Reform of patent system in Japan and challenges

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1. Introduction

- Intellectual property rights (IPRs) protection in Japan has been significantly strengthened since early 1990s.
- Initially the impetus for such changes came from abroad:

  the US-Japan agreement in 1994

  the TRIPs agreement in 1995
- the reform has been undertaken as a one of the corner stones of the domestic reform in Japan in the 2000s

- The experiences for the past decade or so has highlighted new challenges

- Three major challenges facing patent system in Japan and in the US on which this paper focuses

-efficient patent examination

-efficient utilization of information disclosed in patent documents for industrial research

-the patent thicket problem

2. **Reform of patent system in Japan in recent years**

- Important reforms in the 1970s and 1980s

  -introduction of product patent in 1976

  -full liberalization of multiple-claims for a patent in 1987

- The effect of the latter reform has unfolded gradually and significantly in the 1990s

- The stronger deterrence against infringement through strengthening

  -the private damage system,

  -criminal sanctions and

  -the power for a patentee to collect evidence of infringement

- The expansion of the patentable subject matter in the filed of computer program.

  In 2000 computer program of itself became fully patentable as a product patent

- the affirmation of the “doctrine of equivalents” by the Supreme Court in 1998

- the switch from pre-grant opposition system to the post-grant opposition system in 1994, integrated with the invalidation trial in 2004

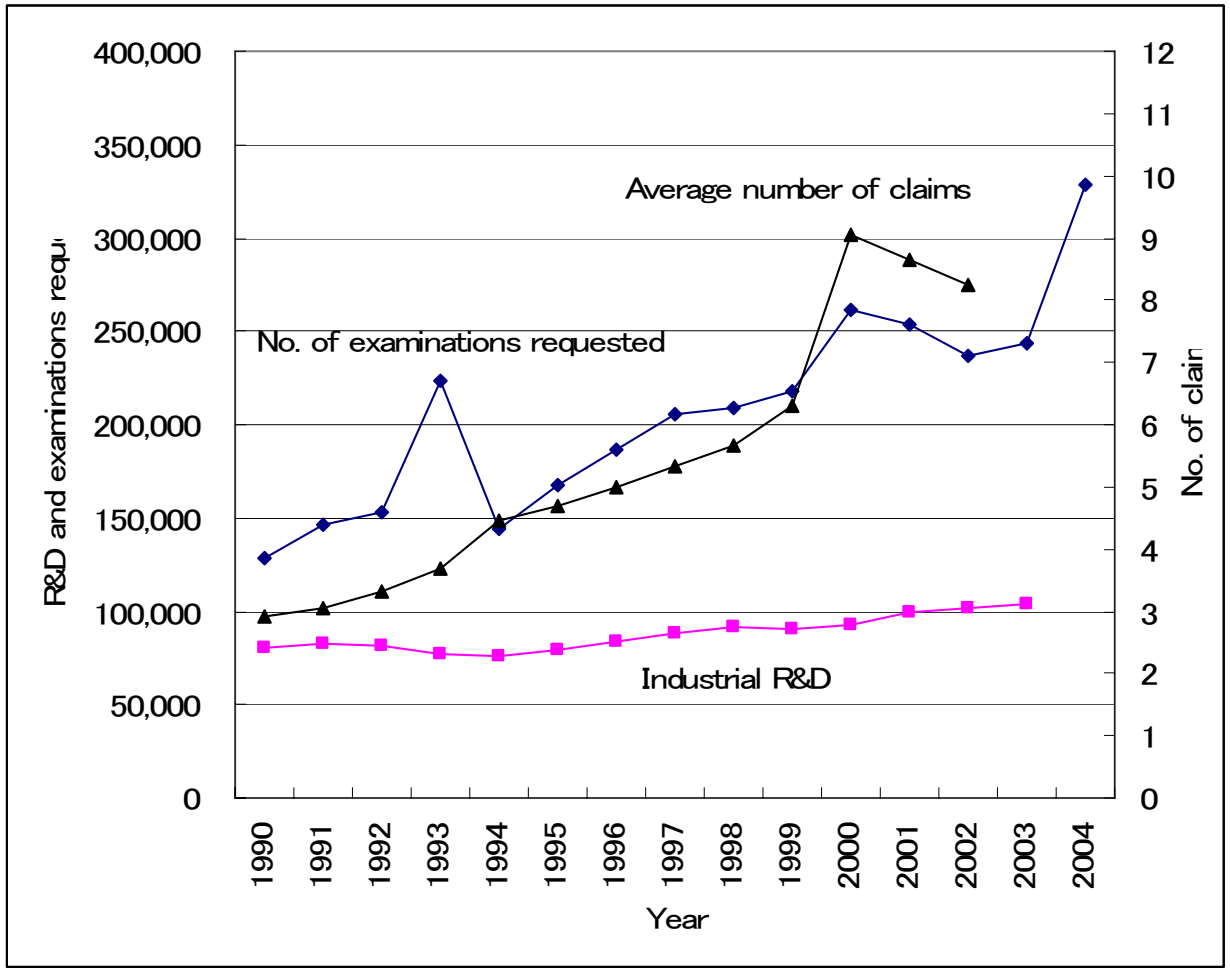
- No recourse to a compulsory licensing in order to resolve the blocking relationship, unless it is for the purpose of correcting an anticompetitive conduct or for the public or non-commercial use

3 Efficient patent examinations

- In Japan, industrial R&D increased in real terms by 30% from 1990 to 2003, while the number of patent examinations requested and the number of claims per patent application almost tripled from 1990 to 2004.

  see Figure 1
- They reflect both stronger patent protection including the introduction of multiple claims and emergence of new technological opportunities.
- The sharp increase of the number of patent examinations requested in 2004 was due to the patent law amendment in 1999, which forced a firm to decide whether it will seek a patent examination or not within 3 years

Figure 1. Increasing patent examinations requests and increasing number of claims per patent



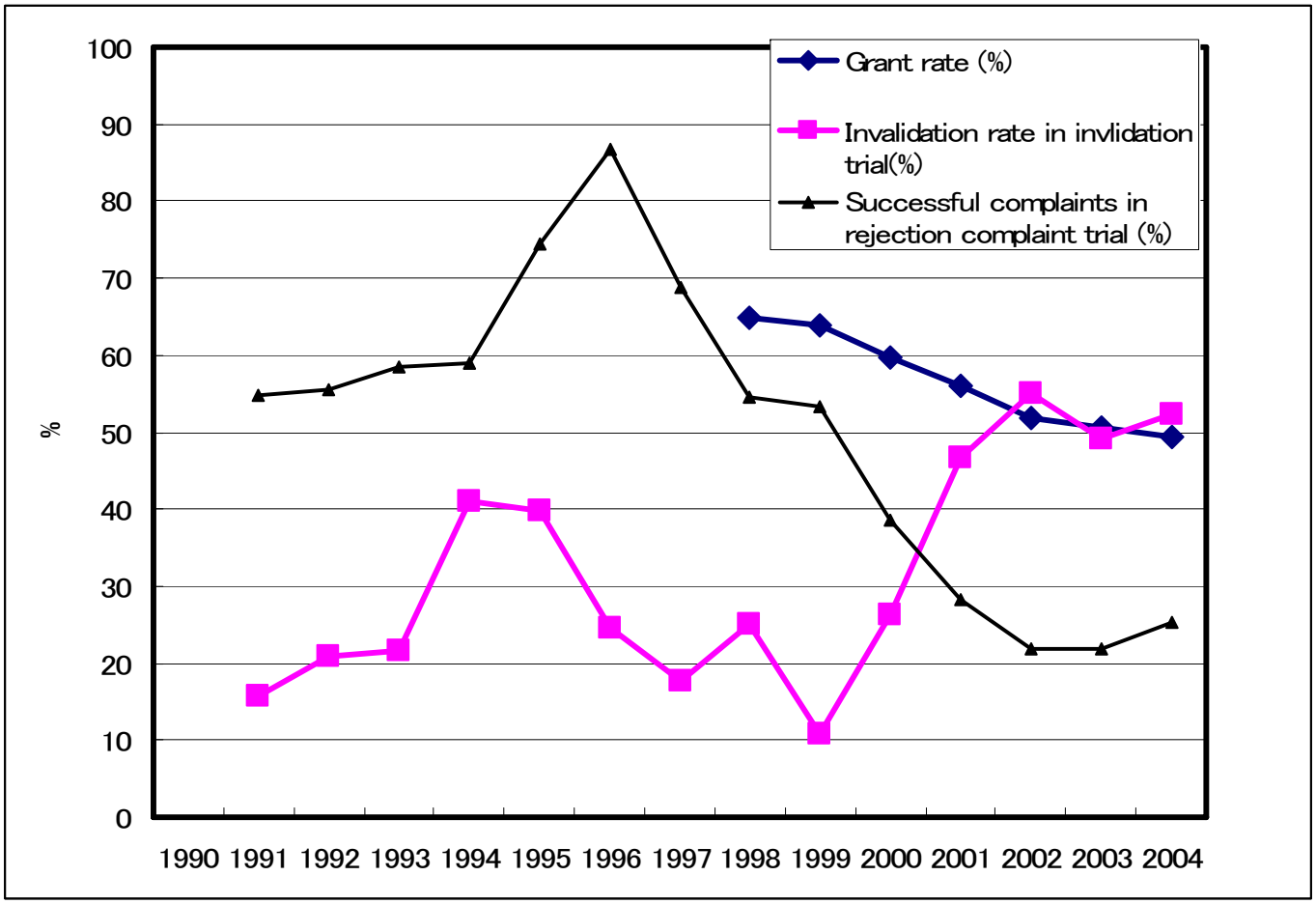
Data source. The numbers of examinations requested are from the annual reports of JPO. The average numbers of claims per patent applications are from the IIP patent database. Industrial R&D are from the Science and Technology White Paper (real industrial R&D expenditure in 1995 price, million$ (1$=118yen).

- The increasing complexity of a patent and increasing requests for patent examinations are putting strong pressure on the scarce examination capacities of the JPO.
- The waiting period for examination increased from 19months at the end of 1998 to 26 months at the end of 2004.
- Fast truck examinations are available for those who will implement patents in the near future.

Patent quality

- Application of stricter inventive step standard in recent years
- The grant rate of a patent declined to around 50%, compared to more than 60% one decade ago. (See Figure 2)
- Only 8% grant rate for business method related software
- The increase of invalidation rate in invalidation trial and the decrease of successful complaints in rejection complaint trial.

Figure 2.　Application of stricter inventive step standard



Grant rate=the ratio of the granted patent applications relative to the sum of granted and rejected patents, including abandoned patents. Made from the annual reports of the JPO.

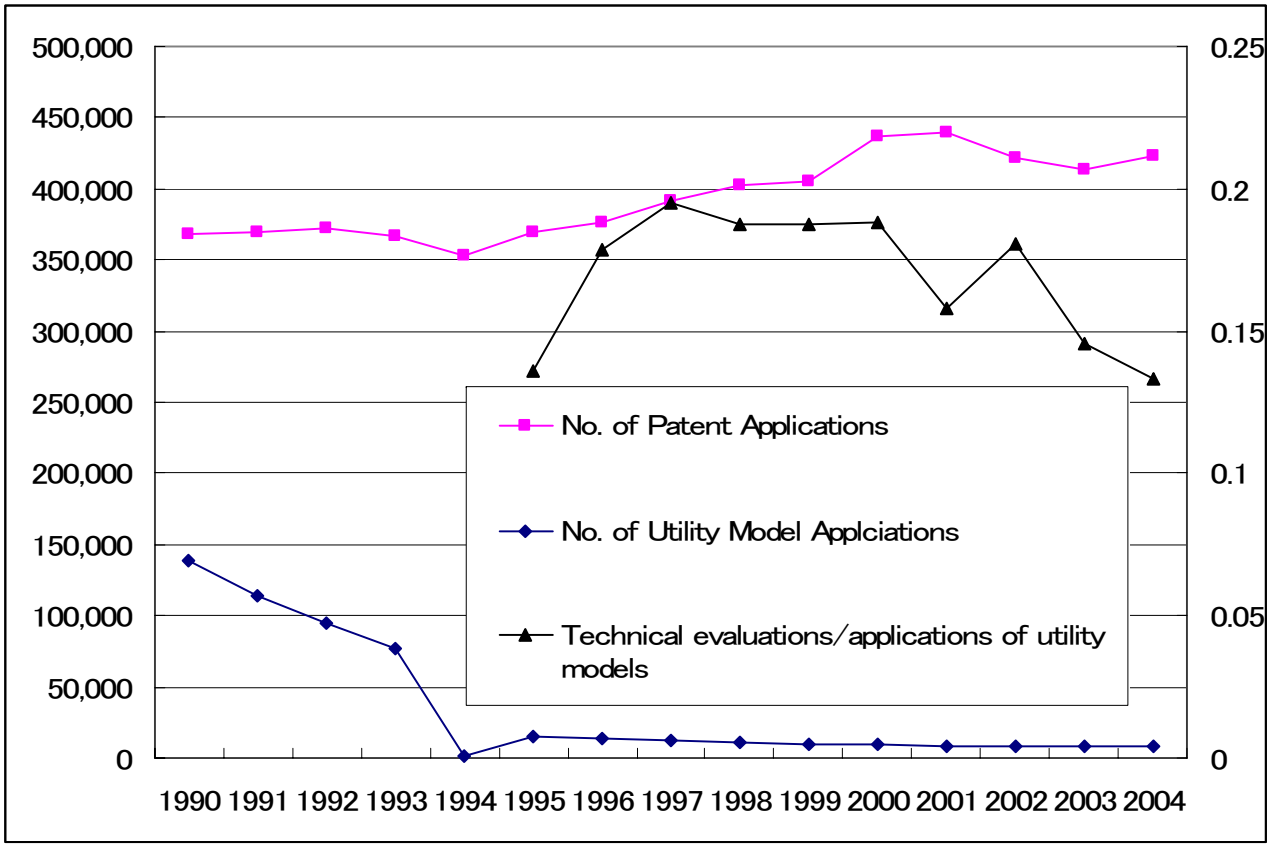
Searching for the system of efficient examinations

- Lemely (2001) for the hybrid system similar to that of the Japanese system vs.

  Jaffe and Lerner (2004) for the presumption of validity assisted by stronger re-examination system
- The experience of the utility model of Japan since 1994 suggests that the hybrid system postponing the examination of an invention at the enforcement stage may not work

  (see Figure 3)

Figure 3. Applications for patents and utility models, and the intensity of the use of technical evaluations



the intensity of the use of technical evaluations=No. of technical evaluations by The JPO / the No. of applications of utility models in each year
Made from the annual reports of the JPO

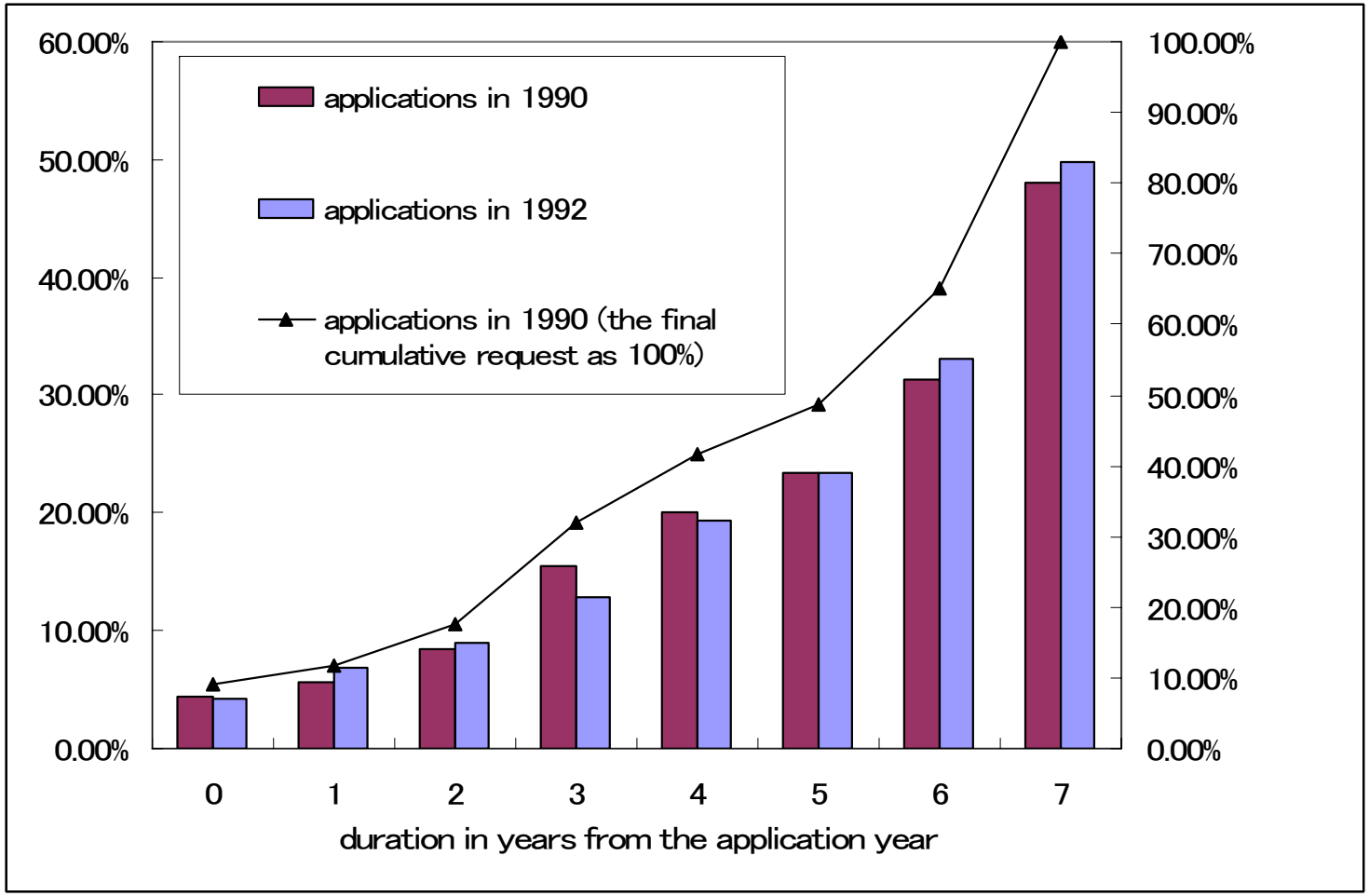
- On the other hand, inventors do not want immediate examinations, since lots of uncertainties exist with respect to the commercial applicability of an invention and a long time is necessary for its resolution

  (see Figure 4)

  → Forfeiting the option to postpone the requests of examinations as in the USA would probably not make sense

- The participation of a third party in post-grant opposition system tends to improve patent examination quality significantly.

Figure 4. The timing of the examination requests from the year of patent application



Source: Prepared from the annual reports of the JPO

In addition,

- International collaboration among US, Japanese and European Patent Offices for mutual recognition of search results and examination results would significantly leveraging the examination resources globally .

4. Efficient utilization of disclosed information

- All patent applications are laid open in 18 months in the Japanese patent system. In addition, the first to file is the priority rule.
- Japanese firms regard patent as the most important source of information on rivals' R&D (Cohen, Goto, Nagata, Nelson and Walsh (2002))
- The patent examiners in Japan often cite only non-granted patents as the basis of rejection on novelty and/or inventive step grounds. → the availability of such information would significantly help firms to avoid duplicative R&D efforts

  (see Table 1)

Table 1 Unexamined or non-granted prior patent applications used for rejecting patent applications

IPC sections		No. of cited patents	Unexamined	Nongranted
A	HUMAN NECESSITIES	27,981	26.1%	49.3%
B	PERFORMING OPERATIONS; TRANSPORTING	87,715	28.2%	51.9%
C	CHEMISTRY; METALLURGY	62,307	27.3%	45.4%
D	TEXTILES; PAPER	11,704	27.6%	48.1%
E	FIXED CONSTRUCTIONS	10,684	23.5%	45.9%
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	32,845	29.9%	52.8%
G	PHYSICS	143,020	32.1%	60.7%
H	ELECTRICITY	115,305	33.2%	61.4%
	Total	491,561	30.3%	55.6%
	For ultimately granted patents total	582,737	27.8%	49.3%

Source: nagaoka(2005)

- A rejection based on novelty and/or inventive step ground are often based on relatively old patent documents .

  (see Table 2)
- This is the case in spite of the fact that a firm with higher R&D speed is more successful not only in getting a patent but also in obtaining a patent with broader scope.

  (see Figure 5)
- The patent database of the patent office is an important knowledge infrastructure for invention and innovation. There may be room for improving the functioning of the database.

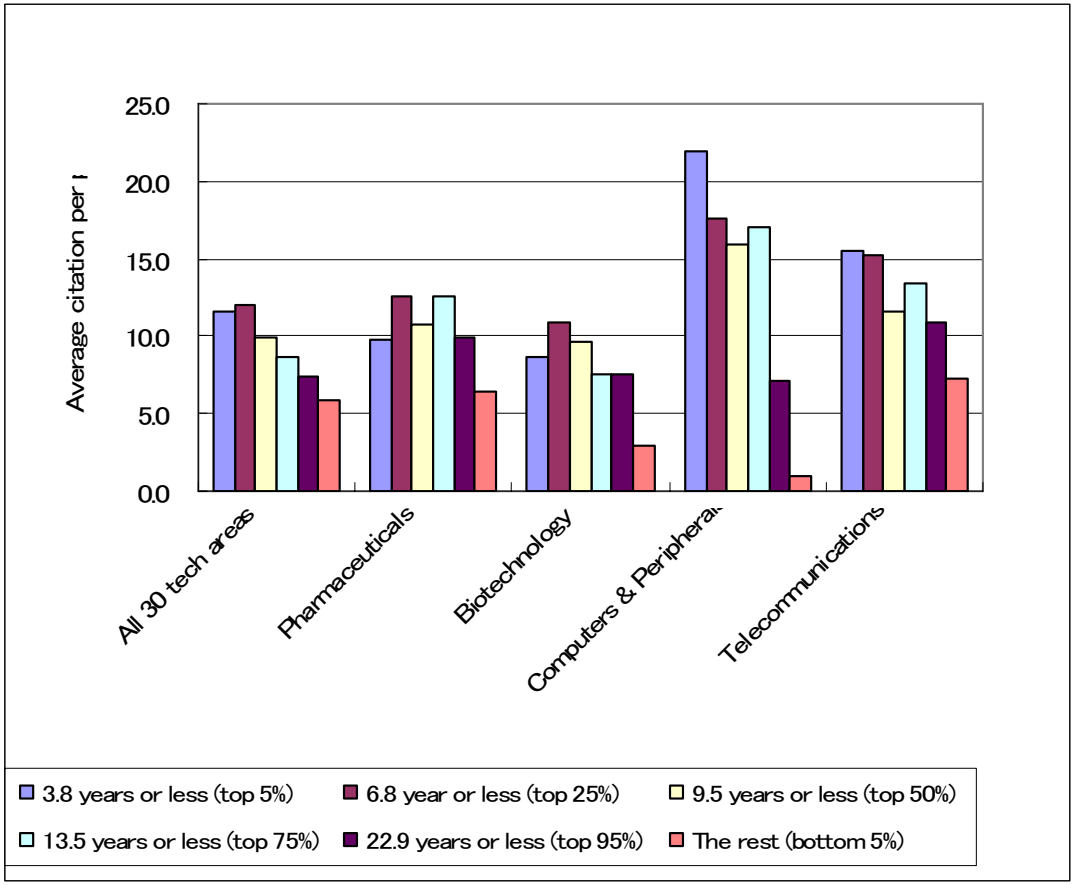
Table 2 Age of prior patent applications cited for ultimate rejections of patent applications based on novelty/inventive step(1985-1993)

IPC section		Age of cited patent applications as ultimate rejections			
		median	75%	90%	median for initial rejection for granted patent applications
A	HUMAN NECESSITIES	5.3	7	12	5.1
B	PERFORMING OPERATIONS; TRANSPORTING	5.4	7	12	5.1
C	CHEMISTRY; METALLURGY	5.0	6	11	5.0
D	TEXTILES; PAPER	5.7	8	13	5.6
E	FIXED CONSTRUCTIONS	6.2	9	13	5.9
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	5.5	7	12	5.2
G	PHYSICS	4.1	5	8	4.1
H	ELECTRICITY	4.5	6	9	4.4
	Total	4.8	6	10	4.8

Note Age is measured by the most recent prior art cited by an examiner for

Source: nagaoka (2005)

Figure 5. Citation lag and forward citation frequency (based on the US patent grants between 1988 to 1992)



Source: made from the Chi database

5. **Ameliorating the patent thicket problem**

- The proliferation of patents and the other intellectual property rights can deter rather promote innovation.
- Patent thicket problem: high transaction costs, holdup risk, inefficiency of the chains of vertical monopolies and the difficulty of coalition formation
- Erosion of the profit of a pioneer firm

The problem looks to be most acute in IT related standard areas

- Standards can have many essential patents
- It is often possible for a firm to apply for new patents by using continuations and divisions especially in the USA even after the standard specification is set.
- The disclosure policy is weak and no precise definitions of what RAND (reasonable and non-discriminatory licensing) means for each firm are provided by standard bodies.
- Non-granted patent applications may not be published in the USA

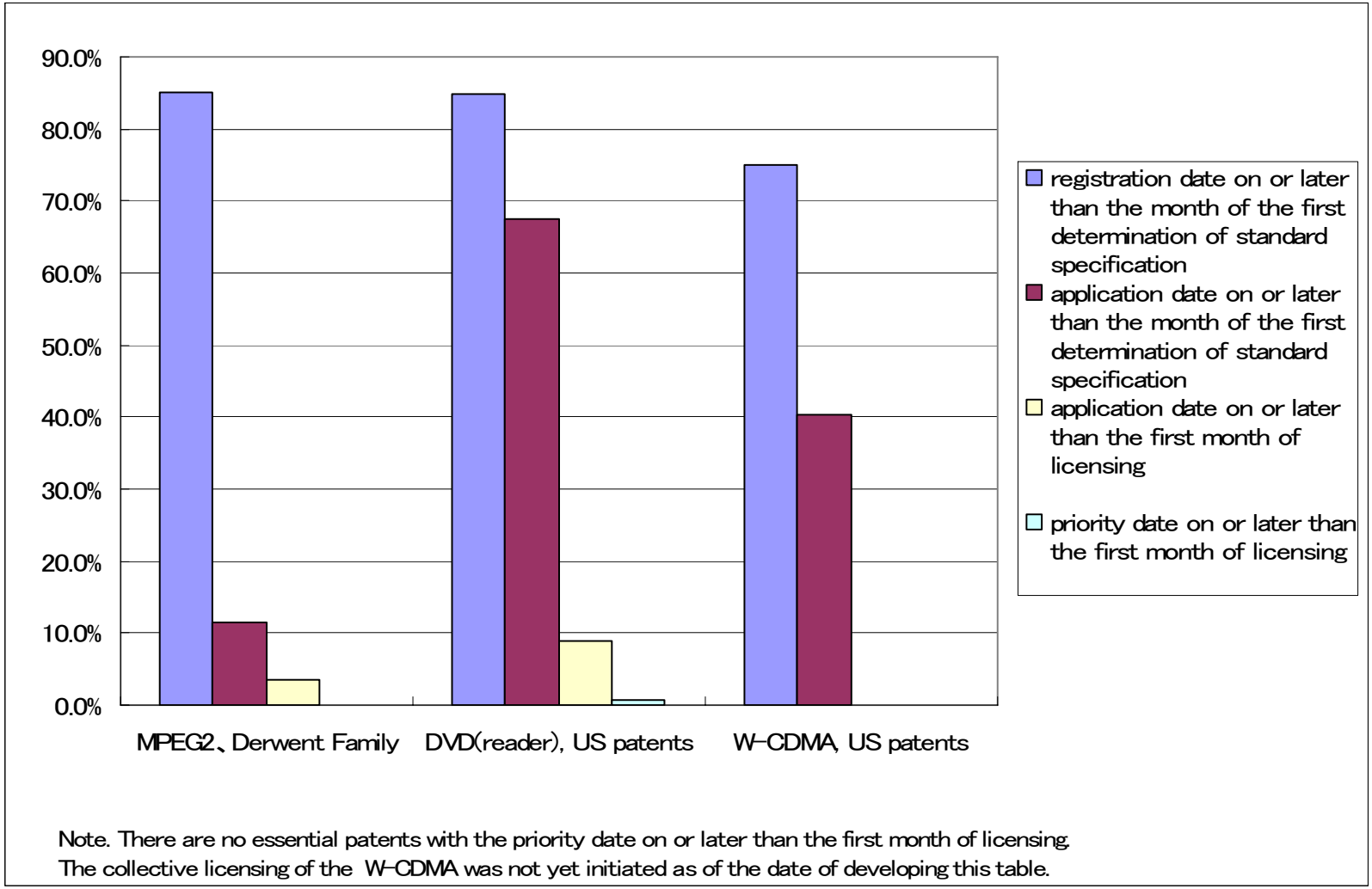
Table 3 Recent Standard-specifying Patent Pools

Standard	Pool Admin., Year	Members of the pool licensors	Essential patents	Non-members	Licensees
MPEG 2 (standard specifiation in December 1994)	MPEG LA, 1997	Originally (July 1997) 7 firms, 1 university; 22 firms, 1 univ. as of April 2004	Originally 125 patents (34 families); currently(July 2004) 644 patents (127 families)	Lucent , IBM	800 (November 2004)
DVD (standard specifiation in December 1995)	6C,Toshiba, 1998	Toshiba, Matsushita, Mitsubishi Electric, Time Warner, Hitachi, Victor Company of Japan, IBM	180 US patents for player, and 166 US patents for recorders	Thomson	245 firms for hardware (decoders and encoders) 157 firms for discs
	3C, Philips, 1998	Philips, Sony, Pioneer	131 US patents for DVD players, 106 US patents for recorders		179 firms for hardware (decoders and encoders) 216 firms for discs
3G	3G Patent Platform, 2003	7 firms for W-CDMA	in the process of certification (All the essential patents of the member firms)	Many, including Qualcomm, Motorola, Ericsson, and Nokia	

Source: based on http://www.3gpatents.com; http://www.mpegla.com; DOJ Review Letter from Joel Klein to Carey R. Ramos, June 10, 1999; DOJ Review Letter from Joel Klein to Gerrard R. Beeney, December 16, 1998.

From Nagaoka(2005)

Figure 6 Proportion of the essential patents applied or registered on or later than the month of standard determination or the initiation of licensing



Note. There are no essential patents with the priority date on or later than the first month of licensing.
The collective licensing of the W-CDMA was not yet initiated as of the date of developing this table.

Source: Nagaoka(2005)

Conclusions (Patent system for innovation)

- Stricter inventive step standard
- Facilitation of the third-party to provide information
- Providing the menus for self-selection by inventors
- International collaboration of examinations
- Facilitation of the utilization of disclosed information for R&D and patenting decision
- Tighter rule on continuations and divisions
- Strengthening the patent policy of standard bodies, including the clarification of RAND conditions
- Exemption for research on subject matter