

WIPO Regional Seminar on Technology Transfer by Universities and Public Research Institutions through the Strategic Use of the Patent System

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Topic8: Commercialization Procedures

Yoshitoshi Tanaka
Graduate School of Innovation Management,
Tokyo Institute of Technology

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Major Points

- I. What types of Commercialization Routes can be taken by Universities and Public Research Institutions?
- II. Licensing, Spin-offs and Start-ups
- III. Case study of IP Strategy Making of a venture company “A”

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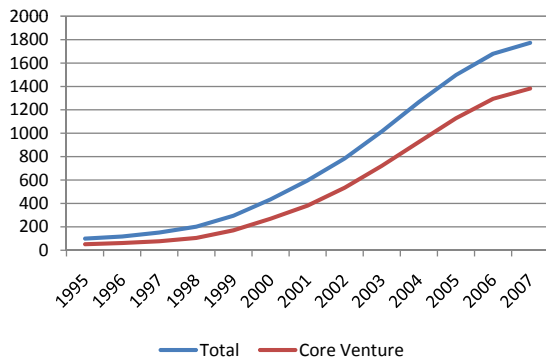
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Venturing from university in Japan

- By the end of 2007, totally 1,773 venture companies are under operation in Japan.
- Regarding its economical impacts, it is estimated that the total sales turnover is US\$ 2.8 billion and the total number of employees is 23,000.
- Economical impacts including its extending effects is US\$ 5.1 and 36,000 employees.

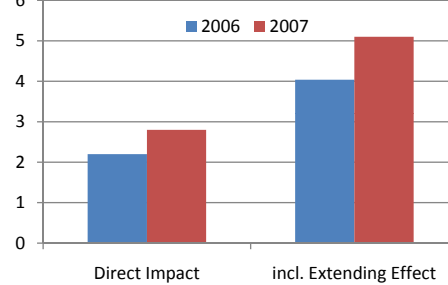
Accumulated Number of Venture companies from university



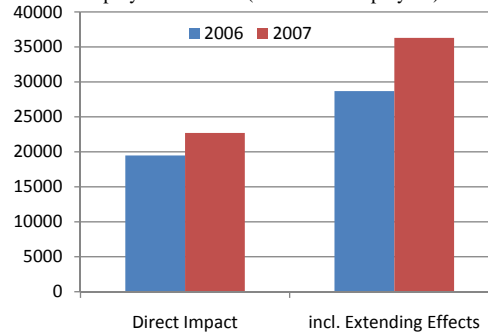
Core Venture:
Venturing based on Technical Seeds generated by universities +
Students' venturing related with universities

Source: University's venture companies investigation 2007

Economical Effects (Billion US\$)

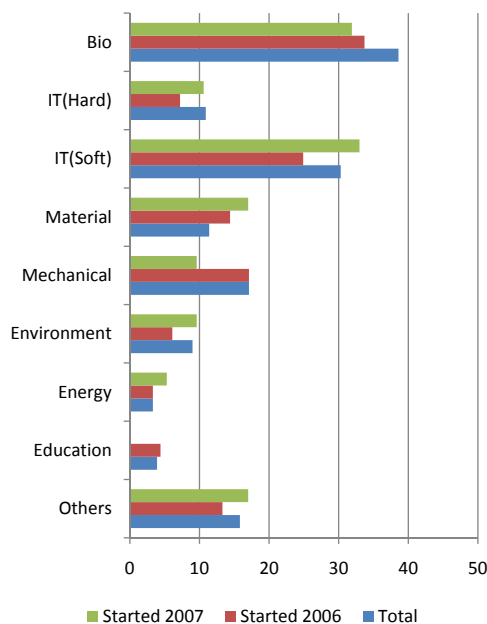


Employment Effects (Number of employees)



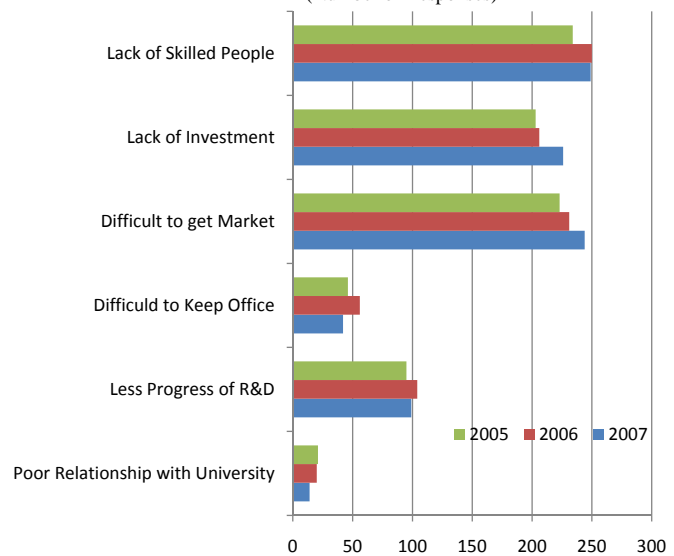
Venturing from university in Japan

Industrial Fields of Venture Companies (%)



Source: University's venture companies investigation 2007

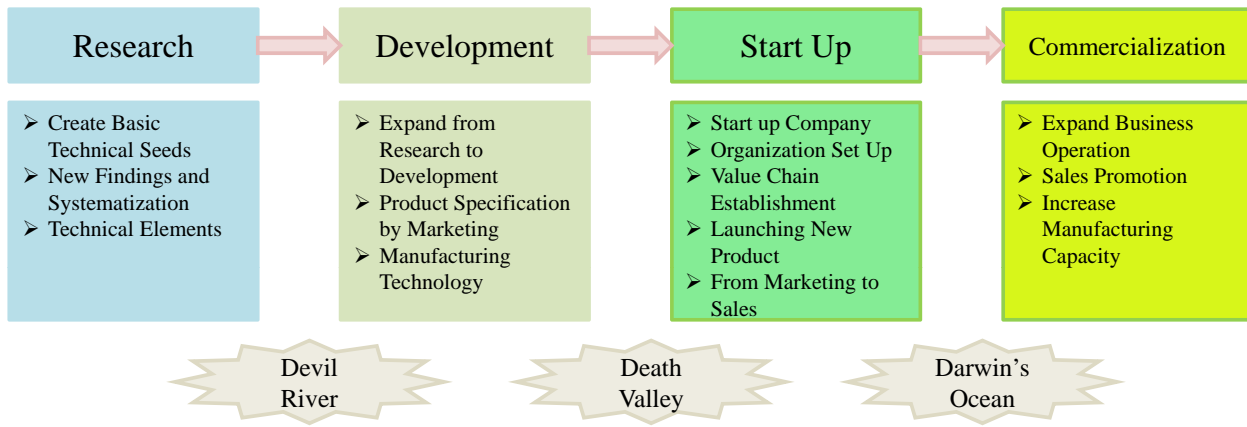
Subjects and Problem for Venture Companies (Number of Responses)



It is estimated that the reasons for subjects and problems are as follows.

- Technical seeds from university is still in the research level and not matured in the product level.
- Many cases with management members of researchers who have lack of management experiences.

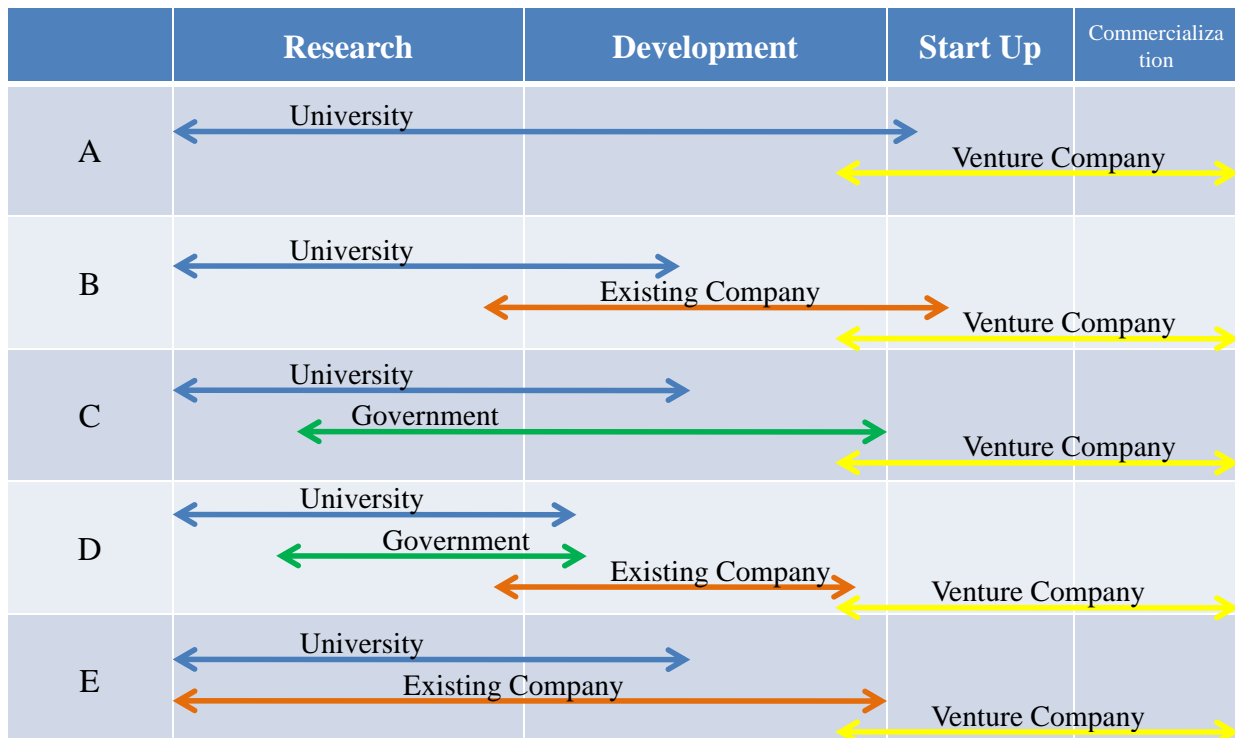
Commercialization Process from Research



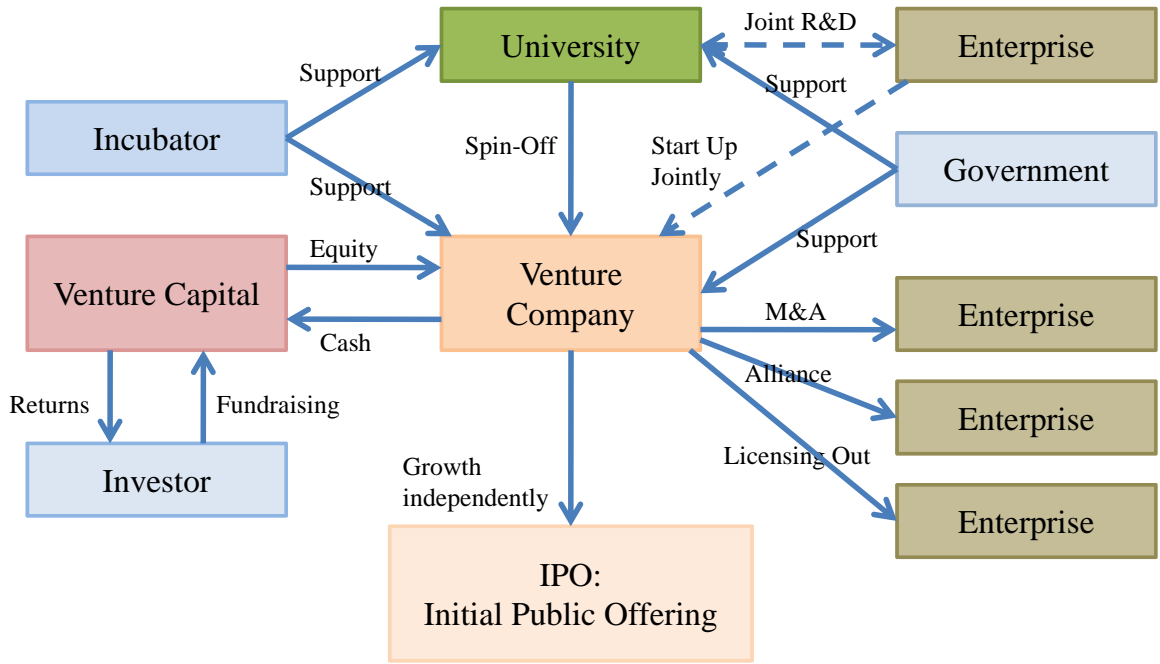
Problems	<ul style="list-style-type: none"> ➢ Research has opposite vector from Development ➢ Research towards Technical Seeds, and Development towards Specific Products 	<ul style="list-style-type: none"> ➢ Development is not reflected by Market ➢ Big Gap between Market Needs and Product Concept 	<ul style="list-style-type: none"> ➢ Business Operation has not yet established ➢ Lack of Competence against Competitors ➢ Lack of Strategy for Further Growth
Actions	<ul style="list-style-type: none"> ➢ Introduce Marketing into Research and Development ➢ Clarify Target for Development ➢ Project Management based on Technical Seeds 	<ul style="list-style-type: none"> ➢ Expand from Marketing to Sales ➢ Use Venture Capitalist bridging Product Concept to Investors 	<ul style="list-style-type: none"> ➢ Leadership by Professional Management ➢ Make a Strategy for Growth competing with Competitors

Comparison of Commercialization Process

Which type of process will make the best success?



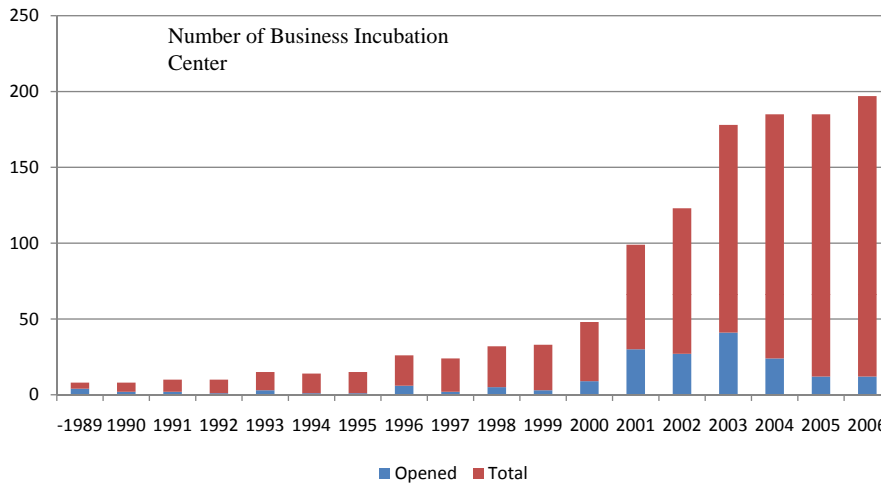
Typical Process of Venture Spin-Off



Role of Incubation Center

Decision making on Business Start Up	Support to establish Company Organization
Marketing research and its support	Support to make a Business Plan
Management consulting	Funding
Support to bridge with Investors	Investment funding Program
Financing system support	Guarantee support
Management resource securing	Institutional support
Human Resource support	Taxation
Legal Support	Customer development support
Accounting Support	R&D Support
Technical assistance	Equipment support
Support to find partners	Intellectual Management Support

Situation of Business Incubation in Japan



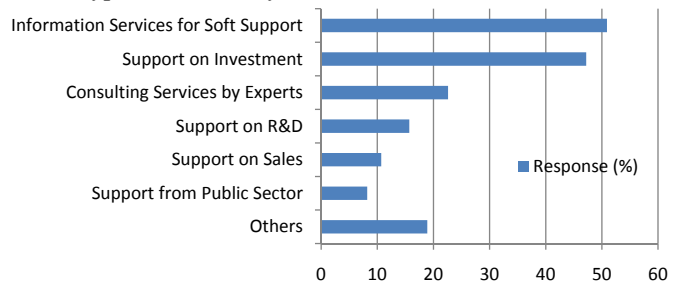
Business Fields	No. of Spin Out	Ave. Incubation Period (Months)
Electronics, Mechanical	440	43
Information, Telecommunication	856	24
Pharmaceutical, Bio, Agri	75	33
Sales, Service	543	18
Environment, Recycle	126	32
Others	282	31
Total Responded	2322	28

Services by Incubation Center

Soft Supports by Business Incubators in US

Services	Response %
Support on Business Basic	95
Marketing Support	90
Accounting/Financing Support	76
Legal Support	53
IP Management	64
Investment Support	73
Create Management Team	55
Management Member	55
Support for Strategic Partners	81
Collaboration Program	63
Product Evaluation	50
Management Information System	26
Production Support	46
Product Design Support	31
Networking Support	89
Commercialization Support	79
Collaboration with University	89
Compliance Support	36
Overseas Trading Support	54
Support from Government	50
Business Training Support	43

Typical Services by Business Incubators in JAPAN



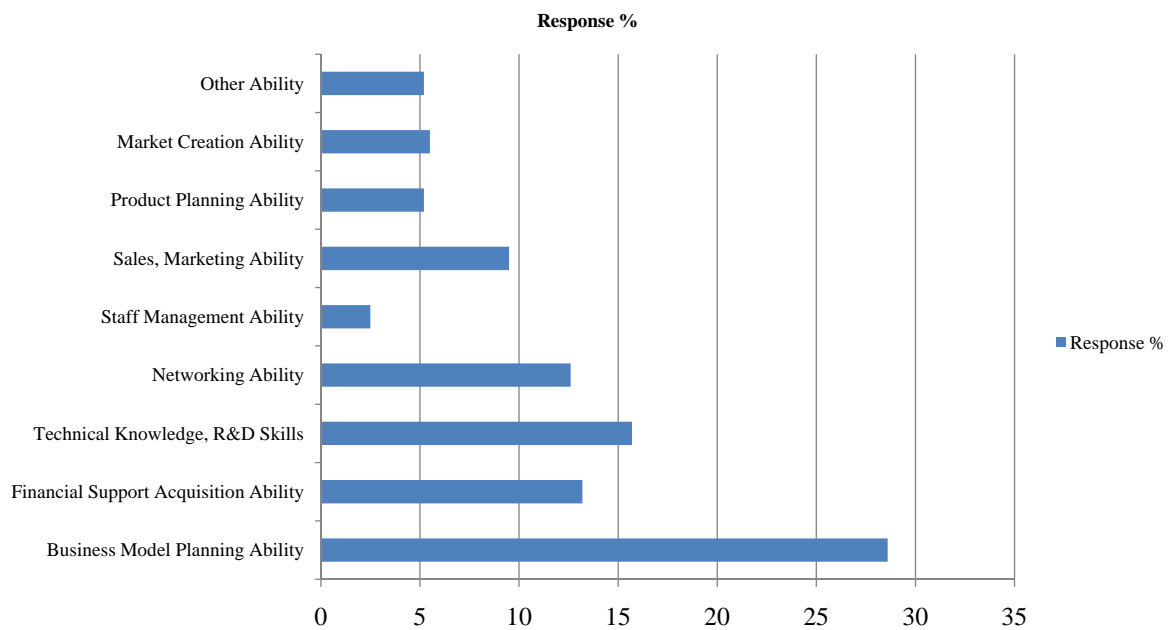
Comparison of Services by Business Incubators JAPAN/US

	JAPAN	US
Finance	Financial Support: 47%	Support for Loan Access: 77% Investment by R&D Team: 44%
Management	Consulting by Experts: 23%	Business Basic Support: 96% Accounting/Finance Management Support: 77% Legal Support: 47% IP Management: 37% Outside Experts: 42%
Technical	R&D Supports: 16%	Collaboration with university: 76% Technology Transfer: 40%
Sales/Marketing	Sales Support: 11%	Marketing Support: 89%
Facility	Facility of Public Institute: 8%	Production Practices: 37% Facility Services: 45% Computer Lab: 40%

Skills required for Incubation Managers

Skills
Business skills required to commercialize products/Services and achieve rapid growth, such as financing, marketing, management
Supporting skills to clarify the needs of tenants, and make a good matching between the tenant and management resource
Networking skills to find a supporters of incubation center
Communication skills to consult and advise to the entrepreneur
Business experience in the targeting industrial field
Strong leadership and motivation to support incubation activities
Human relationships with Management members of incubation center
Skills to create business plan and strategy as an incubation center
Management skills to provide the best services of incubation center
Communication skills to keep good relations with society
Marketing skills to find the expected tenants
Skills to promote communication with media to give benefits to entrepreneur
Skills to evaluate business progress of tenants

Skills Required for Management of Venturing Companies from University



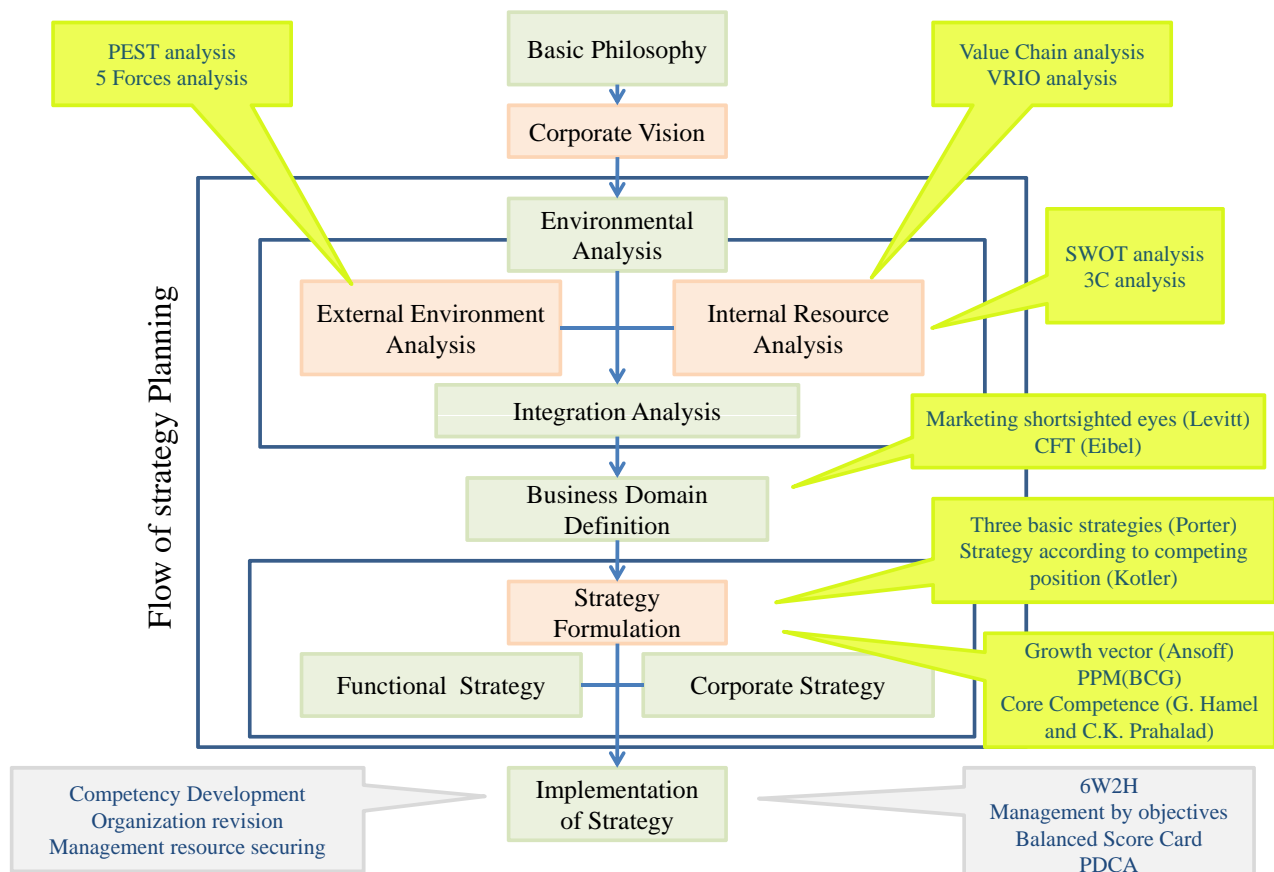
Importance of IP Strategy Making for Spin-Off Company

To make a good start of spin-off company and manage its business, we need a business strategy. Especially, Intellectual property strategy is a key for such a small company.

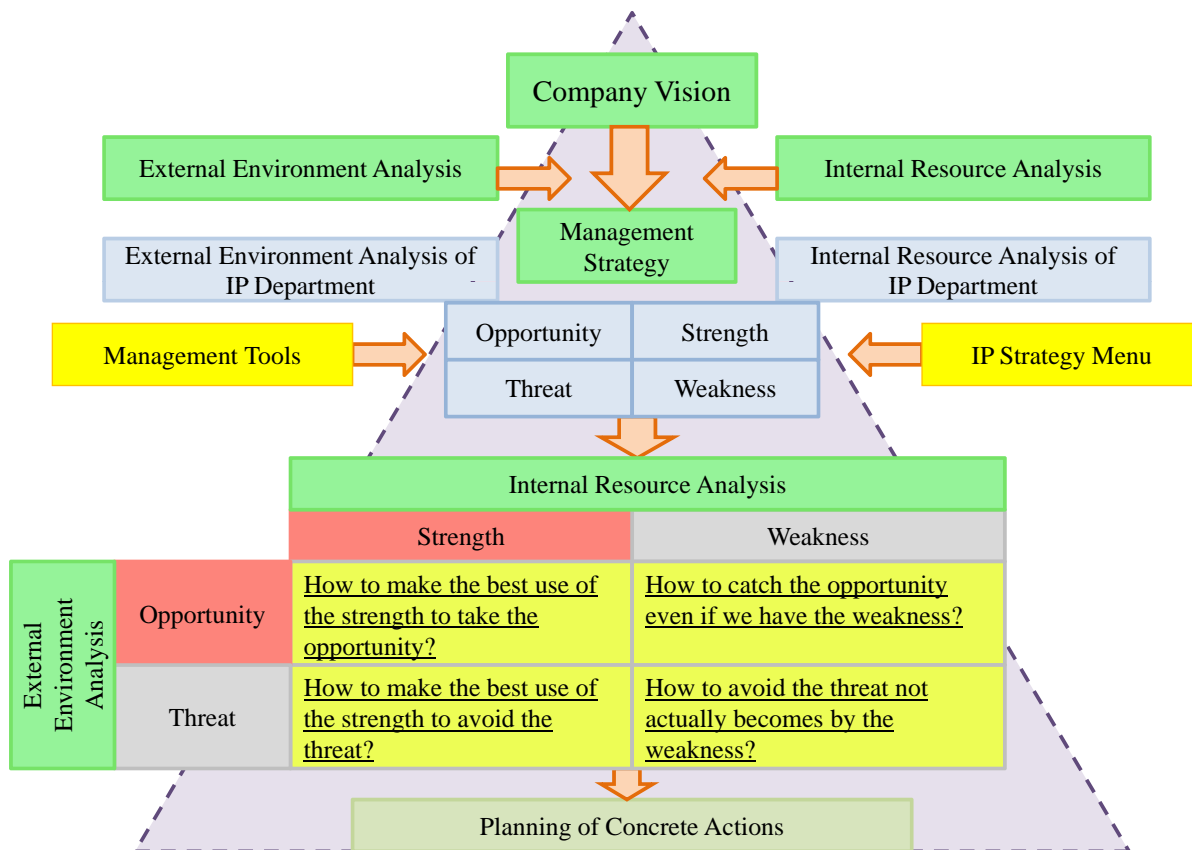
However, the management member from university in the field of science & technology do not have good skills to make the business strategy and IP strategy.

We have to apply the fundamentals of business administration to define IP strategy.

Flow of management strategy planning & management tools



IP Strategy Making Process



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IP Strategy Menu (1)

IP Strategy Menu	Brief Explanation	Key Word
Digging Up Invention Strategy	Pick up hidden inventions to file patent applications	Technology Technique Beginner on IP
Focusing on a "Hole" Strategy	Focusing on the area "Hole" that no one has applied as patents for R&D and patent applications	Niche Specific Area IP Information
Focusing on Core Technology Strategy	Focusing on Core Technology area of patents and create a barrier to avoid new comers	Core Tech Competing Focusing
Improvement Patents Strategy	Focusing on improvement patents to compete against competitor having basic patent	Improvement Follower Long term
Flooding Patents Strategy	Spend much budget for big number of patents to compete with the number of patents	Leader IP Budget IP Staff
Patent Portfolio Strategy	Create a group of patents having business value to take a leadership in the market	Business Analysis IP Management
Patent Information Strategy	Make efforts of distribution of patent information for the better utilization by R&D, marketing, including management decision	IT KM IP Information

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IP Strategy Menu (2)

IP Strategy Menu	Brief Explanation	Key Word
Invalidation Strategy	Take a legal actions to invalidate obstacle patents owned by others	Attack Dominant Selfish
Enforcement Strategy	Much efforts to find the infringing products on the market and take legal actions demanding injunction and compensation for damages	IP utilization Attack Dominant
Licensing Out Strategy	Licensing out patents to other company to expand the market	Open Friendship Market Oriented
Licensing In Strategy	Licensing in of other's patents to reinforce the technology reducing R&D expense	No NIH Supplement Outgoing
Negotiation Up Strategy	Take a leadership by patents in several occasions such as joint R&D agreement, legal dispute, licensing	Competition Leadership Self Development
Standardization Strategy	Take a leadership in standardization process to integrate patented technology with standardized technology	Total Balancing Harmonization Leadership
Alliance Strategy	Create a business alliance with others including competitors to get freedom in the market	Friendship Avoid Dispute Group Protection

IP Strategy Menu (3)

IP Strategy Menu	Brief Explanation	Key Word
Joint R&D Strategy	R&D with others to reinforce technology, to reduce expense, resulting shared patents	Partnership Cooperation Friendship
Inventors' Motivation Strategy	Maximamize R&D results to qualify patents by increasing inventors' motivation using X-Y theory by McGregor	Human's behavior Motivation Culture
IP Training/Education Strategy	Bottom up broadly on IP activities involving all functional departments, R&D, marketing, production, planning, purchasing, etc	HR Group Synergy Cross-functional
Secrecy Strategy	Protect Technical know how without filing patent applications, with strict and careful secrecy management	Skill Oriented Processing Strict
Overseas Business Strategy	Patent applications including licensing overseas focusing production site and market site overseas, being careful on foreign IP information	Globalization Outgoing International sense

Case Study of venture company “A” - How to Make IP Strategy

The business environment is in the fair wind situation that grows up rapidly by recent social trend of healthy and environment valuing.

Because it is a possibility of the market expansion in the future, the major electric manufacturer is under consideration as a new participant.

Company “A”

20 years history after establishment

R&D oriented company

No manufacturing facilities in-house

Capital: 1 million US\$, Number of employees: 20 people, Annual turnover: 35 million US\$

Product: Minus ion generating device

Technical feature: a large amount of minus ion generating device by the corona discharge in the titanium pipe

Patent Situation: About 17 patents are acquired including the basic patent and improvement patents, and the period of protection still remains for about 10 years.

No patent applications in foreign countries

Manufacturing license agreement with a Taiwanese manufacturer, importing to Japan

The quality of the titanium pipe is important, procuring it in Japan and send it to the Taiwanese manufacturer.

Though a certain major electric manufacturer had approached the licensing negotiation, however the company A refused the request.

The voice of the market trend to this company product in Europe and America is also growing.

The similar products began to appear in Chinese market. However neither the function nor the quality of Chinese products has not yet overtook company A's products.

Summary

- Situation of venturing in Japan
- Commercialization process
- Typical process of venture spin-off
- Role of incubation center
- Skills required for management of venture company
- IP Strategy Making
- IP Strategy Menu