

Technology Transfer Principle & Strategy

Chapter 3: Technology Transfer Subjects

- Determine the comprehensive meaning of the technology definition
- Classify technology transfer subjects
- Determine the differences between the classified technology transfer subjects

Part 1: Definition of Technology

According to the World Intellectual Property Organization (WIPO) technology is defined as “the systematic knowledge for product manufacture and service provision in industry, farming and commercial fields,” and knowledge is reflected in inventions, utility models, designs, and in data forms. Knowledge is also shown in industrial plants, design, installation, operation, and maintenance of equipment, management of industrial & commercial corporations, and the technical skill & experience of experts for those activities. In this definition, it must be noted that technology comes from knowledge. However, not all knowledge is included. That is, it must be able to be transferred and it must be systematic knowledge that can satisfy needs & problems that arise in special fields of human activity including industry, farming, and commerce. So, there are 3 standards in the definition of technology.

First, knowledge must be systematic. This means that it must be organized in terms of providing solutions to problems.

Second, knowledge must exist in certain places like in someone's head or in documents, and must be able to be presented, so no matter what it means it must be able to be transferred from one person to another.

Third, it must have purpose-orientation, so that it can be utilized for useful purposes in industry, farming, and commercial fields.

An invention is systematic knowledge, an example of knowledge which is formed to be able to solve technological problems. The solutions to problems in the case of patented inventions are described in document form. These documented forms are patent documents that are published and released by government authorities. Also, these documents give exclusive right to the owners. These documents are comprised in such a way as to enable the explanatory details of the solution to be transferred to other people. Other forms of expressions such as utility models, licensed patents, and registered photos, designs under a certain law have similar functions. These inventions, utility models, and designs are described in a particular method and form and are special technologies that have been publicized.

Part 2: Types & Scope of Technology Transfer Subjects

Assets that have economic value can be classified into tangible assets, which have specific form, and intangible assets, which do not have specific form. Here, the technologies subject to transfer are classified as intangible assets.

The concept and scope of intangible asset technology is very wide and flexible. In the narrow sense it means the manufacturing technique on the manufacturing site, confidential technology, know-how etc, and in the wider sense it also means the entire intellectual property that has economic value. In the technology transfer promotion law enacted on January 28, 2001 aimed at facilitating technology transfer & distribution, 'patents, utility models, designs, and semiconductor allocation designs registered under the patent law or other related laws, technology incorporated assets, software, technology & designs, technology information, and other technology that are intellectual properties' are defined as technology adopting a wide meaning technology concept, and these are taken as objects of technology transfer.

[Figure 1] Scope of Knowledge

Knowledge
 Simple knowledge
 Knowledge with economic value (intellectual property)
 Intellectual property protected by law (=intellectual property rights)
 Assets not given rights to by law

Technologies subject to technology transfer are as follow : 1) registered patents, utility models, designs, and trademarks, 2) (non-registered) know-hows including technological information or data of corporations, technological services, technological support etc., 3) other protective rights of computer software, semiconductor chips etc. (Refer to <Table 1>)

[Table 1] Technology transfer subjects

Classification		Details of Rights
Industrial property rights		Patents, utility models, designs, trademarks
Copyrights		Property rights, personnel rights, neighboring rights
Neo-Intellectual Property Rights	Property	Advanced industrial property rights: semiconductor chip circuit design rights, life science technology rights
		Industrial copyrights: computer programs & software
		Information property rights: trade secrets (know-how) database rights, new media rights

Industrial property rights, know-how, computer software etc., which has often been referred to as the major technology transfer subjects, will be briefly mentioned.

(1) Industrial Property Rights

These are rights in relation to competitiveness in the industry and are classified into patents, utility models, designs, and trademarks.

Patents

A patent is a right given to the inventor when objects or methods, which did not exist before, are invented for the first time ever. An invention is a idea that enables the actual resolution of special problems in the technology field, and in line with its characteristics it is protected by the "invention patent," and is largely classified into inventions of objects and inventions of manufacturing methods.

For inventions to constitute the requisites of invention patents, the patent applied invention must first satisfy the conditions of inventions as prescribed in the patent law, and must be 'highly advanced as a creation of a technological idea using the law of nature.' (Enablement requirement)

Second, it refers to those actually being utilized in industry (production industries including

manufacturing, mining, agriculture, fisheries etc.), and even if they are not being utilized, they must have potential use for the future. (Industrial applicability)

Third, the invention should not yet be known by the community in general, and should not have been publicized domestically before patent application, nor should it be inventions that have been demonstrated, and they must not have been described in publications released domestically or internationally. (Novelty)

Fourth, they must be inventions that cannot be made by people with common knowledge in the relevant technology field based on existing technology, and must possess advancement potential in terms of specialty of purpose, difficulties in composition, prominence in effect based on the 3 factors, purpose, composition, and effect. (Inventive Step)

Utility Models

A utility model is the design itself of objects that have been improved to make the utilization of already invented objects more convenient and useful. The utility model is different to the characteristics of the patent in 3 aspects. The utility model requires less advancement potential than patents, and the maximum protection period of utility models are less than that of patents as stated in the patent law. Also, the costs required to obtain and maintain utility model registrations are generally lower compared to patent applications.

Designs

The designs combines the image, shape, and colors of an object, and expresses the sense of quality through sight. It is mainly a decoration or aesthetic exterior of objects, and the decorative aspects comprise of the form, shape, and colors of the product. The product must be able to be reproduced by industrial means, and that is why the design is called “industrial.” For a design to be registered (protected) it must possess industrial aspects, originality, and creativity.

Trademarks

Trademarks are a combination of symbols, texts, figures, and colors to distinguish a product from others by. Trademarks are “signs to individualize a product of a corporation, and distinguish it from the products of competitors” and are largely classified into trademarks, service marks, collective marks, and business emblems.

(2) Know-how

Know-how is the exclusive possession of non-publicized trade secrets, proprietary information that is a non-registered industrial property right, and consist of technologies requiring high precision which are subject to concern for patents appearing with similar technology being publicized. They are the secrets of a company wishing to hold them exclusively. These include special product technology or manufacturing methods, design plans or circuit plans, technology specifications, equipment operation guidelines, standards for combining or integrating, cost accounts, income & expenditure accounts etc. Patents are tangible rights on a macro level, but technology that cannot be patented is left to exist as know-how, and is an intangible right on a micro level comprising of special technology, and knowledge of the experience and sense of functional personnel.

[Table 2] Legal distinction between patents and trade secrets

Classification	Patents	Trade Secrets (Know-how)
Legal characteristics	Exclusive right in return for publication	Secret maintained, managed protection of real situation
Protection subject	Invention from advanced technological ideas using the law of nature (new technology)	Production methods, sales methods, other technologies or management information useful in business activities (regardless of

		whether it is new technology)
Procedure	Registration required	Registration not required
Valid period	20 years from application	Until the secret is released
Exclusiveness	Existence of identical patents is not possible, and can exercise rights of restriction based on force, legal enforcement	Identical trade secrets can exist, and exercise of restriction rights is not possible

(3) Computer Software

Computer software is a series of instructions which can order, execute, and achieve a certain function, task, or result through an information processing machine in the case where it is used as a medium that can be identified by a machine. The computer software, which is the instructions & the system needed to operate a computer, is the computer program & and other materials made in relation to the usage of the computer, and the computer program is the major constituent. Computer software falls into the new intellectual property classification along with know-how (trade secrets), and business models, which have recently become significant, and the program law is applicable.

Like the above, technology transfer subjects have been prescribed and concisely explained. And, apart from this, the entire intellectual property, which has economic value, has been included in conducting technology transfer as technology transfer subjects. Modern times is commonly called a society of knowledge and intellectual value, meaning natural objects and objects visible to the eye but the unseen knowledge of the brain and the application of knowledge are the main focus of modern society. And, attention is given to other applications which affect awareness of economic value, and these are called intellectual property. Intellectual property which meets the predetermined requirements and develops into a legal right is called an intellectual property right.

Intellectual property in current society is important in solving all the problems in modern society especially economic problems but there are standard limitations in their creation and production, hence in most cases it can be seen that demand is larger than supply. Its economic value is dramatically increasing compared to the past and in proportion to this, an era will come where intellectual properties will turn into money.