Don’t fence me in: Fragmented markets for technology and the patent acquisition strategies of firms

The socio-economic contract nature of a patent

1. **Foreign governments, supra-national bodies**
   - Treaties
   - National government (legal/institutional system)
   - Influence compensation

2. **Patent office**
   - Cooperation
   - Controlled disclosure of technical information

3. **Foreign patent offices**
   - Cooperation
   - Transfer of rights
   - Fees

4. **Inventor**
   - Compensation
   - R&D, innovation and diffusion gains/losses
   - Granted patent rights

5. **Assignee**
   - Compensation
   - R&D, innovation and diffusion gains/losses

6. **Public/third parties (individuals, companies, universities, R&D bodies, license brokers)**

*Source: The economics and management of Intellectual property, Granstrand*
01. Overview of this paper

Research topic
Conditions under which firms expand their own portfolios of patents in response to potential hold-up problems in markets for technology.

Main argument
Firms will patent more aggressively than expected when markets for technology are highly fragmented.

Contribution
1) Emphasize environmental factors that affect firms’ patenting strategy.
2) Contribute to hold-up problems in markets for technology and their implications for firm strategy.
3) Construct citations-based measure of fragmented markets for technology.
Hold-up problem
The hold-up problem arises when the party who undertakes the investment (the investor) cannot recover the fixed cost of the investment ex-post because once the investment has been made, it is sunk and has no other use.

Conditions for hold-up to exist
1) Asset specific investments (lock-in)
2) Ex post action taking advantage of lock-in

Patent hold-up
표준특허로부터 다른 특허의 전환에 과도한 비용이 소요되는 상황에서 표준특허권자가 경쟁자의 시장진입을 막기 위해 표준특허의 사용을 허락하지 않거나 과도하게 높은 실시료를 요구하는 등 특허권을 남용하는 행위
Hold-up problem이 발생하기 쉬운 산업, 기술 환경의 특징은 무엇인가?

본 논문에서는 ex-ante solution의 일환으로 contract을 통해 hold-up problem을 해결할 수 있다고 주장한다. 이 외에 다른 방법으로 hold-up problem에 대응하는 방법이 있을까?
Figure. Response strategies when confronting a blocking patent

1. Try to invalidate patent.
2. Try to invent around
3. Obtain technology through acquisition, JV, licensing.
4. Cross-license or pool patents
5. Build up bargaining position through partnering, purchasing power, patent power, credible threats
6. Ignore or infringe (willfully or not)
7. Wait until patent expires
8. Stop R&D and any commercial operations

Source: The economics and management of Intellectual property, Granstrand
03. Fragmentation of markets for technology

Scenario 1: fragmentation index = 0
1) Contact the patent owner to make contractual arrangement (alliance, JV)
2) Invent around the patents
3) Proceed without permission

Scenario 2: fragmentation index = 1
1) It is infeasible to rely on ex ante solutions.
2) In order to mitigate risks firms amass larger patent portfolios of their own in an attempt to improve their ex post bargaining position.

Distributional characteristic of the firm’s external market for technology has important implications for the costs and potential delays associated with ex ante solutions.
03. Hypotheses development

- Fragmentation of external technology market
- Strong legal enforcement regime
- Capital intensive firms
- Patenting activity

H1

H2

H3a

H3b
Discussion: Factors that influence firm’s patent strategy & response


Patent regime 외에 기업들의 patenting behavior에 영향을 줄 수 있는 요소에는 무엇이 있는가?