Patent for Services
ABSTRACT
by
Kurt Zachhuber

Since the 1980's, there has been a dramatic shift toward a service economy. Therefore it seems that today's economic value is no longer being addressed correctly, and it is now advisable to initiate legal adjustments in order to fit the realities of the economy.

Due to the continuous increase of services in almost all economies and the dominance of the Gross National Product (GNP) in leading (developed) economies, as in the United States where services comprise ~75 percent of the GNP, and Germany, at ~60 percent, the issue I will represent in this thesis is "patent for services."

Certainly the main questions are:

- Is it possible to obtain a patent for services?
- What are the requirements in order to receive a patent for services?
- What advantages will service businesses realize if they qualify for patents for services?
- What economic harm would come to a nation if it excluded service businesses from patent protection?
- What other issues are involved in this context?

Before I address the issues mentioned, I would like to make an analogy within the area of property rights.

> The constitutional guarantee of "equal protection of the law" means that no person or class of persons shall be denied the same protection of the laws which is enjoyed by other persons or other classes in like circumstances of liberty, property, and the pursuit of happiness.[1]

Doctrine simply means that similarly situated persons must receive similar treatment under the law. Yet I would like to ask why technically educated persons then have the unique advantage of obtaining patent protection? Sure, everybody who invents a technology may obtain a patent right for instance in the United States under Patent Act 35 U.S.C.A., Sec. (102). However, technically educated people are favored based on the fact that they are most likely to have the necessary skills in technology.

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[1] People v. Jacobs, 27 Cal. App. 3d 246, 103 Cal. Rptr. 536, 543; 14th Amendment, U.S. Constitution.

When everybody is eligible to acquire property — such as a house, or even intellectual property rights such as copyrights, trademarks, trade secrets and so on — regardless of age, sex, color, or education, why are only patent protection rights different? Patent law was introduced to improve the nation's wealth by implementing the patent theory[2] — comprising the theory about property: rewards, incentive, and disclosure — at a time when manufacturing played the dominant role in producing the nation's wealth. Why does the patent law still favor technology-oriented inventions (which come mostly from engineers and scientists), rather than provide for and esteem inventions in the field of services?

My hypothesis is that with legal adjustment, all businesses would benefit because it would protect all inventions equally; it would provide new challenges for all participants to overcome or license such patents, and it would provide incentives and rewards. It may support a clarification within the copyright law, where much confusion exists, and finally it would assist the economy as a whole based on reducing legal uncertainty as well as reducing the risk of investors, a substantial barrier so long as legal insecurity exists. It would also assist international trade because the transferability of inventions is valuable almost exclusively when they are protected legally.

The conclusion is that in the United States and Europe, patentability is primarily dependent on the invention. However, according to *Collins English Dictionary* and *Black's Law Dictionary*, an invention is not used exclusively for technology. Hence, it seems that often it is a question of the definition: what is an invention and what is not? Furthermore, in business terms, services are equal to products in that they satisfy a variety of needs, but because products are tangible, they are easier to examine and certainly technology is a part of all tangible products. Apparently these ambiguities are the real barriers that must be overcome in order to succeed at patenting services.

Even today, the issuing of patents for services is not considered. However, the probability of patent protection for services varies from economy to economy; they may be a potential source for developed countries to enhance their competitive advantages. This is true particularly because the cost of services is a major cost factor for manufacturing.

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[2] Machlup, *An Economic Review of the Patent System*, p. 19 ff., 1958.

If companies had the option of protecting their service inventions, they would be motivated to invest in research and development (R&D), which is a preliminary factor in increasing their inventiveness in order to improve the efficiency of services. This in turn would reduce manufacturing costs as well, based on the innovations.
However, due to the political issue, in most countries only the government has the power to generate this kind of progress. Finally, the government must serve the interests of its people, including providing a legal framework that allows a country to compete with its economic advantages, and therefore they should review the possibilities for patents for services.

INTRODUCTION

PATENTS FOR SERVICES

The original idea and purpose of patent protection was as still is, to encourage innovation through invention by individuals, who are in turn rewarded by the government because their invention provides an advantage for the state through its doctrine and usefulness.

The first recorded reference to patents seems to be in Aristotle's *Politics*, composed in the fourth century B.C. Aristotle mentions a proposal by Hippodamus, a technically trained architect. Aristotle condemns this proposal in the following passage and was especially worried about the change in regime — that could damage a society, if the changes happened too quickly, he thought —

> Concerning the matter of those who discover something advantageous for the city, to legislate that they receive some honor is not safe, though it sounds appealing; it would involve harassment and, it might well happen, change of regime.[3]

Patents are evidently appropriate only for the protection of technology. Patent Law was established in the nineteenth century in the most industrial countries in order to improve a nation's wealth. Without a gradual legal adjustment to meet the need of the nation's new challenge, then we do not need to wonder or even complain about the low improvement of efficiency and effectiveness in the service industry.

> **Myth No. 3: Service Production is primarily labor intensive and low in productivity.**
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> That belief is disputed by a fascinating recent study by the Department of Labor that ranked 145 industries according to capital per unit of output and capital-labor ratios and found that the majority of service industries were among the 20 percent that were most capital intensive. There was not one service industry in the least capital-intensive category.
> There has been considerable speculation asserting that the reason American productivity has declined is because of the shift to a service economy. Actually, another part of the Labor Department study found that service industries have had the same increases in productivity as manufacturing, or

[3] Aristotle, *Politics*, Book II, Chapter 8, lines 23-26 (C. Lord translation, University of Chicago Press, 1984).

> larger ones. It concluded that productivity declines during the period of a shift from a goods-producing to a service economy could be attributed mainly to the goods-producing industries themselves.[4]

The absence of the equivalent patents for services is, in my opinion, not just a limitation for service business, but also causes economic harm. However, I could not find anything in business literature to support my thesis. Only in the legal environment do we find documents on this issue. So I will have to defer to the legal point of view and imbue the legal interpretation with a business perspective. There are still so many issues with services that are not sufficiently generated or developed. Furthermore, there are three assumptions that I believe are wrong:

- Inventions are only technological.
- Services are performed only by humans.
- Patent protection should not be available for everyone.

[4] Ronald K. Shelp, "The Service Economy Gets No Respect," p.4, *Across the Board*, The Conference Board, February 1984.

Chapter 1
Background of Intellectual Property Rights

1.1 Copyright

Copyrights do not protect useful devices or similar things at all (even though written information in books may be most useful), rather than expression and artfulness:

> ... the right of literary property as recognized and sanctioned by positive law. An intangible, incorporeal right granted by stature to the author or originator of certain literary or artistic productions, whereby he is invested, for a specified period, with the sole and exclusive privilege of multiplying copies of the same and publishing and selling them. Copyright protection subsists in original works of authorship fixed in any tangible medium of expression, now or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. In no case does copyright protection extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work. Copyright Act, 17 U.S.C.A., sec. 102.[5]

1.2 Trademark

Trademarks and Unfair Competition. Trademarks are for consumers' protection first, rather than for business, because the customer should be able to identify the source of origin of goods or services without difficulty. This means that any company, regardless of the kind of business, has the right to defend its trademark or servicemark against infringement, to prevent the likelihood of confusion. Services are not protectable as methods of operation under 102(b).

1.3 Trade Secrets

Trade secrets are pretty fuzzy, in my opinion, whether they are secret or not. The question surely is: how do you keep it secret in the event that someone breaks a confidence? Several procedures exist for the injured party to deal with such violations. Trade secrets are quite an appropriate option for business, when the production process can be controlled without danger. For this reason, trade secrets are not very useful for services, where the customer

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[5] *Black's Law Dictionary*, Sixth edition, 1990, p. 336, West Publishing, St. Paul, Minnesota.

and perhaps the competitor as well may be present during the performance and delivery process.

1.4 Antidilution, Misappropriation, Unfair Competition, and the Right of Publicity

The law of antidilution, misappropriation, unfair competition, and the right of publicity is covered by Intellectual Property Law, but isn't related to the issue at hand, and it does not require articulation here.

1.5 The Patent and Known Theories

Patents are available exclusively to technological- and chemical-oriented inventors (private inventor or entity), when they invent something not included in the prior art (by novelty) and when the invention is useful and not obvious to an expert in the field at that particular time. *Black's Law Dictionary* defines patent as:

> A grant of some privilege, property, or authority, made by the government or sovereign of a country to one or more individuals.
> The instrument by which a state or government grants public lands to an individual.
> A grant of right to exclude others from making, using, or selling one's invention and includes right to license others to make, use, or sell it. Valmont Industries, Inc. v. Yuma Manufacturing Co., D.C.Colo., 296 F.Supp. 1291, 1294. A grant from the government conveying and securing for an inventor the exclusive right to make, use, and sell an invention for seventeen years. 35 U.S.C.A. § 154.[6]

McCarthy's Desk Encyclopedia gives the following definition:

> A grant by the federal government to an inventor of the right to exclude others from making, using, or selling the invention. There are three very different kinds of patents in the United States: (1) a utility patent on the functional aspects of products and processes; (2) a Design Patent on the ornamental design of useful objects; and (3) a Plant Patent on a new variety of living plant. Thus each type of patent confers the right to exclude others from a precisely defined scope of either technology design, industrial design, or plant variety. Patents do not protect "ideas," only structures and methods that apply technological concepts. Jones v. Hardy, 727 F.2d 1524, 1528, 200 USPQ 1021, 1026 (Fed. Cir. 1984) ...
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> ... *A Patent Analogized to a Contract.* A Patent is in effect a bargain between the inventor and the government. In return for a limited-term exclusive right over the technology defined in patent claims, the inventor discloses in the

[6] ibid., p. 1125.

> patent specification information about the new technology of the invention. Without a patent system, commercial secrecy would be the inventor's only way to prevent imitators from taking a "free ride" on the hard work of the inventor.[7]

See also 35 U.S.C.A. sec. 154, for design 35 U.S.C.A. 171 and for plant patent 35 U.S.C.A. sec. 161, and for Patent Infringement see 35 U.S.C.A. sec. 271.
However, trade secrets are not achievable for all inventions. In fact, it may be possible for a process but very unlikely for a product, if possible at all. The gist of bargaining is full disclosure of the invention for the exclusive limited time.
The patent and copyright clause, Art. I, Sec. 8, cl. 8, U.S. Constitution provides for promoting the progress of science and useful arts by securing for a limited time, for authors and inventors, the exclusive right to their respective writings and discoveries.[8]
The advantages for the economy is that this will enable others to understand the invention and be able to use it as a stepping stone to further develop the technology. And when the patent expires, the public is entitled to make and use the product. It might expire on the grounds that the patent holder did not maintain the patent protection by refusing to pay the required fees. This happens particularly in industries where the life cycle of technology is short, leading to obsolescence of the patented technology and continuous improvement. Thus, patents do not necessarily have a lifetime of 20 years. The term may also vary from country to country, depending on the kind of patent and upon whether the patent holder chooses to maintain the patent for a certain fee. Thus the argument that a patent system encourages a monopolistic economy is totally wrong. Preventing misuse and monopolistic disadvantages through compulsory licensing provisions as a remedy for some types of antitrust violations is the best known instance. But compulsory licensing does not exist for trademarks and copyrights. See also 35 U.S.C. sec. 261.
Ironically, we could ask ourselves whether lawyers, for instance, are not creative enough to invent a process for services to improve the efficiency of

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[7] McCarthy, J. Thomas, *McCarthy's Desk Encyclopedia of Intellectual Property*, p. 236, Bureau of National Affairs, Washington, D.C., 1991.
[8] Merges, Robert Patrick, *Patent Law & Policy, Cases and Materials*, The Mitchie Company Law Publishers, Charlottesville, Virginia, 1992.

their practice. Or why should McDonald's not have the availability of a patent for their new process by which they serve a customer when the idea is not already known? Of course it could now be argued as I do because McDonald's was successful anyway. I say that *afterward* it is always easy to justify something. But at the time when McDonald's started, it was not a sure thing that the corporation's huge would be protected from imitators.
Cases such as that of Federal Express pioneered in the early 1980's and like many others were successful, but we do not know how much more successful they might have been with patent protection. The assumption that many other companies, particularly small or medium-sized startups, failed because of imitation that came too rapidly from competitors and caused by lack of patent protection, cannot be confirmed, but nor can it be denied.
Furthermore, the issue of patent protection for services is not in lieu of that for technology-oriented business, rather it is an additional advantage and a challenge for technology-based industries as well.
Alternatives to patents were discussed in the past almost exclusively by attorneys and lawmakers, most of whom believed that there are alternatives. But I am not at all convinced by the arguments for alternatives because trademark, copyright, and trade secrets are not nearly as strong as protections and encouragement as patents are. Also crucial is that this kind of intellectual property protection be designed for every service — unlike utility patents — and to reduce risks for large investments, for which it is currently not quite sufficient.

The Patent: Four Theories

In their book *Lehrbuch des Patentrechts*, Bernhardt and Krasser refer to the theories:

> The Patent Theories include the following parts:
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> 1. *The Theory of property*, which means that all intellectual creation is, from the natural perspective, property of the individual who created it. A technological invention belongs therefore to the inventor because of human rights. The Intellectual Property of the inventor has essentially the same protection as tangible goods.
> 2. *The reward theory* says that everyone must be rewarded when he or she has provided the public with the use of an invention. The inventor, "the teacher for the nation," has a proportional responsibility of disclosure of technological knowledge to the public, measured in the GDP. It is the best way to provide him with exclusive patent rights for a certain period of utilization of the invention.
> 3. *The incentive theory* focuses mainly on interests of the public, in order to improve its satisfaction of needs through technological novelties, which means technological progress. This theory sees only the incentive to invent and its use, when the inventor has exclusive rights. The risk of imitation is substantial without such protection.
> 4. *The theory of disclosure* emphasizes the fact that patent protection will be granted only when the inventor discloses his technological knowledge to the public. This is a kind of contract consideration between the inventor and the government.

Following is the text in German:

> **II. Die Patentrechtstheorien**
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> Zugunsten des Patentschutzes wird seit langem eine Reihe immer wiederkehrender Argumente angeführt, die im Anschluß an Fritz Machlup,[9] der sie — zum Zwecke kritischer Überprüfung — wohl als erster in dieser einpägsamen Weise formulierte, meist in vier Patentrechtstheorien zusammengefaßt werden.[10]
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> 1. Die als **Eigentumstheorie** oder Naturrechtstheorie bezeichnete Auffassung nimmt an, jede geistige Schöpfung sei von Natur aus Eigentum des Menschen, der sie hervorgebracht hat. Eine technische Erfindung gehöre deshalb kraft natürlichen Menschenrechts ihrem Erfinder. Der Erfindung ohne seine Erlaubnis zu verwenden sei „geistiger Diebstahl". Dem geistigen Eigentum des Erfinders gebühre grundsätzlich in gleicher Weise Anerkennung und Schutz wie dem Sacheigentum. Das Patent als Ausschlußrecht sei hierfür der Natur der Sache nach die angemessene Form.
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> 2. Nach der **Belohnungstheorie** ist es aus Gerechtigkeitsgründen geboten, jeden der Allgemeinheir geleisteten Dienst nachseiner Nützlichkeit zu belohnen: Dem Erfinder, der als „Lehrer der Nation"[11] durch seine geistige

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[9] Machlup, Fritz, *An Economic Review of the Patent System*, 19ff, 1958.
[10] Eine andere Einteilung verwendet z. B. Hubmann, S. 50f.
[11] Vgl. *Spengler*, in: *Weidlich-Spengler*, S. 27; Beier, GRUR Int. 1970, 2.

Leistung und deren Offenbarung das allgemein zugängliche technische Wissen vermehre, gebühre hierfür ein angemessener Anteil am Sozialprodukt. Er sei am besten dadurch sicherzustellen, deß das Recht, die Erfindung wirtschaftlich zu verwerten, für eine bestimmte Zeit ausschließlich dem Erfinder vorbehalten wird.

3. Die **Anspornungsteorie** beruft sich vornehmlich auf das allgemeine Interesse an städig verbesserter Bedürfnisbefriedigung durch technische Neuerungen, kurz: am **technischen Fortschritt.** Sie geht davon aus, daß Erfindungen nur bei Aussicht auf einen entsprechenden Ertrag im wünschenswerten Umfang zustandekämen und genutzt würden. Die Ertragsaussicht sei aber vielfach allzu unsicher, wenn die Neuerung alsbald von Konkurrenten übernommen werden könne. Indem der Patentschutz dies eine Zeitlang verhindere und somit die Ertragserwartungen stabilisiere, steigere er wesentlich die Bereitschaft, für neue technische Problemlösungen und ihre Anwendung Mühe und Kapital einzusetzen. Der dem Einzelnen gewährte Patentschutz sei daher ein besonders einfaches, billiges und wirksames Mittel, den Fortschritt im allgemeinen Interesse zu fördern.

4. Die **Offenbarungstheorie** hebt hervor, daß der Patentschutz nur gewährt wird, wenn der Erfinder sein neues technisches Wissen der Allgemeinheit zugänglich macht. Auf diese Weise werde bewirkt, daß solches Wissen, auch wenn es meist nicht auf die Dauer geheimehalten werden könne, in vielen Fällen erheblich früher zur allgemeinen Kenntnis gelange, als man das sonst hätte erwarten dürfen. Entsprechend früher könnten die Erkenntnisse des Erfinders die weitere technische Entwicklung befruchten, auch wenn erst bei Ablauf des Patents ihre Verwertung frei wird. Das Ausschlußrecht an der Erfindung erscheint aus der Sicht dieser Auffassung als eine Art **Gegenleistung** der Allgenmeinheit für den Verzicht des Erfinders auf Geheimhaltung. Man bezeichnet sie daher häufig auch als **Vertragstheorie.**

5. Die verschiedenen Patentrechtstheorien schließen sich nicht aus, sondern stehen miteinander im Zusammenhang und ergänzen einander. Zielen die beiden ersten darauf ab, den Patentschutz als Gebot der Gerechtigkeit und die Indiviualinteressen des Erfinders als schutzwürdig hinzustellen, so gehen die beiden anderen darauf aus, seine Nützlichkeit für die Allgemeinheit darzutun. Ob sie letzlich zu überzeugen vermögen, ist erst im Licht der Einwände zu entscheiden, denen sich der Patentschutz ausgesetzt sieht.[12]

The main difference among all Intellectual Property Rights is that patents are not available for services; however, for technology or even moreso for technology-based companies, protection is available through the whole range of Intellectual Property Rights.

[12] Bernhardt, Wolfgang, *Lehrbuch Des Patentrechts*, pp. 24-25, C.H. Beck'sche Verlagsbuchhandlung, Munich, 1986.

Chapter 2
Background of Services

2.1 Definition of Services

The MIT Dictionary of Modern Economics defines "services" as:

> In an economic sense, services are any functions or tasks that are performed, for which there is a demand and hence a price determined in the relevant market. They are sometimes referred to as intangible goods; one of their characteristics being that in general they are "consumed" at the point of production. They are usually non-transferable, thus preventing arbitrage, in the sense that the service cannot be purchased and then resold at a different price.[13]

In Collins English Dictionary, "service" is defined as follows:

> 1. an act of help or assistance. 2. an organized system of labour and material aids used to supply the needs of the public: *telephone service, bus service.*[14]

2.2 The Service and Technology Business and Processes

As in many areas, the United States has recognized the need for adjustments and has pushed changes in some legal aspects already. As in the case of patent protection for computer software, the United States is well ahead of most other countries. Still, the desired result would be to develop a patent system for services both to encourage and reward invention in the largest areas of business and to make R&D investments less risky for the service industry. Again, I do not agree with Aristotle's opinion that there should be no incentives for development of the nation's wealth. Of course it is easy for me to disagree with his statement when today the benefits of the patent system have been successfully proved.

In my review of books on service,[15] I could not find any reference to patent protection for services. On the other hand, there are concerns about the

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[13] *The MIT Dictionary of Modern Economics*, Fourth Edition, edited by David W. Pearce, p. 390, MIT Press, Cambridge, Massachusetts, 1992.

[14] *Collins English Dictionary*, Third Edition, p. 1414, HarperCollins Publishers, Glasgow, 1991.

[15] a) *Managing Service Companies: Strategies for Success*, Ken Irons, E.I.U., The Economist Intelligence Unit, Second Edition, Addison-Wesley Publishers, 1995.

sustainability of advantages of service innovations. To support and justify the plausibility of such a concept, the review of these books was very helpful, as in my courses at M.I.T. — Operation Managements in the Service Industry with Professor Bitran, and Strategy for Technology Management with Professor Cusumano.

I also found some elements with which I could not agree at all, such as the belief of service managers that their service is unique, because of the uniqueness of the culture and employees, and therefore services are not able to be copied. Service industry managers make this standard statement regularly in order to convince their customers that they have unique competitive advantages, and it may be true to some extent. But where are the differences between a service and a manufacturing culture, and why should it not be possible within an industry to copy a service quite easily?

Where are the real distinctions among McDonald's, Burger King, and Wendy's fast-food restaurants? Perhaps the food products, the beverages, the drive-through windows are different? Certainly they have differences in trademarks, but TM does not prevent others from developing and offering an almost identical service. The same circumstances exist for technology-based companies where there is a lack of utilization of patent protection. However, technology-oriented companies have the legal option of protecting their products with patents. Thus I cannot agree that the service culture provides a competitive advantage close to patent protection. Also, if that were true, I would have to ask why a manufacturing culture is not unique like the service culture.

Of course no service is identical to any other, but I think that applies to products or technology as well, regardless of patent protection.

Another important aspect is productivity. James L. Heskett, Professor of Business Administration at Harvard Business School and author of *Managing in the Service Economy*, made the following statement regarding productivity:

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b) *Winning the Service Game*, Benjamin Schneider and David E. Bowen, Harvard Business School Press, Boston, Massachusetts, 1995.

c) *Service Within*, Karl Albrecht, Business One, Irwin, Inc., 1990.

d) *The Extra Mile: The Customer Service Rep's Guide to Survival*, Dartnell Press, Chicago, 1994.

e) *Managing in the Service Economy*, James L. Heskett, Harvard Business School Press, Boston, Massachusetts, 1986.

> There's an ongoing debate about the relative rate of growth levels in productivity in the service sector (See Appendix C). Nevertheless, it is generally agreed that communications have led all sectors of the service economy in productivity improvement in recent years and that some firms — industrial and services — have had outstanding increase in productivity.[16]

However, we don't know how much the productivity would have been increased if the service sectors had had patent protection. In the area of technology, there is no doubt that patents improved the productivity to a great extent, because of the incentive to gain an award for improving existing technology. With the award, I do not mean just the patent itself, but rather also that of the customers' decision. I see the customers' decision as the ultimate award because that is what focuses on the products that provide the best benefits to them.

The main difference between service and technology is that services are less tangible and the delivery system is unlike that for products. This might be one of the main challenges for establishing a service-patent system currently, since it is hard to set up an appropriate examination process and standards for an intangible product such as services.

What I found particularly interesting in reviewing the literature as that technology is in use a lot — arguably to differentiate performance and quality. In the book, *Winning the Service Game*, the authors called it "the delivery system."[17] Certainly the awareness of service business to develop its own technology is a new dimension for industries, but the opposite happens too: technology-based companies are developing new service systems and shifting deeper into services.

It seems that the R&D function in the service industry is the first step toward developing its own technology with which companies can differentiate their services with patent protection and avoid easy imitations. Some service companies acting in this way have already spent a while developing their own products/technology and filed patent applications.

Currently, Air France has developed a new geographical placements for their first-class seats in a way to make more efficient use of their already limited

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[16] *Managing in the Service Economy*, James L. Heskett, p. 91, Harvard Business School Press, Boston, Massachusetts, 1986.

[17] *Winning the Service Game*, Benjamin Schneider and David E. Bowen, Harvard Business School Press, Boston, Massachusetts, 1995.

space. AT&T, for instance, already established its technology for over a century to support service quality and delivery system.
To be ahead of their competitors requires creative thinking. In my opinion, it is now just a matter of whether we are able to develop and provide a patent system for services.
J. Thomas McCarthy defines intellectual property as:

> Certain creations of the human mind are given the legal aspects of a property right. "Intellectual property is an all-encompassing term now widely used to designate as a group all of the following fields of law: patent, trademark, unfair competition, copyright, trade secret, moral rights, and the right of publicity.
> Why Intellectual. The word "intellectual" is used to indicate that these kinds of "property" are distinct from real estate or personal property in that they are products of the human mind or intellect. These kinds of legal rights are intellectual property in the sense that the law grants property-type protection to nontangible creations of the human intellect. In one sense, intellectual property is legal recognition of a property right in certain kinds of information.[18]

The legal environment of intellectual property
Returning to the initial issue — the interaction between services and technologies and the interface — I think it is crucial to understand from the very beginning the environment in which they are established. One of the most important environmental conditions is the Intellectual Property Law. It includes patents, trademarks, copyrights, and trade secrets as well.
Today, the service business constitutes over 70 percent of GNP in the United States and approximately 75 percent of the labor force. Although the United States is probably the nation with the highest ratio of services compared to manufacturing, the ratios in almost all industrial countries looks pretty close, with continuing increases in the service industries.
It is interesting that the United States' budget deficit is not with services; unlike with products, it actually has a surplus. This fact could be an indicator of how profitable the service industries are. Another interesting observation is that even now, educational programs on services are still quite rare. For instance, at M.I.T., the number one business school, I could find only one course in service management, an excellent course. The situation is similar at Harvard Business School and Yale School of Management. The question I ask myself in this context is, how can so many MBA's go out into the real

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[18] McCarthy, J. Thomas, *McCarthy's Desk Encyclopedia of Intellectual Property*, p. 166, Bureau of National Affairs, Washington, D.C., 1991.

business world without knowing much about services, when there is a high probability that they will work in a service business?

There are several main differences between services and technology. Unlike physical products, services are of course intangible. The production of services will in almost all cases be consumed simultaneously. Services are unlike products in that they are not usually transferable and cannot usually be stored or transported. The perception of services is a very challenging task, increasingly so because of increased demand for high quality.

However, within the service operation these are not, as in manufacturing, easily controllable tools of measurement and performance due to the close interaction between the employees and the customers. Also, because of the nature of this business, there is emotional involvement and a risk of losing control during the process. In order to meet customer needs, the service industries have introduced some quality and performance standards. Some have successfully introduced service guarantees. For the service industries, however, technologies are often key tools. But not all service industries have a highly skilled labor force, as AT&T does for instance, that can develop its own technology. Restaurants or cleaning businesses are good examples of this fact. Regarding rapid changes, environmental service companies have to rethink their positions and watch out for new opportunities such as patent protection for services or technology, educational programs and emerging markets such as the Facility Management industry. TQM and the GAP models[19] are new examples of know-how tools especially for service companies.

The marketing of services is quite different and needs to be corrected in the direction of manufacturing because the balance among a) the operation process b) distribution, c) communication, and d) pricing issues are different for technology.

Services offered by manufacturing companies are focusing on other functions, unlike primarily service-oriented businesses. The nature of the service business requires a particular understanding of interpersonal

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[19] The GAP model focuses on the interfaces of service processes, providing a framework for analyzing service quality, beginning with analysis of the strategy, competition, finances, marketing, management, customers, and the internal as well as external environments. It was developed by Professor Gabriel R. Bitran and a doctoral candidate at M.I.T.-Sloan School of Management, Cambridge, Massachusetts, USA.

nothing but the fact that today we have an increasing gap in all countries in the original intention of creating the patent law, and the growth of international business will make the gap even wider. On the one hand, we reached the highest patent law standards ever with the GATT rounds, but on the other hand we need to develop an applicable international treaty for establishing a patent for services that will benefit every nation and every individual. A very impressive beneficiary could be information technology and the computer industry. For this industry it may be crucial to have the possibility of patent protection for services.

The service industries invest substantially more internationally per capita — 30 percent — than manufacturing industries without having the option of protecting such investment. In Germany, for instance, the ministries of education, science, research, and technology support and subsidize the information industry substantially, particularly small and medium-size businesses. But yet the essential framework that will make it easier to deal with is missing.

Professor Erich Hausser, former President of the German Patent Office and Chairman of the ACC, the Arabian Union in Intellectual Property, not giving up, points out:

> The utilization of stranger performance may be indecent, but through the current legal system it is still accepted, only in slavish copy might it be illegal. For small and medium-size businesses — the main engineers for innovations — high potential risks emerge that cannot be faced easily, caused by their slight market power without patent protection. Price dumping and the resulting lack of quality have the least impact. Equally important might be the reduction of uncertainty for corporate decision makers regarding investments and employment decisions, as well as for macro-economic wealth. These issues are crucial, whatever the dynamic of the industry.[21]

Professor Josef Kohler's opinion is that patents for services are worth considering today, as do vanRaden and Wertensen. They agree that this system does not support granting of patent protection for services, for creating something "pointlessly beautiful" does not justify the services.

For technological progress, it is more important than technical invention.

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[21] Hausser, Erich,

Equally substantial are the innovation and diffusion phases, also in the sector of internal use and distribution of new products. VanRaden and Wertensen raised several other very interesting and important questions in their article:

- Should the existing patent law be adjusted or a new one be created?
- What might a service patent claim look like?
- Should there be only registration or also an examination?
- If a service patent claim were examines, what prior art can be used?
- For how long should a patent for service be valid?
- What is possible within the framework of international harmonization?[22]

The publication recommended by Professor Hausser, *Patents for Services*, by H.B. Cohausz, argues for establishing a new patent system. He advises against creating protection for service ideas by extending an existing law, for example the patent law, to cover services. An invention in the service sector is by nature completely different from a patentable invention because it does not have to be technical.

Another interesting case recommended by Professor William J. Murphy and some former classmates from Franklin Pierce Law Center in Concord, New Hampshire, is the case of Paine, Webber, Jackson and Curtis, Inc. vs. Merrill Lynch, Pierce, Fenner and Smith, Inc.: 564 F. Supp. 1358, 218 U.S.P.Q. (BNA) 212 (D. Del. 1983). This case deals with the issue of "methods of doing business" where Merrill Lynch invented a cash management account that included software; however, this software combined three financial services commonly offered by financial institutions and brokerage houses. The court compared this case with In re Toma, 575 F.2d 872, 877 (C.C.P.A. 1978), and came to the conclusion that the patent was valid. It stressed that the operation of a computer is within the "technological arts" and a computer program that affects the operation of the computer is also patentable. The court found that the '442 patent claims were statutory subject matter because the claims allegedly teach a method of operation on a computer to effect a business activity. Accordingly, the '442 patent passes the threshold requirement of Section 101. Defendant's motion was denied. This case as well as others show that there is a strong need for a patent for services.

The Supreme Court has recently reaffirmed that the theory that distinguished between patentable processes and unpatentable ideas was based on the early

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[22] vanRaden and Wertensen,

theory that a process changes matter in a way that can be seen or touched; however, it also clearly refused to "hold that no process patent could ever qualify if it did not meet the requirements of our precedents."[23]
Unfortunately, the court has not yet established clear guidelines for determining how to distinguish an idea from a patentable process if the process does not produce a physical change.
During my research for the thesis, "The Need for Technological Competencies in Services and Application to the Commercial Cleaning Industry," I discovered several pieces of evidence demonstrating how service businesses protect their innovations and the efforts they put into R&D activities. One good example, but not the only one by far, is from the cleaning franchise company Duraclean - USA. Their policy mentioned under Step 2, Point 1, is *Patented Equipment, Why?* The answer is, I think, because the great need is for protection that is able to differentiate among services, even if it is done by technology.

[23] Allen, Lynne B., *Indiana Law Journal*, Fall 1983/1984.

Chapter 3
Why Patent for Services

3.1 Background of Patents for Services
3.2 Advantages and Disadvantages for Service Organizations

3.1 Background of Patents for Services

Empirical research has revealed that in many industries, patents are not necessary in order for firms to secure an adequate return on R&D investment.[24]It is further stated that in many industries trade secrets or a head start on the competition allows firms to *enough* of the value of their R&D to continue doing it.

According to this statement, I really wonder how they conducted this research, whom did they ask, when and in what context? And what is the conclusion from it? How can they justify this interpretation? If I were in the position of manager, for instance, how would I make this statements and sell it to my shareholders and employees? I cannot believe this interpretation because when they did not have the patent protection, how could they compare it with trade secrets. It seems to be an attempt to excuse the current intellectual property system, or better still the people who maintain it with all its faults. When a law is designed for a particular purpose, then it must meet the criteria that respond to its purpose, as patent law did for 200 years, or even 50 years ago. But when the main purpose is to maintain the existing law only because it is easier to do so, then it should be reconsidered.

This is so that the economic harm and subsequent harm by society, caused by an increase in international competition, may be prevented through adjustments and applications of new knowledge. Thus I am convinced there is a need for further adjustments in the legal regime of intellectual property. Compulsory licensing in particular might have a need for some new definition and application as well.

With reference to comparative study of the patent law, there are not a lot of differences from country to country on this issue. From Germany, for instance, I found some pertinent publications recently with the help of my consultant Mr. Dipl. Ing. (FH) Wolf and my patent attorney, Mr. Dipl. Ing.,

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[24] Levin, Klevorick, Nelson and Winter, "Appropriating the Returns from Industrial Research and Development," Brookings Papers Economic Activity, p.783, 1987. Cited in Merge's *Patent Law and Policy*, p. 112, Mitchie, 1992.

Dipl. Wirtschaft Ing., Dipl. Wirtschaft Ing. Graettinger. In one, Dr. jur. Lutz vanRaden and Dr. -Ing. Fritz Wertenson mentioned the need for patent protection for services. They first analyzed its history and then stated reasons why a country should grant patent protection. They wrote:

> Patents were granted first in the areas where the largest impact was expected for a macro-economy. In the past, that area was Technology, in the meaning then understood. With changes in technological sciences, the world has continuously redefined the meaning of such science ...
> ... Also, the Bundesgerichtshof [German Supreme Court] has joined in the pragmatic tradition. The patent law is an area of law whose prime task it is, according to the most recent status of science and research, to record patentable results. On the occasion of a leading decision, the famous case Rote Taube (GRUR 1969, 672), neither the BGH [German Supreme Court] nor the predominant literature represent an opinion questioning that patents are for inventions only in the area of technology.[25]

In a publication from Patent Attorney H.B. Cohausz, *Patents for Services,* recommended by Professor Erich Hausser of Munich, a concurrent mention of the situation was made.

However, I see with this rule a contradiction with the practice regarding computer programs. During the 1960's, patent applications were rejected on the basis of practical difficulties. The examination procedure was not sophisticated enough to conduct the research generated by the hundreds of pages from each computer program. Therefore, computer programs were treated as game rules, or plans for doing business, and were declared non-technical in both the United States and in Europe [Paragraph 1, Abs. 2 PatG (patent law) and likewise for the European patent law, Art. 52(2) EPU]. In all respects we know today that this was a dogmatic decision. And the word *dogmatic* means based on assumption rather than on empirical observation. I do not condemn this dogmatic decision from the 1960's because we later discovered something better, but in my opinion, today there is a great need for legal adjustments to the system again.

In their paper, vanRaden and Wertenson referred to a publication by Beier, written in 1972, in which he said: "For an optimum of advancement for

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[25] Dr. jur. Lutz vanRaden, Leitender Regierungsdirektor, Muenchen, and Dr. -Ing. Fritz Wertenson, Regierungsdirektor a.D., Graefelfing, Germany; "Patentschutz für Dienstleistungen," pp. 523-527, published by VCH Verlagsgesellschaft mbH, GRUR Heft 8/9, Weinheim, Germany, 1995.

technological, economical, and social progress is necessary in the area of patent protection, generally to expand for inventions.[26]
In his publication, he examines not only the top actual topics of biological invention and computer programs, but also commercial and scientific inventions due for protectability. VanRaden and Wertenson made a comment on the historical context, that in the 19th century, the engineer, *not* the clerk or merchant, had the decisive word. It was also clear to Beier that there will be negative macro-economic impacts without expanded patent protection.
Tetzner asked in 1972 whether the law of equality before the constitution was not violated and added that non-technical inventions should be protected as well.[27] Tetzner's opinion found continuous support in the judgments of the Bundesverfassungsgericht (federal constitutional court) for the law of equality. However, for lack of practical cases presented to him — due to an unreasonably long and expensive procedure —we cannot expect a decision from the court. An examination is necessary, therefore we will expect continuing efforts by the jurisprudence and the legislature toward solving these problems.
VanRaden and Wertenson reaffirmed my belief with the following statement: "In any case, the economy as a whole is affected by the increasing importance of services such as critical methods in this area of market research. marketing, education, and communications organizations."[28]
The contribution of Thomas Schindlebeck provides insight into the problem from a service business point of view. He wrote about the importance of protectability of services as a factor in maintaining viability for medium-size businesses in 1955.

3.2 *Advantages and Disadvantages for Service Organizations*

The interface between services and technology

Because it is no longer possible to separate services and technology, or at least it would be very difficult, there is substantial need for a thorough understanding of their interface. Computer cases such as Paine, Webber, Jackson, and Curtis, Inc. v. Merrill Lynch, Pierce, Fenner, and Smith, Inc. [564

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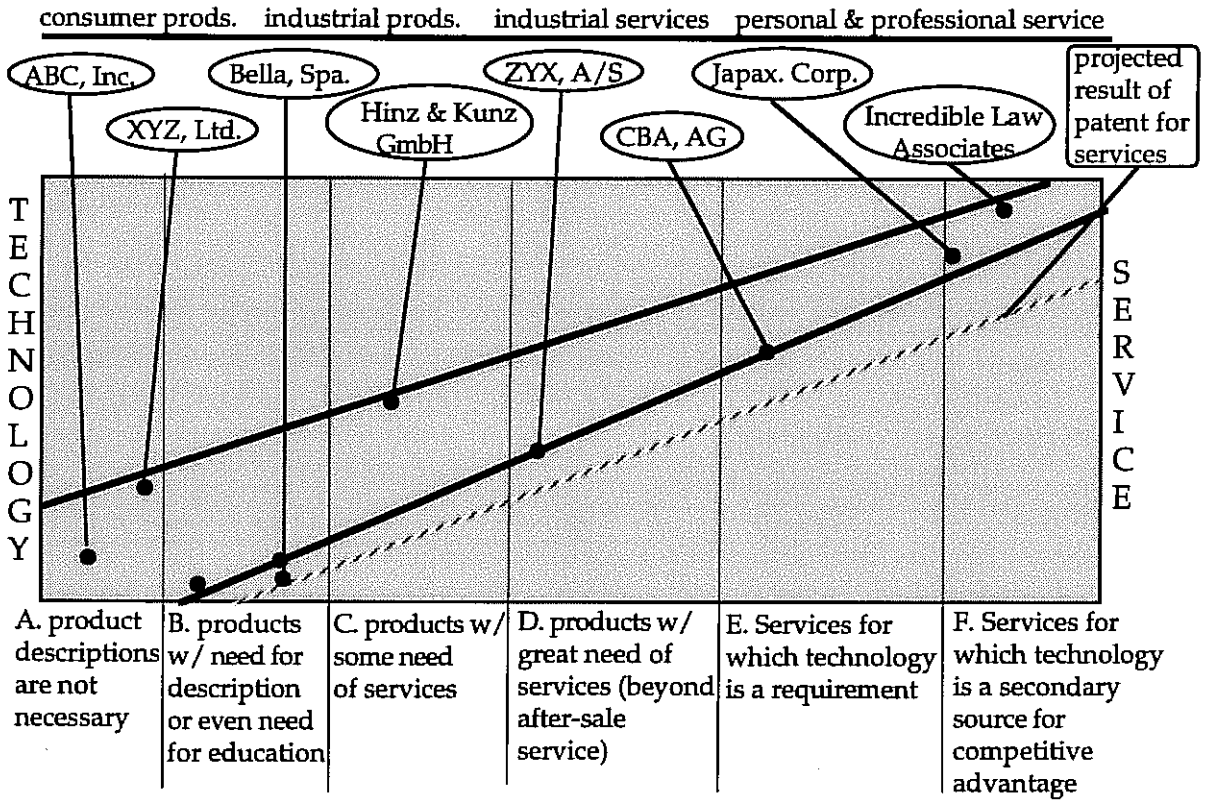
[26] GRUR 1971, 214 ff., according to Wertenson, GRUR 1972, 59 ff.
[27] Tetzner, Material Patent Law of the Federal Republic of Germany, p. 11 ff., 1972.
[28] Lutz vanRaden and Fritz Wertenson,

F. Supp. 1358, 218 U.S.P.Q. (BNA) 212 (D. Del. 1983)] illustrate very well how difficult interpretations are. What is technology and what are services? Of course, some will say there are differences, as I mentioned earlier. However, I believe that gaps are becoming increasingly narrow. Now is a good opportunity to ask again why there should be patents for services when the gap is getting smaller. The arguments still, in my opinion, are that patents are available only for technological processes, whereas in a service process the technique is comparably complicated and challenges the intellect in the same ways as technology, yet it is not protectable by patents. A service patent would have to fulfill, of course, criteria similar to those established for technology and be available for any business that performs services. Thus I think that even technology-oriented industries should take a great interest in service patents due to the increasing importance of variances in the marketplace.

The chart below illustrates possible interfaces between technology and service. The area between the two solid diagonal lines shows variances in competitive advantages by Intellectual Property. In this area are product and service differentiations, including advantages of patent protection, which is the larger area within these two diagonals. This is due to the strongest protections against imitation. Also, the variation and distinction of technology is substantially greater, represented by the data points that are the underlying assumption.

I argue that without a patent system, the degree of variation in technology would be minor as a result a higher degree of imitation. Thus, in the service area the differentiation is less than in the area of technology. The lower solid line represents the most attractive position with the greatest competitive advantage, due to patent protection. A patent for service would maintain the space between the lower and upper lines, therefore increasing options for competitive advantage through intellectual property rights.



Focusing on a particular industry in which a company competes, the variance represents the relative competitive advantage, but the more its core product is

related to services, the less the variance of distinguishing options and sustainable advantages will be.

However, there is one possibility for service-oriented businesses to distinguish themselves from competitors, which I will explain below. But this possibility focuses again on technology and is therefore not a solution for service providers when they would prefer to develop a new service concept. When a service-oriented company wants to innovate in order to increase its competitive advantage — emphasizing the process and how the process is performed — then the company might develop a new technology that is protectable by patent. The challenges for many service-oriented companies may then be to develop technological competencies first in order to be qualified for innovative technological research and development.

Again, this option emphasizes *how* organizations perform services, rather than what services are provided. But today, the challenge for most organizations is *what* they offer, not how. Peter Drucker made this point very clearly in his article, "The Theory of Business":

> Not in a very long time — not perhaps since the late 1940's or early 1950's — have there been as many new major management techniques as there are today: downsizing, outsourcing, total quality management, economic value analysis, benchmarking, reengineering. Each is a powerful tool. But, with the exception of outsourcing and reengineering, these tools are designed primarily to do differently what is already being done. They are "how-to-do" tools. Yet "what to do" is increasingly becoming the central challenge facing managements, especially those of big companies that have enjoyed long-term success.[29]

I believe that the more commodity-based a product is, the fewer services will be needed. Based on the increase of service-based activities in the entire economy, to leverage competitive advantages. The argument is: limiting strong intellectual property protection for service does not usually encourage investment of a lot of money or efforts at R&D activities — which would be necessary to some extent when the competition can imitate it very easily due to lack of legal protection. Thus it might be that almost all services from today onward would not look much different from historical precedents. Only when technology is involved, can we observe and recognize a difference from the past. For instance, the hair cutting business, legal and consulting

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[29] Peter F. Drucker, "The Theory of Business," *Harvard Business Review*, Sept.-Oct. 1994.

businesses, cleaning, banking (except technology-oriented performance), insurance, or even the health care industry would not change. What we don't know is how it would look if we had a patent system for service-based activities as well, because not many, if any, would be encouraged to invent a process or technique to improve services. And quite honestly, many people talk about services and the application of services, but they don't really understand the dynamic of services. This should not be a criticism, but rather an explanation of the huge need for understanding services in the same way technology is understood. The logic behind my argument is this: how is it possible to know what you didn't learn in theory if practice is sufficient? Then why would we need engineers and scientists? Although I have studied services for years, I must confess that it is still an amazing area, and I certainly think that it remains quite undeveloped today. Why? Perhaps the human being is missing a valuable incentive.

Now I would like to return to the figure on page 26. Regarding the above scenario, ABC, Inc. would still have a very strong position in terms of competitive advantage as a result of patent protection and product differentiation, compared to the worst position of XYZ, Ltd., which is in a dangerous position and would be forced in real competition to improve its situation as soon as possible, or face failure. The Italian company reached the frontier of the greatest potential benefit, but the German company Hinz & Kunz GmbH would face perhaps unrecoverable damage, or they might even go out of business. The Danish group, ZYX, A/S, combines technology and services in this scenario in the best manner. Also the Swiss company, CBA, AG., enjoys a strong competitive edge. Japax Corp., the Japanese firm, does not have many options to distinguish itself from competitors, and the velocity of changes in the marketplace makes it harder to protect its position due to rapid imitation. Finally, the American consulting firm, Incredible Associates, faces a time of increasing difficulties if they cannot establish a powerful reputation in the early days of the business. Prices are now soft and the firm will be forced to offer a variety of services or an outstanding specialty in order to maintain a competitive stance.

The consumer products for **Category A** are pencils, picture frames, candle holders, books, etc. For **Category B,** they are vacuum cleaners, a non-special medicine, a radio, etc. **Category C** has such products as computers and a VCR for consumer use, and industrial goods including lift trucks, overhead

projectors, cleaning machines, elevators, etc. **Category D** is probably the most challenging for manufacturers because for these products, service quality is absolutely essential, such as computer networks, radar for air control, automobiles, and so on.

At **Point E**, business is shifting toward services and away from products or technology. A good example might be medical apparatus or real estate (which could not work without the products, i.e.. real estate), car services, etc.

Finally, **Point F** represents businesses where technology supports the performance of services and may be used to develop competitive advantages. Without technology, these businesses would no longer be competitive. Examples are computers for banks and other administrative organizations, industrial cleaning services, or even attorneys depending more and more on technology because it provides potential cost savings. When we ask how many people are necessary for administration with speed similar to today's administrators, then it is clear to us that technology provides potential cost reductions.

Also, certain industries are moving within these categories, e.g., we can now observe that the cleaning industry is shifting toward the Facility Management industry in response to greater customer demand for system solutions; instead of having 1,000 suppliers for 1,000 different tasks — which would then require another 100 administrative employees — the customer now needs only 50 suppliers and 5 employees to deal with them. I believe that it can happen, or has happened already, that industries are shifting among categories, but surely not dramatically. Otherwise, we would see this movement clearly.

Chapter 4

4.0 Additional Issues Requiring Resolution

In order to understand the entire dynamic of patents for services, I would like to mention some issues that need to be addressed and resolved.

- The educational system for intellectual property, particularly for patents, as Erich Hausser mentioned in his book, *Zukenftspekte des guverblichen Rechtschutzes.*[30]
- The science of services and operations.
- Educational programs for examiners, in order to be able to review patent services.
- Establishing the status quo; what is previously known will not be protectable and what fulfills the conditions of patentability.
- A new law versus an integration into existing law.
- The macro-economic advantages as well as the impact on society.

After all, these issues may seem unresolvable for one or the other industries, but it should be incentive for the legal community as well as the government to review and resolve the issues. That is what society pays them to do. Thus I think it is the duty of both institutions to solve these issues in favor of the societies and the countries.

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[30] Erich Hausser, *Zukenftspekte des guverblichen Rechtschutzes*, edited by Lutz vanRaden, published by Carl Heymanns Verlag U.G. Beitrage zum Symposium des Deutsche Patentonts, an 6 und 7, März 1995, Munich.

Chapter 5
Conclusion

It seems that there is little evidence to speak effectively against patents for services. Surprisingly or not, even in the legal environment, the principle of acceptance is quite prevalent, and the understanding necessary to change the environment is easily perceived.

In the business world, I get the impression that people do not think about how they can take advantage of intellectual property — particularly through patents — because they believe that the legal system is so rigid that it cannot be changed at all. Perhaps this is true in some instances; however, I argue that all institutional organizations have this characteristic. And generally I think that stability is necessary to some degree because innovations require a stable environment to avoid social, legal, and economic chaos. If we continue to observe, we will see what happens when an entire system gets out of control, as in Eastern Europe. However, I do not think that these legal adjustments will cause chaos everywhere; rather they will provide a more stable environment.

This is what I believe will be necessary for very high-dynamic industries: providing plausible rules for business and increased national wealth, instead of great uncertainty, particularly for investments.

> Looking at total R&D spending as a fraction of the GNP, America holds the fifth position, Japan the third, Germany the fourth. First place is held by Sweden. If military spending is subtracted and only civilian spending is subtracted, America slips to tenth in R&D spending. If all government spending is subtracted and only private R&D spending remains, America was almost at the bottom, ranking twentieth out of twenty-three industrial countries.[31] Unless one believes that Americans are smarter than the Germans or the Japanese, today's spending levels will eventually lead to a secondary position for American science and engineering and lower rates of growth in productivity.[32]
>
> Patents confirm that judgment. In 1980 seven of the top ten patent winners in the United States were American firms, and only one of the top six was foreign. Ten years later only three of the top ten firms were American, and the best American firm could do no better than a fifth-place finish.[33] In a recent survey

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[31] World Economic Forum, *The World Competitiveness Report*, 1990 (Geneva: WEF, 1990), pp. 10-15. Ibid., *The World Competitiveness Report*, 1991, (Geneva, WEF, 1991), pp. 11-16.

[32] U.S. Department of Labor, *The Impact of Research and Development on Productivity Growth*, Bulletin 2331, September 1989 (Washington, D.C.: GPO, 1989).

[33] Thomas A, Stewart, "Where We Stand," in *The New American Century, Fortune*, Special Issue, 1991, p. 17.

> of high-quality, frequently cited patents, Fuji had surged ahead of Kodak and Hitachi was ahead of IBM.[34] At the end of the 1980's the gap in high-quality patents between Japan and the United States was half that at the beginning of the decade, and on a per capita basis, Japan was ahead.[35]

I do think that the language between the business and legal sectors is not as well developed as it could be, in fact should be, and that this has already caused excessive confusion. This critique applies to me, too, of course, but I would like to contribute to progress in this matter and to make some issues more transparent.

Also, I am convinced that we need, in every case, a patent system for services and there will be a need for bridging time, e.g., for ten years during which time applications can be made in any case that will lead to a reasonable evaluation of efforts, but complaints can be made and will be judged on a case-by-case basis. At the end of ten years, it should be at least close to existing patent law because the existing law has proved to be effective. Also, people might be confused by the new patent system. The transaction cost theory is a very plausible argument against a totally new approach.

A side effect could be that because of the economies of scale and scope, the administration could be done and supported by better service, which might be more efficiently developed by a motivated inventor, as Professor Hausser claimed in his latest interview with *Die Welt*, a leading German newspaper. Lastly, the increase of confusion in the copyright area as to what is protectable and under what conditions, due to the greater involvement of service-based business, could be interpreted as an indicator of a need for patents for services. In encouragement and hope that this paper may provide supportive arguments for the establishment of a patent system for services, I look forward to further development of this issue and would like to thank all readers for their anticipation and criticism. —KZ

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[34] William J. Broad, "In the Realm of Technology, Japan Looms Ever Larger," *The New York Times*, May 28, 1991, p. C1.

[35] Lester Thurow, *Head to Head*, pp. 157-158, Warner Books, New York, NY, 1992.