause the licensees to take unusual risks in the contract settlement.

Crama et al. (2006) examined the determinants of licensing contracts in relation to the potential adverse selection and moral hazard problems. They found that moral hazards are not directly harmful to the value of the licensor, but they can create an additional value loss when

adverse selection is involved. Moreover, Bhattacharyya and Lafontaine (1995) indicated that the problems of moral hazards are related to the royalty rates, which are based on profit or revenue sharing. In general, the licensees have power to control royalty rates. Since licensees usually have better information about the product market than the licensors, they tend to overestimate the risk. As a result, higher sale variation is anticipated by the licensees, and that affects the royalty rate. This rate is commonly used as an explicit incentive mechanism.

The issue of incentive mechanism goes to the heart of licensing contracts. By far the most convincing explanation for agency theory is based on incentive argument. All contractual behaviors are related to an incentive such as the expectation of a high economic return. For example, the licensors license their intellectual property A rather than B because they expect A to result in better revenues. Over time, agency theorists have examined the licensing incentives by investigating the phenomenon of self-interest. They assume that contractual parties are motivated by self-interest to act rationally (Bergen, et al., 1992; Ellis & Johnson, 1993). That is, the licensees are entitled to all the profits after deducting the overall costs that include royalties to the licensors. Aghion et al. (1994) and Amit et al. (1990) view the contract terms as an incentive tool for the licensees' decision to commercialize the licensed proprieties. According to their analyses, the agency theory is characterized by self- and collective- interest.

A significant number of academic researchers have relied on agency theory to analyze a variety of licensing related issues. These issues are mainly related to contractual parties who are engaged in cooperative behavior but have conflicting goals and differing attitudes about managing the risks (Eisenhardt, 1989). On the other hand, the existing literature shows that licensing processes also depend on the overall strategic goals and dynamic capabilities of organizations. These capabilities influence subsequent licensing performances.

## **2.2 Dynamic Capabilities and Licensing Contracts**

The licensing activities require a capabilities perspective. This perspective allows researchers to understand such issues as the dynamics of the modern organization, in particular, the costs and benefits of licensing deals. Licensing contracts are clearly a complex phenomenon. Describing this dynamic social process is a very demanding task. The task requires organizations to analyze their internal and external capabilities and resources. Of the organizational theories *the resource-based view* (Penrose, 1959; Wernerfelt, 1984), a more recent *dynamic capabilities view* (Teece et



al., 1997) and *property right theory* (Demsetz,1967; North,1990; Eggertsson, 1990) emphasize the roles political power and institutional environment; these theories are central to understanding the motivation of licensing. This present study analyzes these motivations, the contractual behaviors and the processes of the licensing deals.

The dynamic capabilities research has focused on predicting the factors that have impacted the licensing formation. For example, Contractor (1984) examined the factors involved in making licensing decisions, and Kotable et al., (1996) identified how past history of licensing affects the licensing deals. These studies show that resources and routines together with dynamic capabilities are the key factors to determine the competitive advantage. Especially, resources and capabilities play an important role in licensing decision-making at the organizational level. In the following section, this present study takes the concept of organizational resources as the starting point to develop conceptual linkages between the licensing and the organizational literature.

#### *Resource-Based View (RBV)*

RBV emphasizes the strategic importance based on resource use and deployment. The theory assumes that organizations rely on their collections of resources such as technical know-how, management skills, capital, and reputation to gain their competitive advantages (Wernerfelt, 1984). These resources should be valuable, rare, imitable, and non-substitutable, characteristics that somehow can be obtained through external partnerships (Barney, 1991). Therefore, licensing contracts, strategic alliances, are formed when organizations are in weak strategic positions for which they need new resources from others in order to gain new capabilities (Barney, 1991; Eisenhardt & Schoonhoven, 1996). Under RBV, the main function of licensing contracts is to secure complementary resources, thereby allowing the organizations to guarantee future economic benefits. For example Rothaermel (2001) showed that the biopharmaceutical industry has achieved higher performance when licensing drug formulas to its cooperative partners.

Nowadays, self-assessing resources or capabilities can boost competitiveness in the global economy. Licensing has become a more and more important means for organizations to rapidly expand capabilities and enter new markets. Different resources or capabilities by which those organizations are operating will influence the context of licensing contracts. For example, Das and Teng (2002) investigated four major aspects of strategic alliances and contractual structures. They found that if strategic partner primarily contributes intellectual property resources such as

know-how and patents, organizations will prefer a bilateral contract-based alliance. Exclusive contracts in the chemical, pharmaceutical, and toy and entertainment industries are good examples. If both partners primarily contribute knowledge resources such as scientific information and skills that can effectively enhance the technical systems, organizations will prefer a multilateral contract-based alliance. This phenomenon is exemplified by cross licensing agreements in the semiconductor industry

As stressed in the resource-based view, there is no single organization that possesses an infinite portfolio of resources. New high-tech industries are particularly concerned with the acquisition of new knowledge in order to gain complementary assets (McDougall et al., 1994). According to Teece (1986), there are three types of complementary assets: generic, specialized and co-specialized. The assets are defined as follows:

Generic assets are general purpose assets which do not need to be tailored to the innovation in question. Specialized assets are those where there is unilateral dependence between the innovation and the complementary asset. Co-specialized assets are those for which there is a bilateral dependence (p. 289).

The concept of complementary assets predicts that licensing different complementary assets are likely to have different types of contractual relationships. For example, in a biopharmaceutical licensing between a pharmaceutical laboratory and a pharmaceutical manufacturer, the assets are likely to be co-specialized. The laboratory invents a new drug that needs manufacturing and marketing support, while the manufacturer needs the laboratory to develop a drug successfully to get its sales revenue. Breach of the licensing agreement will have negative consequences for both parties. The resource-based view offers a new perspective by demonstrating that the effectiveness of licensing relies on whether the licensees and the owners of complementary assets share the greatest degree of independence.

#### *Dynamic Capability View (DCV)*

The Dynamic Capability View of the firm extends the perspective from the RBV. The theory is first defined by Teece et al. (1997) “as the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (p. 572). While the RBV focuses on the strategic perspectives in regard to the characteristics of the resources, the

DCV focuses on the constant adjustment of these resources to maintain their market relevance. Later, Eisenhardt and Martin (2000) note that dynamic capabilities can be viewed as a set of specific and identifiable processes such as strategic alliances and product development, which often are embodied in a variety of licensing practices. Thus, technology licensing activities can be addressed through the lens of the dynamic capabilities theory that involves path dependence (recurrent patterns of behavior and operating routines) market and competitive conditions, and performance outcomes. Licensing contracts are often long term and need greater recognition of path dependence to ensure the efficient processing of recurring transactions.

A number of biomedical alliance studies found that biotech laboratories use the licensing contract for funding, while the pharmaceutical manufactures use the license granted by them to gain substantial revenues (Powell, 1996; Arora, 1997; Anand & Khanna, 2000). Given these circumstances, large pharmaceutical manufactures tend to provide long-term contracts for specialized biotech laboratories to discover and develop drugs. Regardless of the contract duration, past behaviors and routines (Kim & Vonortas, 2006), the size of the organization (Gambardella et al., 2007)-and the commercial channels (Kollmer & Dowling, 2004) are likely to be the major criteria influencing licensing propensity.

The framework of DBV opens up a new opportunity to research innovation and commercialization. It considers licensing contracts as a significant tool to commercialize the technology that involves organizational behaviors to develop dynamic capabilities. These capabilities can be developed through licensing activities such as licensing as a process of product development and licensing as a means to obtain potential revenues in the achievement of a sustainable competitive advantage. The DBV also assumes that the development of dynamic compatibilities requires analyzing the role of licensing formation (purpose of licensing), the role of licensing structures (form of licensing), and the impact of licensing performance (context of licensing). The literature generally agrees on that the characteristics of licensing performance can be developed through learning processes. The processes are based on past experience, expertise, knowledge transfer mechanisms, and opportunities for learning. These facilitate effectiveness in problem solving and decision-making during the negotiation of licensing agreement.

### **2.3 The Institutional Environment with Licensing Contracts**

Institutional environment has a profound influence on contemporary licensing performance. The institution provides tools such as rights, rules, and dispute-resolution mechanisms to facilitate any licensing agreements (Brousseau & Fares, 2000). The institutional framework comprises public institutions (courts) and private institutions (industry unions and trade associations). Public institutions need to establish the property rights and the contract provisions for the usage of rights (North, 1990). Public institutions sometimes do not clearly identify intellectual property rights due to differing governmental regulations. As a result, contractual parties have to find substantial resources to claim their exclusive rights to the usage of knowledge. Accordingly, private institutions need to be resourceful. For example, industry standardization committees, associations, and unions may provide resources that facilitate the description and the enforcement of intellectual property rights (Bessy & Brousseau, 1998)

### *Property Right Theory*

All economic activities involve the exchange of property rights, particularly licensing technology (Furubotn & Pejovich, 1972). Property rights are the rights to use and to transfer or exchange assets and resources in order to gain economic return (Libecap, 1989). The early property rights literature was proposed by Demsetz's (1967) neoclassical economics framework. He defined characteristics of property rights as universality, exclusivity, and transferability that foster economic efficiency. Later, North (1990), Nobel Prize winner in economics, concentrated on the interaction between institutional evolution and economic organization within a range of historical examples that showed how institutions persist and change. Property rights, such as the institutional environment, change all the time. The contracting parties assign property rights according to the nature of contracting costs under different economic conditions. In other words, property rights are enforced by judicial system, but are structured by economic interests.

According to North's theory, licensing contracts concern proposing property rights, which depend on how the parties view their economic welfare under the licensing deals. The parties must see their economic welfare improved in order to support institutional change (leverage of the properties), and each party intends to seek economic benefits under the licensing agreement. Another institutional economist, Eggertsson (1990) combined the neoclassical contract law and institutional theory in explaining the framework of property rights. He noted that the structure of a licensing contract involves the legal system, social culture, and the technical characteristics. In

a real world, the minimizing of transaction costs, the law enforcement power within a country, and the organizational strategy in rule-making are critical success factors in the development of a satisfactory licensing agreement.

The governance of licensing contracts is influenced by both public and private institutions. Thus, licensing contracts involve environmental change and human behavior. Property right is a dominant and extensively acknowledged theory based on the environmental context and human nature. It provides a rational foundation for organizations to choose the appropriate governance structure with which to transact economic activities.

### **3. The Limitation of New Institutional Economics**

The processes of designing licensing contracts have been investigated by new institutional economists from a number of disciplines each of whom have a different emphasis on studying inter-organizational relationships. Many of these investigations have involved cognitive and behavioral issues, transaction costs, market characteristics, and other evolutionary determinants of technology licensing. For instance, the transaction cost approach and agency theory focus on managing and controlling opportunistic actors. The resource-based view emphasizes cooperation with partners who have complementary resources. The institutional environment economics view of property rights has profoundly influenced the role of history and political science in the institutional environment. Arising from theories of new institutional economics, this view comprises the different assumptions about different licensing problems. The standard models of these theories are described in Table 1, Table 2 and Table 3.

[Insert table 1, 2, & 3 above here]

New institutional economics investigates the efficiency of governance structures (Groenewegen & DeJong, 2008). It attempts to emphasize exchanges rather than relationships between organizations. A license contract, however, is a combination of knowledge exchange and relational collaboration, which are often beyond what is described in the agreement. The licensing agreement process involves not only the formal contractual terms included in the agreement, but also the informal relational behaviors that generate trust and thereby transform the flow of licensing knowledge and innovative capabilities. For this reason, the literature on licensing practice should expand to include relationship and behavior theories. The problem with the existing new institutional economics literature is mostly based on the theoretical logic of

economic theories. This analysis assumes that all economic activities are profit-maximizing oriented and the contractual parties are acting to maximize their own and social welfare. The literature has largely ignored the real effects of technological characteristics (the purpose of licensing) and strategic collaboration (the form and context of licensing) in competitive intellectual property markets.

Numerous studies have criticized the framework of the new institutional economics, which remains a flourishing research area. These critics are mainly sociologists (Lindenberg, 2003) and management scholars (Pfeffer, 1994), particularly from the strategic management field (Kogut & Zander, 1992). These non-economics scholars have given a new direction to the study of technology transfers by analyzing how organizations interrelate with non-contractual behaviors to shape and direct economic action.

By definition, the non-contractual behaviors refer to non-contractual norms and moral obligations, such as trust and reciprocity that cannot be enforced through the contractual agreements (Macaulay, 1963). These behaviors must be considered when drafting licensing agreements because they can harmonize conflicts that help to sustain relationships (MacNeil, 1974). A number of studies related to non-contractual behaviors have been contributed by Walter Powell, David Stark, and Eleanor Westney who have been actively working in the field for decades. For instance, Powell (1990) noted that non-contractual behaviors such as reputation, friendship, interdependence and altruism can replace ineffectual law contracts. Further, Stark and Vedres (2004) emphasized that informal and inter-organizational relationships have played a crucial role in defining the parameters of non-contractual behaviors. These relationships are also embedded in ongoing networking through small-scale and day-to-day interplay among the flows of information, technology, and people across organizational boundaries (Westney, 1999)

Contemporary practice licensing requires focusing on an informal relationship that is developed over time. Understanding this relationship through its sharing norms or the patterns of accepted and expected behaviors can strengthen the social obligations. The major contribution of non-contractual relationship is embedded in the relational contract discipline.

## **Conclusion**

Licensing is an essential means for organizations to access complementary technologies, to build innovation capabilities, and to maintain competitiveness. Nowadays, organizations are primarily based on a wide range of licensing contracts to spread the risk and expense of development.

The nature of licensing contracts has mainly been investigated through new institutional economics disciplines with a different approach—agency and moral hazards, dynamic capabilities, and institutional environment. Each approach contributes different theories. For example, transaction costs theory has elaborated on causes and effects of the moral hazards and asymmetric information that result in the incompleteness of contracts (Hart, 1995). Moreover, institutional economics (North, 1990; Eggertsson, 1990) has drawn attention to property right theory related to environmental aspects. The cited researchers show that the environmental rules and routines are often vital to licensing technology. Another discipline resource-based view focuses on the motivation of organizations to seek particular resources to secure their competitive advantages (Penrose, 1959; Wernerfelt, 1984). Yet, while new institutional economics is based on “extrinsic” types of motivation (task-oriented), the fundamental contracting challenge in the real practice is mostly related to “intrinsic” motivation (relationship-oriented) that focuses on avoiding opportunism, which may have been ignored.

Opportunistic behaviors often jeopardize the primary justification for licensing contracts. Based on the previous discussion, one can see that these behaviors will continue to act as supreme motivators that shape and form the licensing provisions. A growing number of social economists now have recognized “relational contract” theory as a significant analytical framework for understanding opportunistic behaviors. In this regard, the theory provides a framework for developing methodologies for combating opportunistic behaviors. This can extend the new institutional economics analysis to ensure efficient coordination of licensing agreements.

## Appendix

Table 1 the Factor and Assumption of New Institutional Economic Theories

Authors	Theory	Assumption and Explanation
Coase 1937; Williamson 1979, 1981,1985	Transaction Cost Theory	<p style="text-align: center;"><u>Factors:</u></p> <ul style="list-style-type: none"> <li>-asset specificity, bounded rationality, opportunism</li> <li>-production, transaction cost and governance structures</li> </ul> <p style="text-align: center;"><u>Assumptions:</u></p> <ul style="list-style-type: none"> <li>-technology licensing is a cost efficient solution to the risk of alliance transaction</li> </ul>
Williamson 1985,1991; Grossman & Hart 1986; Ayres & Gertner 1989; Hart & Moore 1990; Aghion & Tirole 1994; Hart 1995	Incompleteness Theory	<p style="text-align: center;"><u>Factors:</u></p> <ul style="list-style-type: none"> <li>-uncertainty, moral hazards, opportunism</li> <li>- limited human cognition and judgment</li> </ul> <p style="text-align: center;"><u>Assumptions:</u></p> <ul style="list-style-type: none"> <li>-gain-loss asymmetries and role-biased expectations</li> </ul>
Jensen & Meckling 1976; Arrow 1985; Eisenhardt 1989; Gallini & Wright 1990; Jensen & Thursby 2001	Agency Theory	<p style="text-align: center;"><u>Factors:</u></p> <ul style="list-style-type: none"> <li>-unit of analysis is a contract</li> <li>-relationship between licensors and licensees</li> <li>-interest conflicts exist and affect strategy preference</li> </ul> <p style="text-align: center;"><u>Assumptions:</u></p> <ul style="list-style-type: none"> <li>-informational asymmetry</li> <li>-licensing agreements are based on opportunity seeking</li> <li>-people are bounded and acted for their own self-interest</li> </ul>
Penrose 1959; Wernerfelt 1984; Barney 1991;	Resource-Based View Theory	<p style="text-align: center;"><u>Factors:</u></p> <ul style="list-style-type: none"> <li>-resource characteristics</li> <li>valuable, rare, imperfectly imitable, non-</li> </ul>



		<p>substitutable</p> <p>-resources containing all characteristic will easier lead to licensing deals</p> <p><u>Assumptions:</u></p> <p>-a value of a source is defined by institutional environment and market demand</p>
Teece 1991; Powell 1996; Arora 1997; Eisenhardt & Martin, 2000;	Dynamic Capabilities Theory	<p><u>Factors:</u></p> <p>- resource development and renewal</p> <p>- absorptive capacity, environmental turbulence, agility</p> <p><u>Assumptions:</u></p> <p>-the ability to adjust the mix resources and thereby maintain the sustainability of the competitive advantage</p>
Demsetz 1967; North 1990; Eggertsson 1990	Property Right Theory	<p><u>Factors:</u></p> <p>-universality, exclusivity, and transferability</p> <p>-institutional environment change, history, political power, legal system</p> <p><u>Assumptions:</u></p> <p>-property rights are determined by institutional mechanisms that establish a right system</p>

Table 2 Factor Influence Licensing Technology and Theoretical Explanation

Variables	Incompleteness Contract Theory	Agency Theory	RBV	DCV	Property Right Theory
Time to market			•	•	
Cost minimization			•	•	
Risk and uncertainty oriented	•	•			

Moral hazards	•	•			•
Learning capabilities			•	•	
Licensing experiences	•			•	
Competitiveness advantage			•	•	
Political policy and regulation					•
Inter-organization relationships		•			

Table 3 the Comparisons of Two Major Licensing Perspectives

Methodological Choices	New Intuition Economics Approach	Social Relation Approach
Factors	Investigate efficiency of governance forms	Explain exchange behaviors
Assumptions	Transaction cost matter	Social relationships
Unit of Analysis	The exchanges	The relations

Source from Mouzas & Blois (2008) *Relational Contract Theory: Confirmations and Contradictions*

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