

## Business Method Patents in Korea

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### Abstract

*E-commerce has been affecting, and has been affected, by Intellectual Property. Rapid growth of e-commerce has introduced BMPs. Methods of doing business using the Internet were regarded as a process. In the US, the test for the patentability of a business method is whether its subject-matter has practical utility that provides a useful, concrete and tangible result. In the EPO, the patentability of a business method depends on whether its subject-matter has a technical character. In Korea, it is whether its subject-matter is a technological idea using laws of nature.*

*The fundamental difference between the US and Korea is that in Korea to be patentable computer-implemented BMIs should be a technical idea using laws of nature, while in the US computer program related inventions are of the technological arts. In the Europe, BMIs should be of a technical character. In the US, the restrictions on patenting business methods are negligible.*

*Practices in patenting BMIs are different between patent jurisdictions. Inconsistency is also found in each jurisdiction. There is an apparent discord between the statutory patentability in the EPC and the practice of the EPO. The IBM cases reversed the EPO Guidelines. Until the SSB court declared that the business method exception no longer exists, the patentability of business methods had long been denied unless embodied in some tangible form. However, methods of doing business (even without using software or hardware) can now be patentable.*

*In this state of affairs, before considering whether following the US practice in patenting BMs, or persuading the US to follow Korea or the EPO practice, or coordinating with one another to harmonize the patentability of BMs, it is reasonable to examine whether or not the existing legal regimes are appropriate for protection of software innovations. This is because the main problems in software patenting (i.e. impeding follow-on innovation, establishing entry barrier) might be originated from the very nature of the existing legal regimes.*

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## I. Introduction

E-commerce has been affecting, and has been affected, by IP (Intellectual Property). Rapid growth of e-commerce has introduced BMPs (Business Method Patents). Methods of doing business using the Internet were regarded as a process. In this respect, BMPs involve a process which is a kind of algorithm. In the US, the test for the patentability of a business method is whether its subject-matter has practical utility that provides a useful, concrete and tangible result. In the EPO (European Patent Office), the patentability of a business method depends on whether its subject-matter has a technical character. In Korea, it is whether its subject-matter is a technological idea using laws of nature.

### A. *Historical Background to BMPs*

There are two key elements in the rapid growth of BMPs. One is information technology development and the other is the pro-patent policy initiated by the US (United States of America).

#### 1. Information Technology Development

The rapid growth of the Internet and e-commerce is regarded as one of the main reasons of the new recognition of BMPs.<sup>1)</sup> The innovation of information technology development has brought a significant increase in Internet-related patent applications.

The advent of the Internet has significantly changed ways of conducting business. The Internet has enabled sales channels to be easily set up and business ideas to be directly incorporated into business. The transition of business practices from the non-Internet world to the Internet has made the invention novel. In response, software developers, financial services firms, on-line businesses, traditional hardware manufacturers, and even agricultural companies have applied to protect their business methods by patents.

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1) Richard Poynder, *Patenting Software*, UK Department of Trade & Industry, 2001.

## 2. The Pro-patent Policy in the US

The pro-patent policy is the other main reason for the recognition of BMPs and the rapid growth of them. From the early 1980, the US economy started to suffer a severe crisis caused by the decline in industrial competitiveness. To revitalize industry, the government introduced the “pro-patent policy.”<sup>2)</sup> The pro-patent policy was characterized as being “strong protection” and “wide-ranging protection.” This policy gave strength to the patents and expanded the scope of patent protection for software. In 1982 the US Supreme Court officially recognized computer software as patentable.<sup>3)</sup> Aiming at the clarification of software patents, in 1987 the USPTO (United States Patent and Trademark Office) reformed its examination guidelines. In 1996 to recognize legally the patenting of recording media for recording programs, examination guidelines were reformed.

In the early stages of the pro-patent policy, there were a number of cases where Japanese manufactures paid huge amounts for patent infringements. These pro-patent trends have spread to Korea as well as Japan and Europe; Korea recognized patents for computer-readable media in the Examination Guidelines for Computer-related Inventions (August 1998)<sup>4)</sup> and established the Examination Guidelines for E-commerce Related Inventions (August 2000).<sup>5)</sup> Japan officially adopted a pro-patent policy in 1997<sup>6)</sup> and the EPO recognized patents for recording media in the IBM cases.<sup>7)</sup>

## 3. The Pro-patent Policy in Japan<sup>8)</sup>

Since a report of the “Council for Consideration of Intellectual Property Rights in the 21<sup>st</sup> Century” was issued (Japan, April 1997), pro-patent policies have been

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2) [www.p-mini.go.jp/index](http://www.p-mini.go.jp/index), 17 February 2001 accessed.

3) See the *Diehr* case, 450 U.S. 175.

4) Hereinafter, *Guidelines* 1998.

5) Hereinafter, *Guidelines* 2000.

6) Council for Consideration of Intellectual Property Rights in the 21st Century, Japan, April 1997.

7) See *T 0935/97-3.5.1* [1999] R.P.C. 861 and *T 1173/97-3.5.1* OJ 1999 EPO [609].

8) JPO (Japanese Patent Office), Pro-patent Era in Japan, February 1997. See also the Planning Subcommittee of the Industrial Property Council, *Report of the Planning Subcommittee of the Industrial Property Council - To the*

gradually and firmly established in Japan. Recognizing the gap between the US and Japan in technical capabilities,<sup>9)</sup> Japan has started to pursue a pro-patent policy. In the technology trade, the US was remarkably in the black, while Japan was in the red in the 1986-1995 periods. Statistical data indicate that Japan was running a deficit of 32.9 billion dollars (accumulated deficit from 1987 to 1996), and that the US was gaining a tremendous surplus of 147.1 billion dollars (accumulated surplus from 1987 to 1996).<sup>10)</sup>

The patenting of recording media for recording programs was legally recognized in the 1997 operation guide for examination of software-related inventions. The concept of the doctrine of equivalents was adopted in the Japanese Supreme Court in February 1998.<sup>11)</sup> The Tokyo District Court made a decision recognizing damages in the amount of approximately 3 billion yen, the highest amount ever, in a legal suit over patent infringement in October 1998. Under the circumstances, Japan came to adopt their own pro-patent policy, and this policy resulted in a flourish of BMPs in Japan.

#### 4. The Pro-patent Policy in Korea

In 1987 KIPO (Korean Intellectual Property Office) adopted a substance patent system that covers chemical substances, pharmaceuticals and microorganisms.<sup>12)</sup> It also expanded the scope of patentable subject-matter in 1990 to include food and foodstuffs. All possible inventions regarding medical and surgical technology are currently patentable except surgical treatments and diagnostic methods for humans. Genome segments are patentable if their utility is clearly identified, even though the raw data of a genome sequence are not patentable.<sup>13)</sup> Korean Supreme Court applied

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*better understanding of pro-patent policy*, November 1998. <http://www.jpo-miti.go.jp/indexj.htm>, accessed 13 March 2001.

9) Japan's patents are those of improvement, and there are few basic patents. See JPO, *Annual Report on Patent Administration* (1998).

10) JPO, *Towards the International Harmonization of Intellectual Property Rights Systems in the 21<sup>st</sup> Century*, [www.jpo-miti.go.jp/tousie/chapter1.htm](http://www.jpo-miti.go.jp/tousie/chapter1.htm), accessed 20 June 2000.

11) The *Spline Shaft* case, judgment of 24 February 1998, Japan Supreme Court, 1630 Hanji 35 (1998).

12) Keun LEE, *The Role of the Industrial Property System in Technological Development in the Republic of Korea*, pp. 111-112, WIPO, 2003.

13) *Examination Guidelines for Biotechnological Inventions*, KIPO, 1999.

the concept of the doctrine of equivalents in a Trial to Confirm the Scope of a Patent Right (judgment of 28 July 2000, 97 huh 2200).

Recently there has been a lot of BMIs (business method inventions) applications to KIPO. To enhance the examination quality and the protection of BMIs, KIPO established the Guidelines 2000. According to the Guidelines, a mere business method in itself is not regarded as patentable. Simple automation of a known business method using known automation techniques does not make it patentable, because it still lacks the inventive step. However, novel business method inventions using automation systems having improved technical features are patentable.

### *B. Classification of BMPs*

It is very difficult to classify all the kinds of BMPs because new ideas in business methods are continuously coming out as technology develops. BMPs can be classified by the parties involved in the transactions: business to business (B to B); business to consumer (B to C); and consumer to consumer (C to C).<sup>14)</sup>

BMPs can also be classified by the contents of the inventions, e.g. Internet shopping, Internet brokerage business, Internet marketing, E-cash, supply chain, online billing and online gambling.

## **II. Critical Issues in BMPs**

In the EPO, methods of doing business are excluded from patent protection by the EPC,<sup>15)</sup> but in the *Sohei*<sup>16)</sup> a business method<sup>17)</sup> was regarded as patentable.<sup>18)</sup> In

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14) Henry Koda, *Business Model Patent*, Nikei Kogyo Shinbunsha, (Tokyo, Japan), 2000.

15) The Article 52 lists four categories that shall not be regarded as inventions:

(a) *discoveries, scientific theories and mathematical methods;*

(b) *aesthetic creations;*

(c) *schemes, rules and methods for performing mental acts, playing games or doing business, and program for computers;*

(d) *presentations of information.*

16) *T 769/92* [ 1995] OJ EPO 525.

17) EP 0,209,907 (*Sohei*): “Computer system for plural types of independent management and method for operating a general-purpose computer management system.”

the US, before the recent two decisions, the SSB<sup>19)</sup> and the AT&T,<sup>20)</sup> the patentability of methods of doing business was limited by two long-standing principles, the “business method exception” and the “mathematical algorithm exception”.

The business method exception assumed that methods of doing business did not fall within any class of patentable subject-matter. The USPTO had used the business method exception for many years to reject inventions based on methods of doing business. However, in its 1996 Guidelines, the USPTO stated that statutory subject-matter should include computer-related inventions that involve business methods. The two recent decisions referred to above completely eliminated the business method exception. The mathematical algorithm exception also limited the patentability of methods of doing business on the Internet, because business methods on the Internet involve computer programs that also involve mathematical algorithms.<sup>21)</sup> In Korea, BMs have to be ‘technical ideas using laws of nature’ to be patentable. This requirement appears to involve above two principles, the “business method exception” and the “mathematical algorithm exception.” Pure business methods, abstract ideas, mathematical algorithm itself,<sup>22)</sup> natural phenomena, artificial agreements between people would not be regarded as a technical idea using laws of nature.

The non-obviousness requirement seems to create difficult problems for the patentability of Internet business methods, especially when an invention involves an Internet business method that was transferred from non-Internet business methods. It is necessary to examine whether the transformation from the real world to the

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18) The *Sohei* case opened a way for a business method to be patentable. The patent was a computer system for plural types of independent management including financial and inventory management, and a method for operating the said system. The court held that it was patentable because ‘technical considerations were applied’ and ‘technical problems were solved.’ Thus, the Technical Board considered the invention to be patentable, although it was dealing with a method of doing business. See Daehwan Koo, *Subject-Matter Patentability and Effective Protection of Computer Programs*, July 2002, University of Sheffield, UK, PhD dissertation (Daehwan Koo, *Effective Protection*), pp. 136.

19) *State Street Bank v. Signature Financial Group*, 149 F.3d (Fed. Cir. 1998).

20) *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir.), cert. Denied, 120 S. Ct. 368 (1999).

21) The exception can be traced back to earlier the US Supreme Court decisions that categorized “laws of nature, natural phenomena, and abstract ideas” as unpatentable subject-matter. In the recent decisions, however, the CAFC (U.S. Court of Appeals for the Federal Circuit) drastically limited the exception.

22) *Guidelines* 2000.

Internet is obvious or not. Judging the patents that the USPTO has issued, such as an “Internet-based shopping cart,” the conversion of a non-Internet business method to an Internet-based one was considered as a non-obvious improvement.<sup>23)</sup> However, inventions restructured to the specific structure of the Internet would be more likely to be considered non-obvious than inventions transferred simply as above. Unexpected improvements, commercial success, long felt but unsolved needs, and failure of others can be used as evidence of non-obviousness.

### **III. BMPs in Korea**

Because of the lack of court cases, in order to understand the current state of patenting BMIs in Korea, it is essential to study the examination guidelines for such inventions.

KIPO has actively responded against the emergence of BMIs. After starting to regard a recordable media for programs as patentable by the Guidelines 1998, KIPO established the Guidelines 2000 in response to the explosive increase in the application of e-commerce related inventions in 1999 and 2000. Before the Guidelines 2000 were published, BMIs were examined by the ‘Examination Guidelines for Computer-related Inventions’, which were published in 1984 and revised in 1995 and 1998.

KIPO also started to include e-commerce related inventions into the subject-matter for the Preferential Examination, which usually involves the inventions relating defense industry, protection of environment, etc. (1 July 2000)<sup>24)</sup>

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23) The USPTO seems to have granted Internet BMPs, just for transferring business practices from the real world to the Internet. Although pure business methods themselves are not subject to patent protection, business methods using computers and the Internet are regarded as being subject to patent control. This is stated by the Tripartite Director-Generals Meeting in June 2000.

24) This is one of the policies to encourage e-commerce. Korea Patent Act Article 61. Preferential Examination, (ii) where urgent processing of the patent application is considered necessary as prescribed by Presidential Decree. Patent Act Decree 9. Subject-matter for Preferential Examination, 9. Patent applications which are directly related to e-commerce.



### *A. Statutory Patentability*

According to the definition of a statutory invention<sup>25)</sup> which is provided by the Korean Patent Law, it is required to satisfy three requirements: (1) utilization of a law of nature, (2) technical idea and (3) creativeness. ‘Technical idea’ is interpreted as a specific means for accomplishing a certain purpose, which is workable and repeatable.

The most contentious requirement is utilization of a law of nature. A mere mental activity, a pure theoretical law or an artificial agreement, is not considered to utilize a law of nature.

In Korea, computer related inventions have been examined by the Guidelines 1998, because BMIs are included in computer related inventions. In addition to the disclosure requirements, three requirements for patentable inventions, (i.e. statutory subject-matter, novelty, and inventive step) are designated in the Guidelines 2000, which were published to clarify the examination standard for BMIs.<sup>26)</sup>

### *B. Examination Guidelines for E-commerce Related Inventions (Guidelines 2000)*

#### 1. Disclosure Requirements

E-commerce related inventions can be claimed as a process, product, or computer-readable storage medium. If a claim involves a business method performed on a computer without the embodiment of the technology described in the specification of the invention, the application may be rejected. For example, an examiner will reject a claim involving a method for a real-time auction on the Internet, if the specification only explains a general auction method without describing any specific embodiments for the performance of the real-time auction.

The specification should clearly describe the prior art, the problem to be solved, and the means to solve the problem. That is, it should be clear what improvement

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25) “Invention” means the highly advanced creation of a technical idea using the laws of nature. Patent Act. Article 2 Definitions.

26) KIPO, *Guidelines 2000*.

has been made to a conventional business method to solve the problem and what the means of solving it is. For example, a claim for a method of transmitting electronic money over the Internet in an inexpensive and secure way may be rejected, if the claim includes an efficient encryption technique as the characteristic element of the invention, but the encryption technique is explained only in an abstract way and no specific process or means for the encryption is disclosed.<sup>27)</sup>

## 2. Statutory Subject-matter

Claims without any limitation of computer-implemented steps are not patentable. This is exemplified by pure business methods and abstract ideas. Because business methods as such are not directed to specific means utilizing laws of nature, the claim cannot be regarded as a technical idea utilizing laws of nature.

Even though the specification of an invention discloses how an e-commerce related invention is performed on a computer and implemented with computer technology, if the claim is not limited to specific technical embodiments where the invention is implemented by computer technology, the invention will be regarded as an abstract idea. This is because the claim involves a mere abstract idea on a business method that is supposed to be implemented on a computer, but not directed to a specific means. The claim should not be regarded as involving a technical idea.

Even though a business method is implemented on a computer, it may not fall within the statutory subject-matter, if the whole processes of receiving data, processing data and providing data output are not specifically limited by industrial applicability. That is, if a claim involves receiving an input value and getting a result through mathematical operation without limiting any industrial application, the invention is considered as a mathematical algorithm as such. For example, if a claim involving a software program for managing financial assets merely defines computational processes and does not describe how the computation result is used for achieving a certain industrial objective, the claim may be regarded as a mathematical algorithm as such.

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27) However, if an element in a claim is an ordinary technical means, it is not necessary to disclose a specific embodiment for the element.

### 3. Novelty

If there is a difference between a claimed invention and the prior art in the technical embodiments for implementing the business method, the invention is considered novel even if they have the same business features. On the contrary, although the language of the claimed invention is literally different from that of the prior art, the claimed invention is regarded as substantially the same as the prior art, if the claimed invention is a genus and the prior art is a species.<sup>28)</sup>

### 4. Inventive step

Business methods underlying the Guidelines 2000 can be classified as follows:<sup>29)</sup>

- A. Known BMs having industrial application and implemented by a known computer automation system.
- B. New BMs having industrial application and implemented by a known computer automation system.
- C. Known BMs having industrial application and implemented by a new computer automation system.
- D. New BMs having industrial application and implemented by a new computer automation system.
- E. New BMs implemented by a computer but without industrial application.
- F. New business methods without the use of computer.

Industrial application means practical use of technology, and it may include a technical problem and its technical solution. According to the recent EPO cases, a computer program causes a technical effect when run on a computer.<sup>30)</sup>

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28) If a claimed invention defines a display device for viewing transaction information and the prior art discloses a flat panel display, the invention is not considered as novel.

29) KIPO, *Guidelines* 2000. I reorganized the classification underlying in the *Guidelines*. During the reorganization, I added 'New BMs implemented by *known* automation system'; Daehwan Koo, *Effective Protection*, p. 123.

30) See *T 0935/97-3.5.1* and *T 1173/97-3.5.1*.

BM A is the case that the only difference from prior art exists in implementing the business method on a computer. According to the Guidelines 2000, they may be regarded as lacking an inventive step. In terms of the Trilateral Study, BMs A are regarded as non-patentable. In the US, however, Choice A and even F could be patentable.<sup>31)</sup>

BM of Choice B have a technical basis but the innovative step is not technical in nature. These BMs in Choice B might be regarded as being patentable because a claim should be considered as a whole. One of the reasons is that distinguishing the claims in Choice B and C in determining whether the claims have inventive step entails dissecting the claim into technical and non-technical parts, and then ignoring the non-technical part. The other is that newly developed BMs usually require new or, at least, reorganized computer software. German jurisprudence did not exclude the possibility that business methods having a technical aspect could be patentable even if the only contribution that the invention makes is non-technical.<sup>32)</sup> Under UK (United Kingdom) jurisprudence, however, software-related invention that amounts to a method of doing business is considered unpatentable even if a technical contribution may be found.<sup>33)</sup> Considering the fact that the great majority of the responses to the Consultation Document of 01. 11. 2000 by the UK Patent Office (UKPO) opposed patents for computer-implemented business methods if there is no technological innovation,<sup>34)</sup> Choice B is likely to be opposed by European companies or individuals.<sup>35)</sup> According to the Explanatory Memorandum of the Directive on the Patentability 2002/0047 (COD), if there is no technical contribution, (i.e. if the contribution to the state art exists wholly in non-technical aspects, e.g. a method of

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31) In the US business methods without using software or hardware can be patented, if useful, concrete and tangible results are provided. E.g. *In re Fox* (176 USPQ 340) and *In re Warmerdom* (31 USPQ 2d 1754).

32) See EU Commission. *Proposal for a Directive of the European Parliament and of the Council on the Patentability of Computer-implemented inventions*, Brussels, 20 February 2002, COM(2002) 92 final, 2002/0047 (COD) (hereinafter, *Directive on the Patentability 2002/0047 (COD)*). Available at [http://www.europa.eu.int/comm/internal\\_market/en/indprop/com02-92en.pdf](http://www.europa.eu.int/comm/internal_market/en/indprop/com02-92en.pdf), p. 10; “Automatic Sales Control” case [1999] GRUR 1078; and “Speech Analysis Apparatus” [2000] GRUR 930.

33) See *Merrill Lynch* [1989] RPC 569.

34) [www.patent.gov.uk/about/consultations/annexa.htm](http://www.patent.gov.uk/about/consultations/annexa.htm), accessed 4 May 2001, *Should Patents be Granted for Computer Software or Ways of Doing Business?*

35) This might be because the answerers did not understand appropriately how patent claims should be interpreted.

doing business), the invention cannot be regarded as patentable.

Choice C and D raise little question about their being patentable subject-matter, because they have industrial application as well as new computer automation system. In Korea, BMs E might be regarded as non-patentable because they do not have any concrete means for industrial application. In terms of Choice F, there was a consensus in the UK that patents for business methods where no computer is involved should not be granted.<sup>36)</sup> In Korea, BMs F are regarded as non-patentable.<sup>37)</sup>

### C. BMPs in Korea

The application trend from 1999 to 2003 can be seen in Table 1. Since 1999, a number of BM applications have been filed to KIPO. In Table 1, we can find a great increase in the number of applications during 2000, jumping from 1,133 in 1999 to 9,895 in 2000. The trend of the application showed a great decrease in 2001 and 2002, but made a reverse turn in the first half of 2003.

[ Table 1 ] BMPs application trend <sup>38)</sup>

	1999		2000		2001		2002		2002 (First half)		2003 (First half)	
	N	%	N	%	N	%	N	%	N	%	N	%
<b>Domestic</b>	978	86.3	9,655	97.6	5,388	90.4	3,616	85.3	1,660	85.7	2,175	88.6
<b>Foreign</b>	155	13.7	240	2.4	574	9.6	623	14.7	277	14.3	279	11.4
<b>Total(GR)</b>	1,133		9,895 (+773%)		5,962 (-40%)		4,239 (-29%)		1,937		2,454 (+26.7%)	

\* N : Number of BMPs applications.

The number of BMPs is the sum of the applications classified as IPC G06F 17/00, 17/30, 17/60, 19/00.

Domestic : Applications by domestic people (D).

Foreign : Applications from other countries (F).

GR : Growth rate.

36) [www.patent.gov.uk/about/consultations/annexa.htm](http://www.patent.gov.uk/about/consultations/annexa.htm).

37) KIPO, *Guidelines* 2000, pp. 13-15.

38) KIPO, Press release, 12 August 2003.

Table 2. shows BMPs application trend classified by technology. Applications related to cyber shopping mall and transaction system occupy the biggest share (around 1/5 of all). Percentages of the applications related to advertisement, auction, and education & medical service have decreased, while that of etc. has greatly increased (26.7% in 2000 and 46.2% in the first half of 2003). It is supposed that after many BMs regarding advertisement, auction, and education & medical service have been filed in the first stage with the recognition of their patentability, innovations in these fields are becoming increasingly difficult, and thus, a number of innovations are now occurring in new frontiers.<sup>39)</sup>

[ Table 2 ] BMP Applications <sup>40)</sup>

Classification by Technology	2000		2001		2002		2003(first half)	
	N	%	N	%	N	%	N	%
Cyber Shopping Mall & Transaction System	2,098	21.2	1,014	17.5	883	20.8	468	19.1
Advertisement	1,051	10.6	385	6.5	176	4.2	125	5.1
Auction	1,101	11.1	439	7.4	235	5.5	127	5.2
Financial service	730	7.4	471	7.9	361	8.5	155	6.3
Delivery & Management	335	3.4	223	3.7	136	3.2	94	3.8
Education & Medical Service	752	7.6	444	7.4	287	6.8	136	5.5
Game & Entertainment	394	4.0	229	3.8	174	4.1	81	3.3
E-mail & Message Delivery	221	2.2	180	3.0	124	2.9	58	2.4
Demand Forecasting	400	4.0	185	3.1	109	2.6	36	1.5
Time Management & Secretary Service	31	0.3	16	0.3	7	0.2	2	0.1
Traffic Control	63	0.6	35	0.6	17	0.4	6	0.2
Guard Services	16	0.2	18	0.3	9	0.2	6	0.2

39) Collapse of the Internet economy is also asserted its cause.

40) KIPO, Press release, 12 August 2003.

Classification by Technology	2000		2001		2002		2003(first half)	
	N	%	N	%	N	%	N	%
Remote Measure	61	0.6	67	1.1	41	1.0	26	1.1
etc	2,642	26.7	2,227	37.4	1,680	39.6	1,134	46.2
Total	9,895	100	5,962	100	4,239	100	2,454	100

\* N : Number of BMP Applications

Table 3. shows that the total number of BMPs issued by KIPO is increasing (from 197 in 1999 to 776 in 2002, and expected as more than 1,000 in 2003). The rate of BMPs issued to domestic people (D/Total) is increasing steadily (74.6% in 1999, 76.4% in 2000, 78.4% in 2001, 89.4% in 2002, and 94.5% in the first half of 2003), while that of foreigners are decreasing (25.4% in 1999, 23.6% in 2000, 21.6% in 2001, 10.6% in 2002, and 5.5% in the first half of 2003).

[ Table 3 ] BMPs issued <sup>41)</sup>

	1999		2000		2001		2002		2002 (First half)		2003 (First half)	
	N	%	N	%	N	%	N	%	N	%	N	%
Domestic	147	74.6	133	76.4	265	78.4	694	89.4	316	80.4	496	94.5
Foreign	50	25.4	41	23.6	73	21.6	82	10.6	77	19.6	29	5.5
Total (GR)	197		174 (-12%)		338 (+94%)		776 (+129%)		393		525 (+33.6%)	

\* N: Number of BMPs applications.

The number of BMPs is the sum of the applications classified as IPC G06F 17/00, 17/30, 17/60, 19/00.

Domestic: Applications by domestic people (D).

Foreign: Applications from other countries (F).

GR: Growth rate.

41) KIPO, Press release, 12 August 2003.

In Table 4, it is found that patenting rates (patents issued/applications filed) of BMs are generally very low compared with those of electric or electronic engineering (E/E). In 2000, 34.4% of BMP applications were issued, while 64.3% of E/E were issued. Furthermore, we can find that the rates are decreasing (34.4% in 2000, 25.4% in 2001, and 16.6% in the first half of 2003). This appears to be the result of the following:

- The examination guidelines regarding BMs have been established in August 2000.
- The prior arts have been accumulated as BMIs have been examined for years.
- The examiners have acquired the knowledge required in examining BMs through educations in KIPO and by themselves doing their jobs.

While the patenting rate of BMs in Korea is much lower than that of the US (Korea 25.4%, US 45% in 2001), it is similar to that of Japan (Korea 22.5%, Japan 22% in 2002).<sup>42)</sup> It is supposed to be the result that in Korea and Japan BMs are required to be technical ideas using laws of nature. This requirement appears to be much stricter than that of the US. This disharmony between patent jurisdictions might cause disputes between, and inconvenience or uncertainty to, companies from different countries.

**[ Table 4 ] Patenting Rates of BMPs and E/E (Issued/filed)<sup>43)</sup> (%)**

	2000		2001		2002		2003(First half)	
	BMPs	E/E	BMPs	E/E	BMPs	E/E	BMPs	E/E
Total	34.4	64.3	25.4	63.7	22.5	52.9	16.6	49.4

\* BMPs are the applications classified as IPC G06F 17/00, 17/30, 17/60, 19/00.

E/E : Patents classified as H Section which is related with electric or electronic engineering.

42) KIPO, Press release, 14 March 2003.

43) KIPO, Press release, 12 August 2003.



Table 5. shows that main reasons for the rejection to BM applications are the lack of inventive step and disclosure. In the rejection reasons by the lack of statutory subject-matter, the rates for BMs are much higher than those for E/E applications. For example, the rejection rates of BMs by the statutory subject-matter reason in 2001 and 2002 were 6.8% and 11.3 %, while those of E/E were 0.7% and 1.0 %, respectively. This means that much more BMs applied did not have statutory subject-matter than conventional ones. According to KIPO, there were a number of BM applications regarding artificial agreements, pure business methods, and abstract ideas.

Rejection rates by the novelty requirement are much lower than those by the inventive step requirement. If a new method of doing business is first carried out in the conventional computer network system, it would be considered as novel, but be regarded as obvious because the mere application of a new method of doing business to the known computer network system, or the mere automation of a new business method is considered obvious to a person in the arts (e.g., a skilled programmer). Thus, it is not patentable in KIPO because of the lack of an inventive step. Rejection rates by inventive step requirements are lower than those of E/E inventions, but those by statutory subject-matter requirements are higher than those of E/E, and the gaps between rejection rates of BMs and E/E are much more conspicuous than in the case of inventive step.

High rejection rates by disclosure reasons (46.6% in 2002) appear to be the result that a number of BMs have been filed without any concrete technology of the computer or the Internet systems applied to the inventions. These applications could also be classified as a mere automation of new or known business methods.

**[ Table 5 ] Rejection Reasons of BMPs<sup>44)</sup> (%)**

Reasons	2000		2001		2002		2003 (First half)		Total	
	E/E	BMs	E/E	BMs	E/E	BMs	E/E	BMs	E/E	BMs
Statutory subject-matter	0.5	3.7	0.7	6.8	1.0	11.3	0.4	8.8	0.6	8.8
Novelty	2.9	2.2	2.3	2.6	3.0	7.5	4.6	10.6	3.4	6.7
Inventive step	43.2	34.3	38.8	30.2	45.9	34.0	50.7	40.5	39.6	34.4
Disclosure	43.0	39.9	44.5	46.9	48.3	46.6	43.0	39.9	49.3	45.3
Unity of invention	0.7	0.7	0.9	0.5	1.2	0.2	1.1	0.1	0.9	0.3
Amendments	9.6	19.2	12.8	13.0	0.5	0.3	0.2	0.1	6.2	4.5

\* BMs are the applications classified as IPC G06F 17/00, 17/30, 17/60, 19/00.

E/E : Applications classified as H Section which is related with electric or electronic engineering.

#### *D. A Case in Korea*

Even though there have been a number of BMs filed to and patented in KIPO, cases dealt in a court are very scarce in Korea. Only one case appears to be appropriate to be discussed here.

Samsung Electronic Company obtained a BMP titled “Method and Apparatus for Tele-education” on 25 January 1999.<sup>45)</sup> The invention was composed of 2 independent claims and 5 dependent claims which claim tele-education method and its apparatus.

Jinbo Network took legal proceedings against Samsung to invalidate the patent arguing that the invention has no statutory subject-matter, because the invention is purely based on artificial agreements among people and mental activity, and thus it does not utilize any laws of nature.

However, the Industrial Property Tribunal (Tribunal) recognized the invention as utilizing laws of nature stating as follows:

44) KIPO, Press release, 12 August 2003.

45) Korea Patent No. 1999-191,329, application date: 23 October 1996.

In order to accomplish the purpose of the invention that is to tele-educate users, evaluate and administrate the users' study results, because the server and the terminals of the invention are operated by electronic or magnetic signals which are changing in accordance with the operation, a physical transformation should always be taken place between the server and the terminals. This means that the invention has industrial applicability and utilizes laws of nature.

It is noted that the Tribunal admits utilization of laws of nature by recognizing physical transformation. This means that when physical transformation has taken place, a claim involving mathematical algorithm could be regarded as using laws of nature. This is in contrast with the statement of the CAFC in the *AT&T* case. The CAFC stated that physical transformation is not an essential requirement for an invention to be patentable, but a mere example verifying that the mathematical algorithm provides a useful result.

Jinbo appealed to the Patent Court (10 February 2001) and the Court invalidated the invention on the ground that the invention has no inventive step (18 December 2002). The Patent Court assumed that if an apparatus or a method using data that is transformed by computation could produce 'useful, concrete and practical results'<sup>46)</sup> by enhancing the efficiency of or controlling a specific technical means in a way that is general, repeatable, and objective, it is a technical idea utilizing laws of nature. In order to make it clear that the invention of the revised claims utilizes laws of nature, the Court stated as follows:

- The invention claims not a mathematical principle, but a technical means that could be used generally and repeatedly.
- The invention makes it possible to tele-educate users, manage and store users' study results over the Internet without giving any restriction of time and place to users and thus, has a concrete and practical effect.
- The invention claims a tele-education apparatus which is composed of terminal, Internet interface, data output interface, operation system, server, etc. which are combined with one another organically.

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46) These terms are very similar to 'useful, concrete and tangible results' employed in the *SSB* case.

The Court also stated that the invention has industrial applicability because it claims not an idea or an artificial agreement for the tele-education, but a technical apparatus to implement an effective tele-education, which is useful for the development of industry and could be used in Internet-related industry or education industry repeatedly and continuously.

However, the Court decided that the invention has no inventive step based on the following reasons:

- The computer network system which includes a server computer sending data to client computers (terminals) on the request of client computers, and client computers displaying the data, is well-known technology.
- The functions which include sending education data requested by terminals, tele-educating by sending the evaluation data of users' study results, and managing and storing the users' examination data, are a well-known technology in the art or a technology that could easily be invented by a person in the art.

#### **IV. Comparison of patenting BMIs in the US, EPO and Korea** <sup>47)</sup>

All three jurisdictions (US, EPO, Korea) permit claims to computer programs on a carrier. In all three jurisdiction BMs are patentable. The fundamental difference between the US and Korea is that in Korea to be patentable computer-implemented BMIs should be a technical idea using laws of nature, while in the US computer program related inventions are of the technological arts. This requirement is satisfied when they provide useful, concrete and tangible results.<sup>48)</sup> In the Europe, BMIs should be of a technical character. In the US, the restrictions on patenting business

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47) Hart, Robert., Peter Holmes and John Reid, Study Contract ETD/99/B5-3000/E/106: *The Economic Impact of Patentability of Computer Programs*, Report to the European Commission, 1999; Daehwan Koo, *Effective Protection*, pp. 148-150.

48) European Parliament Committee on Legal Affairs and the Internal Market, 11 June 2002, WORKING DOCUMENT on *Directive on the Patentability 2002/0047 (COD)*. In Europe (and also in Korea and Japan, although the approach is different), an invention has to provide a technical contribution in order to be patentable. In the US, however, the invention must be merely within the technological arts. And the fact that an invention uses a computer or software makes it become part of the technological arts if it also provides a "useful concrete and

methods are negligible.

The consensus among the Trilateral Offices resulting from the comparative study<sup>49)</sup> on computer implemented business methods is as follows:

- A technical aspect is necessary for a computer-implemented business method to be eligible for patenting.
- To merely automate a known human transaction process using well-known automation techniques is not patentable.

In the view of the above consensus, KIPO as well as EPO appears to have appropriate examination guidelines for BMIs.

While the US does not have statutory exclusions for inventions, the EPC (European Patent Convention) has exclusions which include programs for computers and methods of doing business. In practice, however, a number of patents have been granted on computer programs and methods of doing business. The scope of software-related inventions that can be recognized to have technical character has been expanded by decisions made by the EPO.<sup>50)</sup> “Technical ideas utilizing laws of nature” in Korea and “technical contribution” in the EPO appear to be more restrictive than “useful, concrete and tangible result” in the US. This difference has

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tangible result”. This means that, if the requirements of novelty and inventive step are present, there are few restrictions on patenting business methods (e.g. Amazon.com’s 1 click or a method of selling airline tickets).

49) In September 1999, the Heads of Trilateral Offices agreed to study the legal and practice aspects of business method inventions. The USPTO and JPO (Japanese Patent Office) agreed to start the study at the Trilateral Conference in November 1999 and the Trilateral Offices agreed to adopt a final report at the Trilateral Technical Meeting in June 2000. The USPTO and JPO conducted the comparative study using hypothetical claim sets.

50) Since 1990 statutory subject-matter of an invention has been determined on the basis of whether or not the invention makes a ‘technical contribution’ to prior art. However, the *T 769/92* on the *Sohei* case in 1995 adopted ‘technical consideration’ as an examination standard. The *T 1173/97* on the IBM case in 1998 confirmed that a computer program is statutory subject-matter because a computer program that has “further technical effects” has technical features. The judgment also ruled that a computer program itself as well as a computer program as a record written on a medium is patentable subject-matter. See Report Presented by the Intellectual Property Committee of the Industrial Structure Council. Available at [www.jpo.go.jp/tousie/pdf/bukai\\_report\\_e.pdf](http://www.jpo.go.jp/tousie/pdf/bukai_report_e.pdf), accessed 10 June 2002. With respect to the criterion of ‘technical contribution’ and ‘technical consideration’, see Final Report by PbT Consultants (under contract number PRS/2000/A0-7002/E/98), *The Results of the European Commission Consultation Exercise on The Patentability of Computer Implemented Inventions*. P. 21. [http://europa.eu.int/comm/internal\\_market/en/indprop/comp/softanalyse.pdf](http://europa.eu.int/comm/internal_market/en/indprop/comp/softanalyse.pdf), accessed 10 June 2002.

resulted in fewer ‘bad patents’<sup>51)</sup> being granted in Korea and Europe than in the US.<sup>52)</sup> However, inconsistency between the statutory patentability and case law in the EPO causes uncertainty which is bad for business.<sup>53)</sup>

In sum, practices in patenting software as well as statutory patentability of computer-related inventions are different between patent jurisdictions. Inconsistency is also found in each jurisdiction. There is an apparent discord between the statutory patentability in the EPC and the practice of the EPO. The *IBM* cases reversed the EPO Guidelines.<sup>54)</sup> In the US, the subject-matter patentability of software inventions involving a mathematical algorithm was denied if failed in the FWA (Freeman-Walter-Abele) test.<sup>55)</sup> However, in the *SSB* and the *AT&T*, the CAFC declared that the FWA test has little applicability to determining the presence of statutory subject-matter. Until the *SSB* court declared that the business method exception no longer exists, the patentability of business methods had long been denied unless embodied in some tangible form. However, methods of doing business (even without using software or hardware) can now be patentable.

## V. Conclusions

In this state of affairs, before considering whether following the US practice in patenting software, or persuading the US to follow Korea or the EPO practice, or

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51) For example, Amazon’s 1 click patent (USP 5960411, 28 September 1999) is said to be a bad patent. Commentators say that when sweeping claims or obvious applications are patented, they would not foster innovation, but crush it. <http://www.spectrum.ieee.org/careers/careerstemplate.jsp?ArticleId=i080502>, accessed 27 January 2004.

52) However, the European system may be considered as broader than that of the US in that claims for computer programs not on a carrier are acceptable.

53) The existence of such uncertainty and divergences in legal protection can have a negative effect on investment decisions. If a proper action is not taken rapidly, many software patents and BMPs (which otherwise would have been obtained by the European companies) would be occupied by the US companies. See *Directive of the Patentability 2002/0047 (COD)*.

54) After the cases, a computer program claimed by itself is not excluded from patentability.

55) Even in applying the FWA test, the CAFC have been inconsistent. The court applied the test to *In re Shrader* and *In re Warmerdam* to reject the subject-matter patentability of the inventions. However, the CAFC did not apply the test to *In re Alappat* and *In re Lowry*.

coordinating with one another to harmonize the patentability of software and business methods, it is reasonable to examine whether or not the existing legal regimes are appropriate for protection of software innovations. This is because the main problems in software patenting (i.e. impeding follow-on innovation, establishing entry barrier) might be originated from the very nature of the existing legal regimes. If the main problems are resulted from the lack of harmony between the characteristics of software innovations and the existing legal regimes, it is necessary to consider providing alternative protection.<sup>56)</sup> This is because only trying to revise the existing regimes cannot solve the fundamental problems of the existing regimes which are based on exclusive property rights. If an alternative proposal is recognized by the main jurisdictions, such as the US, the EPO, Japan, Korea<sup>57)</sup> (and the other countries concurrently or in future) as more effective and appropriate than existing regimes for solving the fundamental problems of promoting software innovation without impeding follow-on innovation in sequential innovation, it could be introduced in these jurisdictions first and at international level in future. With this common approach, the problems of disharmony between jurisdictions as well could be solved more easily than with the existing regimes.

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56) *E.g.* Market-oriented Legal Regimes (Pamela Samuelson, *et al.*), Compensatory Liability Regimes (J. H. Reichman), Direct Protection of Innovation (William Kingston & Hermann Kronz), Utility models, Self-help systems (Kenneth W. Dam), etc. See, Daehwan Koo, *Effective Protection*, pp. 185-264.

57) The three jurisdictions (the US, the EPO and Japan) are responsible for the great majority of patent applications in the world. Korea ranked at 7th in the world in 1999 in the application number of patent and utility models, occupying 2.2% (Japan 6.1%, US 4.0%, Germany 3.3%, UK 2.6%, Spain 2.2%, Sweden 2.2%, Austria 2.2%, Switzerland 2.2%, Denmark 2.2%), IPR Statistics 2002, KIPO, 2002.

## **Biobligraphy**

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