

Technology Marketing

Chapter 3: Establishment of Technology Marketing Plans & Main Procedures

Attachment 1

Industrial Market Segmentation (Example)

As stated in the introduction section of the main text, technology marketing is mostly a part of industrial marketing in that the transfer subjects are mainly corporations. So, the market segmentation method in industrial marketing is concisely introduced. 3)

1. Macro – Micro Method of Approach

After first classifying industrial customers through standard industry classifications, the industrial market is segmented based on macro characteristics such as the scale of the industrial customer or (technology) product usage rate, technology (product) usage, industry category, position etc. This kind of method is called the macro approach depending on the scale of the analysis subject.

3) Dong-geun Yu, ibid summary extract

[Table 1] Standard industry classification (example)

A Agriculture & Forestry	
01 agriculture	02 forestry
B Fishery	
05 fishery	
C Mining	
10 coal, crude oil & uranium mining	11 metals mining
12 non-ferrous mineral mining: except for fuel use	
D Manufacturing	
15 food, beverages manufacture	16 cigarette manufacture
17 fiber products manufacture: except dressmaking	18 dressmaking fur product manufacture
19 leather, bag, & shoe manufacture	20 wood & timber products manufacture (except furniture)
21 pulp, paper & paper product manufacture	22 publishing, printing & record medium manufacture
23 cokes, refined petroleum products & nuclear fuel manufacture	
24 compounds & chemical products manufacture	
25 rubber & plastic products manufacture	26 non-ferrous mineral products manufacture
27 stage 1 metal industry	28 metal assembly product manufacture: except machines & furniture
29 other machines & equipment manufacture	30 computers & office machines manufacture
31 other electric machines & electric transformer manufacture	
32 electronics components, film, sound, & communications equipment manufacture	
33 medical, precision optics instruments & watch manufacture	34 motor vehicle & trailer manufacture
35 other transportation equipment manufacture	36 furniture & other products manufacture
37 renewable processed fuel production	
E Electric, gas, & water works	
40 electric, gas, & steam industry	41 water works
F Construction industry	
45 general construction	46 specialized construction
G Wholesale & retail industry	
50 motor vehicle sales & motor vehicle fuel wholesale	51 wholesale & product intermediation

corporation size
industry type of corporation
location of the corporation
production method
operation variables of the corporation
technology standards of the corporation
technology demand of the corporation
payment capability of the corporation, technology development budget information
technology purchasing method of approach
position of the purchasing division, technology purchase participants
technology purchase decision stage
technology supplier selection standard
final decision maker
situation factors
technology purchasing tension
technology purchase benefits
recent technology implementation
major competitors
technology usage
individual characteristics
features of the constituent personnel
technology purchase motive
individuality of the decision maker

Part 2: Major Factors in Establishing Marketing Plans

The main procedures in marketing were discussed in the previous part. The major items to be most commonly considered in establishing marketing plans are proposed in this part. For convenience, this entire part is written in point form.

1) General Summary

The major factors of the plan are summarized. They mostly consist of 1 page, and is written last after all the other contents are complete. This is a summary of the major details so that management can examine the marketing plan quickly.

2) The Strategic Aim of Technology Marketing

What is to be gained through technology transfer? Is it profit creation? Is it the provision of incentives to research personnel? Is it to raise external image of the firm? Is it to construct external alliance lines?etc.

3) Technology & Related Product Details

What is the advantage of this technology? In what form will it be supplied? What is the utilization scope and main application products & processes? What are the differences to existing similar technologies? What are the technology development stages and roadmap of related technologies?

4) Target Customers

Who are the typical potential customers? What is the problem that this technology has to solve? What is the proposal of the value and reason for the buyer to implement this technology? What is the level of qualification & enthusiasm of the technology buying firm?

5) Market & Competitive Analysis

What is the market size and market growth rate for the technology and related product? What are the market trends that influence technology transfer? Is the technology market in decline? Is the market growing? Is the market appearing? What is the market profitability, market share of the related product? What are the significant environmental factors that may influence technology utilization?

6) Competition

The relevant details of competition for this technology are the possession period of the competition technology, name of developer, related product, competition standard, competition technology related products & characteristics.

7) Price

What is the appropriate price for the technology? Will be a high pricing strategy or low pricing strategy? What are the standards for royalty calculation for licensing? What is the price sensitivity of the buyer in relation to the technology?

8) Promotion Program

What is the marketing program to be used to deliver technology information to the potential customer?

5) This part has already been explained according to the level of importance in previous chapters (chapter 2 & 3).

The following items explain the marketing promotion methods & promotion mix to be used.

- External marketing (telephone DM, brochures, Web, forum seminar, product exhibition, various events)
- Print material (data sheet, brochures, publications, multimedia, presentations, application notes, success cases, Web versions)
- PR, advertisements, elevator test, bulletin boards, catalogs, cable TV

9) Risk Relief & Customer Support

What are the risks arising during technology marketing & usage process? How will these risks be relieved? What additional services will be provided?

Part 3: Licensing as a Procedure of Technology Marketing 6)

To conduct technology marketing successfully, many procedures that successfully satisfy both parties involved in the technology transfer are required. The following figure shows the technology

marketing process based on the technology licensing instance. Here, not only licensing but also terms like technology transaction, technology transfer, technology outsourcing etc. are used synonymously as they are more universal, and all situations in licensing can be covered.

6) Kathleen R. Allen (2003), *ibid* summary extract

licensor
licensee
sales target
technology possessed
technology purchase profit proposal
market research
technology buyer evaluation
license valuation for technology licensing
technology transfer negotiation
technology transfer contract
purchase target technology inquiry
business plan preparation

1. Licensor's View of Main Technology Marketing Procedures

1) Derivation of transfer target technology

- Transfer target: technology product, patent, process, know-how etc.
- Transfer situations are different, so technology right which can contribute the most value must be determined beforehand.
- Some firms seek to expand to new diversified markets but technology is purchased as there is insufficient capability to achieve this independently. Also, some firms enter a license arrangement for production & operation efficiency within the organization.

2) Definition of Technology Purchase Profit

- Technology buyers, licensees, or people who require technology buy the benefits given by the technology
- These benefits must be defined. That is, what is the value gained by the technology buyer from the technology transfer?
- The ability to gain the highest value in relation to the technology by the technology buyer is the sum of technology benefits associated with the technology and all the accompanying know-how transferred with the technology
- These benefits can be defined easily in the view of the licensor, but it is just as important to be defined in the view of the licensee

3) Market Research

- The size of the potential market for the technology must be large enough. This secures the profit appropriate to the effort put in
- If the technology is new and is not known very well, the licensor must create a case in relation to market feasibility to attract the attention of potential licensees. The potential licensee should conduct independent research to use the data in negotiation strategy, and the licensor should also conduct their own research

4) Examination of the Licensor's Duty

- The technology transfer agreement is usually completed over a number of years, so the potential licensee should carefully execute the agreement conditions and confirm that resource, knowledge, and techniques are possessed to enable successful technology commercialization
- Running royalty is set at a specified percentage of total sales and is charge for the period of the license. Whether the license will have exclusivity conditions or not is a sensitive issue. In the case of exclusive agreements, the licensee gains the right to use the technology exclusively in the product development process and the royalty is set at a high rate
- If an exclusive agreement is entered, generally the licensee is a properly operating firm, so the licensee has the capacity to pay high royalties
- Non-exclusive agreements are most appropriate if the scope of the technology is too wide for a single firm to deal with all of it. Genetic engineering is an example of this case; there are many cases where the technology is in its early stages so it is difficult to predict the many possible application areas such as medicine, agriculture, chemical engineering etc.

5) Technology Transfer Procedure

Technology Transfer Management

Once the inquiry details or visitation schedules of potential customers for the technology are received, the licensor must examine the following for an effective negotiation process.

First Meeting Preparation

- Proposal of overall details that can be publicized
- Obtain additional information about the potential customer such as production scale, personnel allocation plan, technology capacity, financial capacity etc.
- Emphasize the advantages of the technology & equipment
- The potential licensee must provide contact details of all previous technology transfer contracts. Through the contact details, the licensor must investigate & examine the level of credit in terms of technology payments, royalty payments, achievement of results / goals etc. These are good references to determine the licensee conduct in relation to the new technology agreement

6) Technology Transfer Contract Value Assessment

- Of all assets, patented intellectual property is probably the target of the lowest valuation. In 2000, IBM gained licensing revenues of \$1.3billion, Texas Instruments has annual licensing revenues of \$400million, and Stanford University earns \$200million annually.
- In relation to the ultimate value gained through license agreements there are the following factors.
 - Economic life of the intellectual property, i.e. for how long will it bring profits for the firm?
 - The possibility of competition by similar intellectual property designs
 - New government laws & regulations that can cause damage to the marketing of the intellectual property
 - Changes in market conditions that can cause loss of intellectual property value

Technology Transfer Pricing

- When the technology right is transferred to another party (another firm, organization), an appropriate price is attached. The appropriate price is the fair market price
- In the case of licensing, the licensor can determine eligible candidates by requesting a refundable

evaluation fee from the licensee

- Also, to determine whether the licensee has the capital capacity in relation to the technology commercialization activities, it is recommended that an upfront commitment fee be obtained
- Confidentiality statement
- Personnel visitation schedule, visitation purpose, conformity to confidentiality in relation to specific technology factors required
- Examination of the duty details of potential customers prior to the meeting

First Meeting

- The first meeting must be held at the headquarters of the licensor. This necessary for the licensor to gain priority in relation to the discussions and technology presentation
- The licensor must conduct an expert presentation and must refrain from statements that have not been prepared. If there are problems with foreign language communications, interpreters should be hired so that both parties precisely understand each other

Maintenance of Technology Confidentiality

- The licensor must confirm the plan to present the technology to the licensee. This is conducted unilaterally over a few stages until the agreement is entered.
- During this period the licensee can assign an employee to receive technology announcement information, and this employee is restricted from revealing the information for a specific period of time (actually isolated)
- Which party is stronger in the negotiation process depends on the level of importance for either party. If the licensor possesses innovative technology that no one else owns, strength is given to the licensee. On the other hand, if the technology innovation details are too new and potential customers (licensees) that are willing to take on the commercialization risk are few, the licensee is given more strength
- To attract the licensee, the licensor may need to set low royalties, initial fees etc. Also, to effectively negotiate with the licensee, the decision making process of the licensee must be well understood

During Negotiations

- To reduce the potential of communication problems, the licensor must assign the point of contact between the licensee firm and one's own firm. Also, the licensor may need personnel within the firm to provide technical support during the negotiation period. There are many cases where the licensor allocates personnel to the licensee firm during the development stage to monitor & promote the technology transfer progress.

2. Licensee's View of Technology Marketing Procedures

- Many firms are gradually placing importance of outsourcing technology requirements to speed up the R&D process and raise competitiveness, and accordingly licensing tasks are being recognized as important functions. In the case where outsourcing the required technology is recognized as being more rational than self-supply in term of time, the question of whether to execute a liability clause becomes much more important
- The licensee must investigate the past technology transfer records of the licensor; i.e. did that firm successfully enter other technology transfer agreements? What is the success rate of new products? What was the relationship with the licensee like?
- The licensee candidate firm must insist on the direct discussion with the person in charge of the licensee firm (organization) because the owner of the firm or the CEO represents the vision of the firm and realizes the corporate culture and attitudes
- If the impression of the above person is not very good in the view of the licensee, it is suggestive that an agreement with that firm is not advisable. 2 suggestions of provisos on the agreement

success or failure with the licensor are as follows 1) Whether the representative of the licensor conducts meetings well prepared 2) attitude towards meetings

- If the preparations for the meeting are inadequate, this means that the firm is not familiar with the technology transfer process or is not taking the licensee very seriously. If the licensor possesses personnel with expertise, the overall technology transfer process will progress smoothly

1) Search of Suitable Technology

- Evaluation of technology subjected to transfer agreement is very important because the results of technology transfer appear in the long-term and any mistakes bring about large costs

The following questions must be answered in technology evaluations

- Will the technology utilization be in accordance with the licensor claims?
- Which measurement method will be used to appraise the results data? It must be noted that when the results measured in the lab are applied to the real world, differences usually arise
- Is the technology owned wholly by the licensor or is it a joint ownership with a third party where the role of the 3rd party must be taken into consideration?
- What form of guarantee will the licensor provide in relation to the technology results?

Technology Transfer Mediation, Agency

- Firms that mediate technology transfer between the licensor and the potential licensee are appearing. In reality, the licensor does not know exactly the value of the technology it possesses in other areas, so there is a claim that only 20% of the technology is being utilized (Yet2.com)

- Technology that is idle in a particular industry field may possess commercial applicability in other areas, and the problem is that most firms search in their own fields for technology buyers, and search methods are still inadequate

- For example, 3M has possession of a patent in relation to a polymer used in their adhesive material. They know that the polymer can also be used in chromatography, but because they are not involved in that area, they may not be able to find potential candidate buyers

- If this kind of technology is taken to a technology transfer support firm, it will be easier to find firms willing to use that technology. Technology intermediaries & agencies anonymously post technologies on their site. The licensor then pays a small fee for the technology posting, and the potential buyers can view the details of the technology free of charge. If the potential buyer requests more technology details, early usage of the technology, patent situation, technology transfer type etc. a small additional fee is charged

- In the case where entrance to the next stage is desired, the potential buyer must pay a guarantee deposit, and then the licensor releases its identity. Once the technology transfer is confirmed and the agreement is entered, technology intermediaries & agencies of America collect up to \$50,000 or 10% in royalties.

2) Business Plan Preparation

- The licensor wishes to know whether the licensee has conducted market research and established the technology commercialization plan. So, the licensee must construct a business plan that shows the capacity of the firm in terms of technology commercialization resources such as personnel, capital, knowledge, facilities etc.

3) Negotiation of Technology Transfer Conditions

- In the view of the licensee, the technology sought must be dealt with independent of the business itself. So, only the additional value from the transferred technology is subjected to royalty payments.
- In the case of open licensing where benefits are provided equally to all competitors, the licensee does not gain large benefits. Rather, open licenses only benefits the customers of the licensor & licensee

3. Technology Transfer Agreement

When the licensor and the licensee are attempting to confirm the transfer conditions between them, it is important to seek the advice of an experienced lawyer. The following details are examination clauses commonly found in technology transfer, and qualified lawyers write up appropriate contracts in relation to special situations.

1) Assignment Clause

- The assignment clause designates the rights for the contents, i.e. copyright, distribution, usage etc. transferred to the licensee through a technology transfer contract. To execute the technology transfer, this clause gives the licensee the right to use the technology, knowledge, know-how etc. of the licensor
- This right can be assigned through design, education & training etc.
- This clause specifies whether the license is exclusive or non-exclusive. Also, it includes whether protection is covered in the case where the technology inventor claims a patent violation.

2) Execution Clause

- The execution clause states the given date for the execution of the mutually agreed aims such as technology commercialization development, early customers, and target market occupation to be executed by the licensee
- This clause has similar characteristics to prophylactic drugs. This clause can prevent situations of non-execution of technology commercialization activities and other expected sales standards by the licensee when an exclusive agreement has been entered giving total occupation of the technology

3) Confidentiality Clause

- The confidentiality clause limits the release of transferred information and specifies who and for what period a representative (intellectual ownership right) can be used
- This clause also determines when, in what situation, and for how long the intricate details of the technology information can be shared with outsiders within the firm. The usual confidentiality period is 5~10 years

4) Royalty Payment Clause

- This clause regulates the payment method for the technology including early fees, total or divided payment according to results, running royalty of a fixed rate on net sales etc.
- If it is an international transfer, the currency for the payment of fees must be determined, and US licensors mostly prefer USD, but a mixture of the currencies of both parties is sometimes adopted
- Because the value of foreign currency changes throughout the entire contract period, the royalty

payment differs. This kind of factors must be included in the royalty related regulation within the agreement

5) Grant back-Grant forward (technology/product improvement clause)

- This clause is also called the product improvement clause. According to this clause, the licensee can improve the product, and in this case, a grant back is provided to the licensee
- Sometimes, if the licensor or the first inventor has improved the technology, a grant forward allowing the licensee to use this can be specified

6) Time

- Like all other agreements, all technology transfer agreements specify compliance time for the agreement particulars and completion time. Under agreement by both parties, the agreement period renewal or extension can be included

7) Additional Clause

- Depending on the situation, equity can be given instead of the royalty and sometimes a mixture of both is prescribed. And in some cases cross licensing is agreed upon
- Also, in the case of the first licensee of the new technology, a clause stating that the most favorable conditions are provided in accordance to the risk burden is included
- Software firms are gradually including the escrow clause within the contents of the technology transfer agreement. In case the software firms find themselves within a intellectual property rights dispute, a source code is inserted within the escrow clause together with a neutral 3rd party

4. Technology Transfer Strategy

Technology transfer strategy must be for the diversification of overall profits and the maintenance of relative superiority purposes, and other aims of the firm must coincide with the core value. Here, factors of consideration must be included such as, is the firm willing to enter a cross-licensing agreement with the another firm? Can the technology be transferred without affecting current products? Etc.

Securing the Support of All within the Firm

When technology is transferred to another company, in many cases a partnership is formed with that firm. Technology transfer is a task that requires much time, early capital, involvement by many personnel etc. Also, to protect the investment of the licensee, there needs to be a plan to protect the patent of the licensor

Intellectual Property Rights Inquiry

- Small scale start-up businesses may not require numerous inquiries in relation to intellectual property rights but as time passes, firms with high innovativeness require a large scale patent portfolio
- By analyzing existing patents & patents that can be acquired, whether these coincide with the core competency strategy of the firm and whether outsourcing of technology is possible must be examined
- If it coincides with the firm's strategy, whether the technology will be patented and whether confidentiality will be maintained for internal use must be decided
- After these decisions, the technology valuation must be performed. Unfortunately, each transfer

has unique characteristics so there are no formulas yet to completely determine the technology transfer value

- Whether to do it as a percentage of total sales, whether to do it in accordance with the technology usage, whether an exclusive right will be given etc. are all important points of consideration

Selection of Licensee Candidates

- In many cases technology transfer relationships continue for long periods, so the licensee must be chosen carefully. The business achievements, technology commercialization capability etc. will also be important assets for the licensor