Intellectual Property (IP) as a Tool for Economic Growth and Business Competitiveness

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Outline

- Industrial Development in Japan Based on Using Intellectual Property
- Correlation between Economic Development and Intellectual Property
- IPRs Protection for Economic Development and Business Competitiveness
History of Patent System: Born in Venice; Developed in UK

15th Century
- In 1474, the earliest patent statute in the world was enacted in the Republic of Venice.
- Galileo Galilei obtained a patent under the system.

Galileo Galilei’s invention was a horse-driven machine designed to pump water from a river in order to irrigate land.

17th Century
- The Statute of Monopolies was enacted in the UK in 1624 (the beginning of the modern IP system).
- This improved the environment for creating outstanding inventions (e.g., steam engine by James Watt; water frame by Richard Arkwright).
- The patent system played an important role in the Industrial Revolution.

History of Patent System in US

- 1788: US Constitution grants Congress the power “to promote the progress of science and useful arts, by securing for limited time to authors and inventors the exclusive right to their respective writings and discoveries”. (Sec.8 of Article I)
- 1790: Enacted the First Patent Act and on July 31, 1790, the first US Patent was granted by Thomas Jefferson (3rd President of the US).
- The “patent system added the fuel of interest to the fire of genius” in the discovery and production of new and useful things.
History of Patent System in Japan
- contributing to modernization and industrial development-

19th Century

- In 1885, the Patent Monopoly Act was enacted and the Patent Office was established.
- The first patent was issued in 1885 for an invention, which was an anti-rust paint by Zuisho Hotta.

Patent No. 1: Antirust paint and method of application
Invention for making anti-rust paint, including the ratio of ingredients such as lacquer, alcohol, vinegar, and ginger; and method of application.

Japanese first patent in the US was “Daylight Fireworks”. Patent was granted in 1883 to Genta Hirayama, a pyrotechnics technician.

History of JPO and the Industrial Property Rights System

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
</tr>
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<tbody>
<tr>
<td>1885</td>
<td>Enactment of Patent Act and establishment of the Patent Office (Korekiyo Takahashi was first Commissioner)</td>
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<td>1888</td>
<td>Enactment of Design Law</td>
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<td>1896</td>
<td>Beginning of Foreign Applications</td>
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<td>1899</td>
<td>Accession to Paris Convention</td>
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<td>1905</td>
<td>Enactment of Utility Model Law</td>
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<tr>
<td>1959</td>
<td>Revision of Current IP Laws</td>
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<td>1975</td>
<td>Accession to World Intellectual Property Organization (WIPO)</td>
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<td>1978</td>
<td>Accession to Patent Cooperation Treaty (PCT)</td>
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<td>1990</td>
<td>Acceptance of electronic applications (first in the world)</td>
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<td>1997</td>
<td>Accession to Trademark Law Treaty</td>
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<td>2000</td>
<td>Accession to Madrid Protocol</td>
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<td>2005</td>
<td>Establishment of IP High Court</td>
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<td>2006</td>
<td>Start of Patent Prosecution Highway (PPH) between Japan and the United States (first in the world)</td>
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<td>2010</td>
<td>125th Anniversary of the IPRs System in Japan</td>
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</table>

Original JPO Bldg. (Established in 1885)
Present JPO Bldg. (completed in 1989)
Korekiyo Takahashi (First JPO Commissioner)
Panels of ten great Japanese inventors (100th Anniversary Project)
Japan’s Legislative System to Protect IP

First Phase: Stimulation of Entrepreneurs

1885 Enactment of Patent Law and establishment of the Patent Office with Korekiyo Takahashi as the first Commissioner

Stimulated independent inventors

Many entrepreneurs emerged

Kokichi Mikimoto (Cultured Pearls)
Sakichi Toyoda (Wooden Hand Loom and Automatic Loom)
Jokichi Takamine (Taka-Diastase and Adrenaline)
Case 1: Toyota Motor Corporation

Company’s Roots

Entry into a New Business Area

Patent Assignment

Expansion of Business

Today

TOYOTA

Capital: $5 billion
Annual sales: $240 billion

Source: http://www.toyota-global.com/

Intellectual Creation Cycle

R & D
Creation

Inventions

Profit

Applications

Utilization

New Products

Intellectual Creation Cycle

Protection

JPO

Patent Rights
2nd Phase: Advancement of Industrial Development

Change in Patent Applicants

<table>
<thead>
<tr>
<th>Year</th>
<th>Foreigners</th>
<th>Japanese Government</th>
<th>Domestic Companies</th>
<th>Domestic Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1897</td>
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<tr>
<td>1945</td>
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From innovation by individuals to innovation by organizations

Case 2: Panasonic Corporation

Company’s Roots

Workplace

The first product

Gradually expanded operations

The company started by making minor improvements to wiring equipment ...
Industry & University Collaboration

We don't know how to apply our research results ... Fill the gaps in each other's weak areas

We lack R&D capabilities ...

For example:

✓ “Umami” seasoning by Prof. Kikunae Ikeda (Tokyo University)

✓ KS Steel by Prof. Kotaro Honda (Tohoku University)

Expand our business using the new product!

Company commercializes university's research results

Commercialize inventions!

3rd Phase: Utilization of Foreign Patents

Limited business fields and development capabilities

Technology transfer through license

Overseas Companies

Cultivating new fields

Improving technological development capabilities

Driving force for high economic growth
Case Example 3: Sony Corporation

**Time of founding**
- Factory
- Tape recorder

**Today**
- Acquired patent licensing rights for transistors and made its own improvements
- Capital: $8 billion
- Annual sales: $90 billion

Source: http://www.sony.net/

**4th Phase: Competition, Innovation, Globalization**

- Technology development competition
- Filing an application

**Trend in patent applications at selected patent offices**

- Sharp increase in patent applications

Source: WIPO IP Statistics, World Bank
Invention Born as a Result of Competition

Blue LED (light-emitting diode) device using nitride-based semiconductor
- Annual average sales: $5 billion
- Market size: $12 billion
- Technology of crystallizing gallium nitride (GaN) achieved the world’s first highly bright blue LED, and was developed in Japan.

Display screen with low power consumption
Thin traffic light with long service life

Correlation between Economic Development and Intellectual Property
Economic Globalization (1)

Trend in World Trade

Economic Globalization (2)

Trend in Technology Trades by Countries

Economic Growth & Intellectual Property

- Relationships between Economic Growth and the Growth Rates of Patent and Trademark Applications
  - Patent Application and Trademark Application growth rates are synchronized with changes in GDP growth

[Source] World Intellectual Property Indicators 2010
Global Growth in Patent Filings

- Patent filings are growing in number worldwide. Foreign filings especially are increasing rapidly.
- Foreign filings by Japanese companies are also increasing.

Number of Patent Filings in the World

<table>
<thead>
<tr>
<th>Year of Filing</th>
<th>Foreign Filings</th>
<th>National Filings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>35%</td>
<td>65%</td>
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<tr>
<td>2000</td>
<td>40%</td>
<td>60%</td>
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<tr>
<td>2004</td>
<td>42%</td>
<td>58%</td>
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<tr>
<td>2008</td>
<td>44%</td>
<td>56%</td>
</tr>
</tbody>
</table>

Source: WIPO Industrial Property Statistics

Number of Patent filings by Japanese Applicants

<table>
<thead>
<tr>
<th>Year of Filing</th>
<th>Filed Abroad</th>
<th>National Filings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td>2008</td>
<td>34%</td>
<td>66%</td>
</tr>
</tbody>
</table>

Trends of Patent Applications in Japan

- The PCT application is increasing while the domestic application is decreasing
- Advanced globally-oriented applications among Japanese applicants
IPRs Protection for Economic Development and Business Competitiveness
- Roles of Governments and IP Offices -

Patent policy in the United States

- Sifted to Pro-Patent Policy in 1980's in order to revitalize national competitiveness and to eliminate twin deficits, i.e., budget and trade.
- The US Patent Reform bill became law in 2011 aiming to properly protect patent rights

- **Shift to the Pro-Patent Policy**
  - In 1982 Established the CAFC to enhance patent protection
  - In 1985 “Global Competition-The New Reality” (the Young Report) under R. Regan Administration
    - Strengthening IPR
    - Enhancing Trade policy → Special 301 Report (since 1989)

- **Leahy-Smith American Invents Act (Patent Reform Act 2011)**
  - From “first-to-invent” to “first-to-file”
  - Introducing post grant opposition system allowing cancelations of patents under administrative procedures, etc.

  ⇒ **For patent protection with higher quality and predictability**
  ⇒ **For proper protection in the competitive environment**
IP Policy in Japan

IP Policy in Japan aims at building an “IP-based nation”
- National IP strategy set up in 2003 revitalize national economy and industrial competition by making use of Intellectual Property.

Feb. 2002  | Prime Minister makes administrative policy speech
Dec. 2002  | Basic Law on Intellectual Property established
Mar. 2003  | Intellectual Property Policy Headquarters established (Head: Prime Minister)
July 2003  | First National IP Strategy established (IP Strategic Program: the Promotion Program on the Creation, Protection, and Exploitation of Intellectual Property)
April 2005 | Intellectual Property High Court established (High Court specialized in IP)

Intellectual Property Strategic Program

- IP Strategy Headquarters formulate the “IP Strategic Program” every year. Government ministries and agencies implement measures based on the programs.
- On June 3th 2011, IP Strategic Program 2011 was formulated.

IP Strategy Headquarters

Headed by: The Prime Minister
Headquarters members: All the Ministers and 10 experts

IP Strategic Program

Implementation

METI (JPO)  MEXT  MIC  MAFF  …

(Private) Companies, Universities …

Intellectual Property Strategic Program 2011

1. Strategy for Enhancing International Standardization
2. Strategy for Innovating IP Infrastructure
3. Strategy for IP on Cutting-edge Digital Network
4. Strategy for Promoting “Cool Japan”
Effective protection and utilization of IP

Expected Roles of IP offices/agencies involved with IP

- Striking an appropriate balance between competition and IP policy (laws, rules, examination guidelines)
- Improving quality of IPRs’ (stable rights and predictable examination)
- Enhancing IP infrastructure to respond to economic globalization
- Raising IP awareness in terms of respecting creators and innovators

Conclusion

- IP is the important factor for promoting innovation
- Encouraging Intellectual Creation Cycle is essential for innovation
- Proper protection of IPRs is needed for enhancing economic development and business competitiveness
Thank you for your attention!

JPO Homepage
http://www.jpo.go.jp/index.htm