

WIPO REGIONAL FORUM
University-Industry Collaboration to Promote Technology Transfer
organized by
The World Intellectual Property Organization (WIPO)
in cooperation with
The National Office of Intellectual Property of Vietnam (NOIP)
and with the assistance of
The Japan Patent Office (JPO)

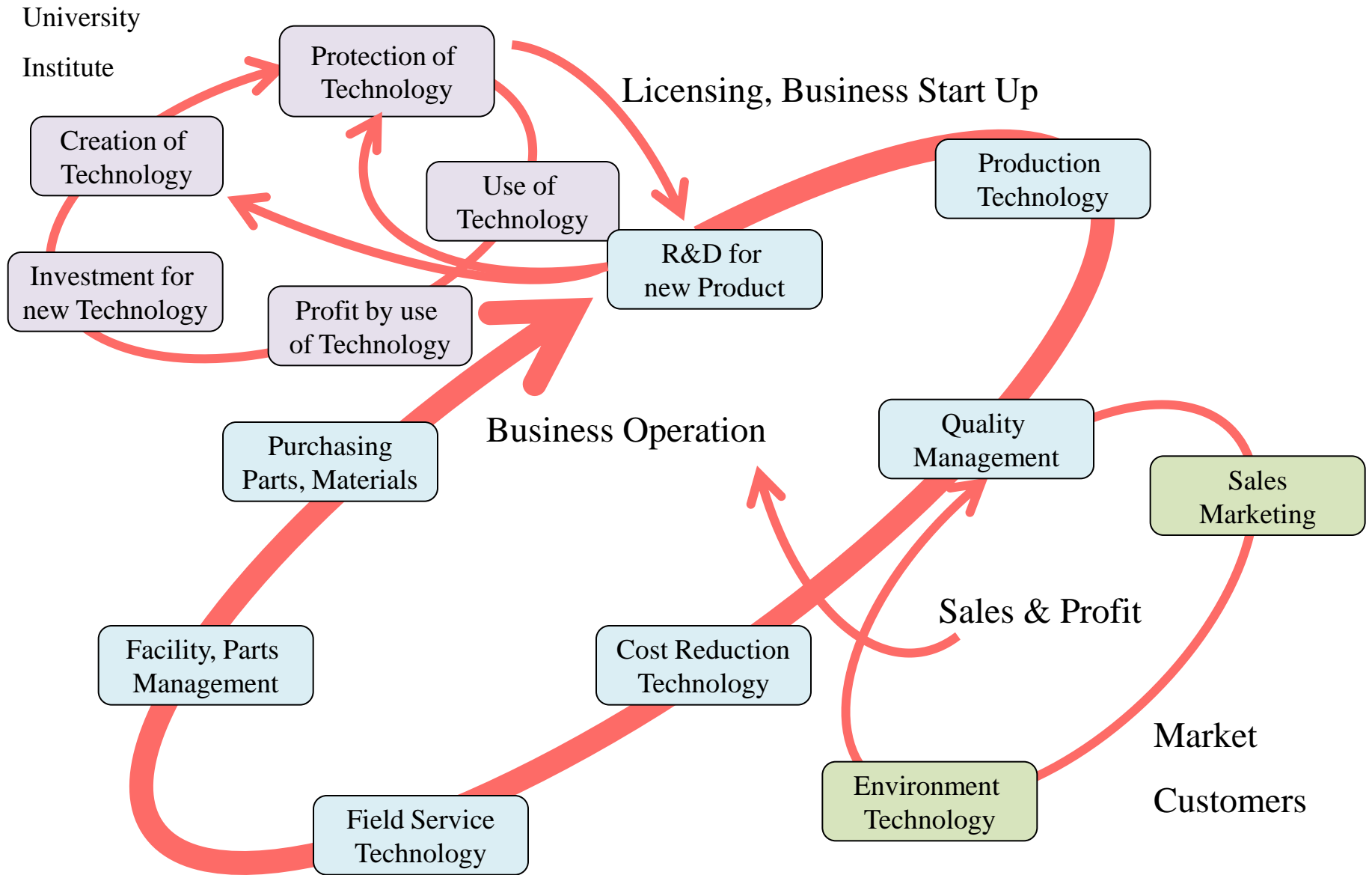
Theme II “Key Issues of IP and Technology Management: From Research to Commercialization”

Topic 7: Commercialization Procedures; Licensing, Spin-offs and Start-ups

Hanoi, November 2nd-4th, 2011

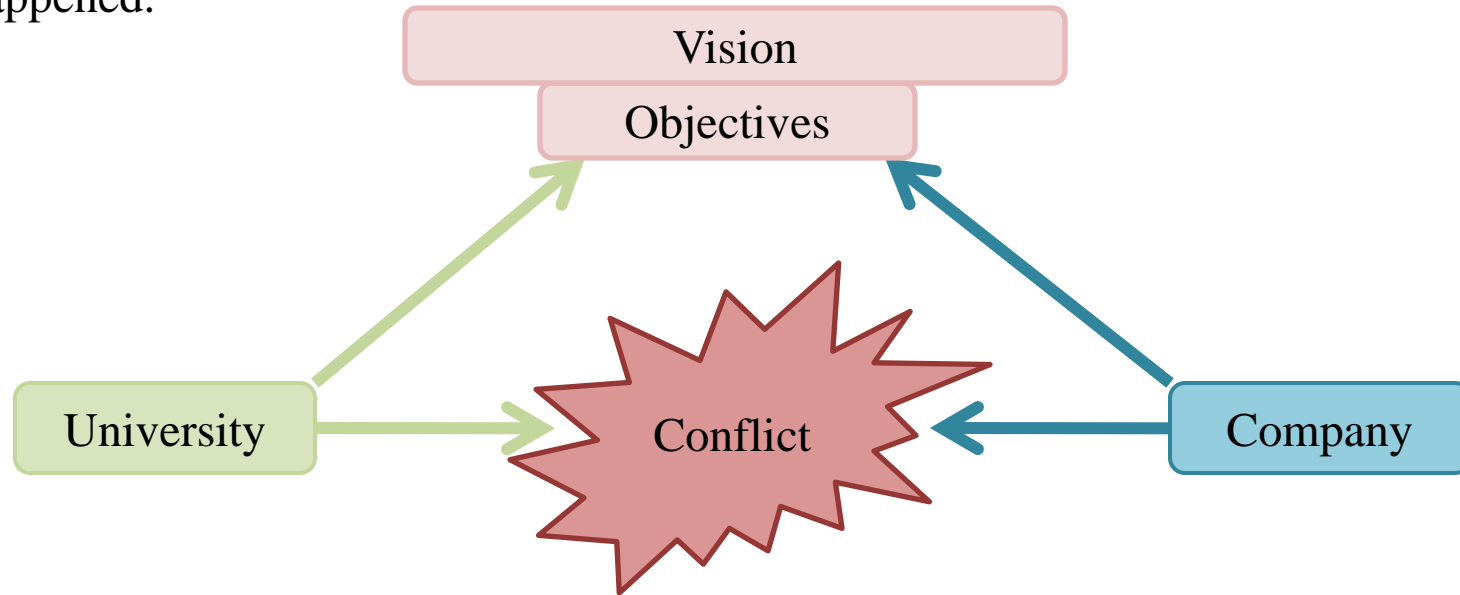
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Positioning of University in the Business Operation



Difficulty for collaboration between university and industry

It is not easy to minimize the gap of culture, sense of value, behavior, etc. Not necessary to confront both parties, but take them toward the same direction. If both parties stick on protecting their own area, naturally a strong conflict will be happened.

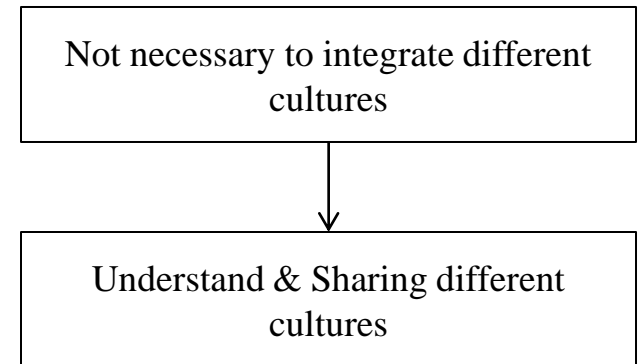
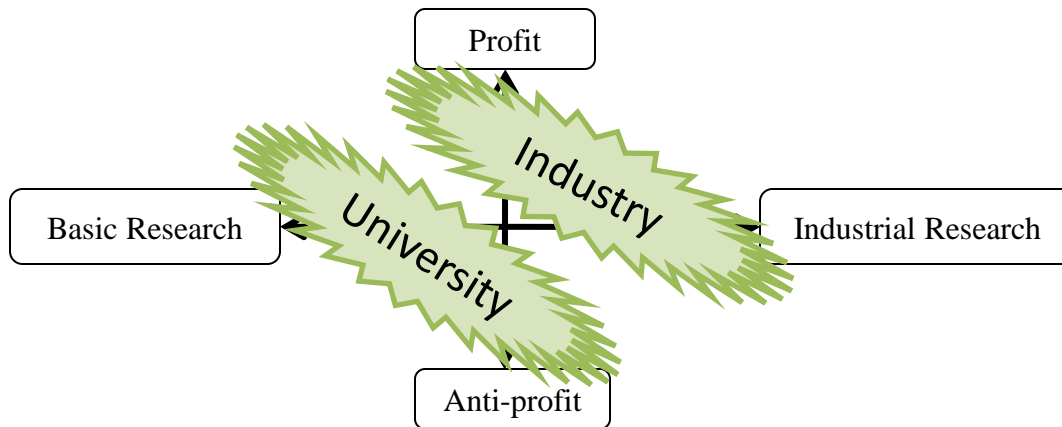


Someone who knows the different culture of both parties, has to make a certain role to take them towards the same vision /Objectives.

Technology Management Office
Intellectual Property Coordinators

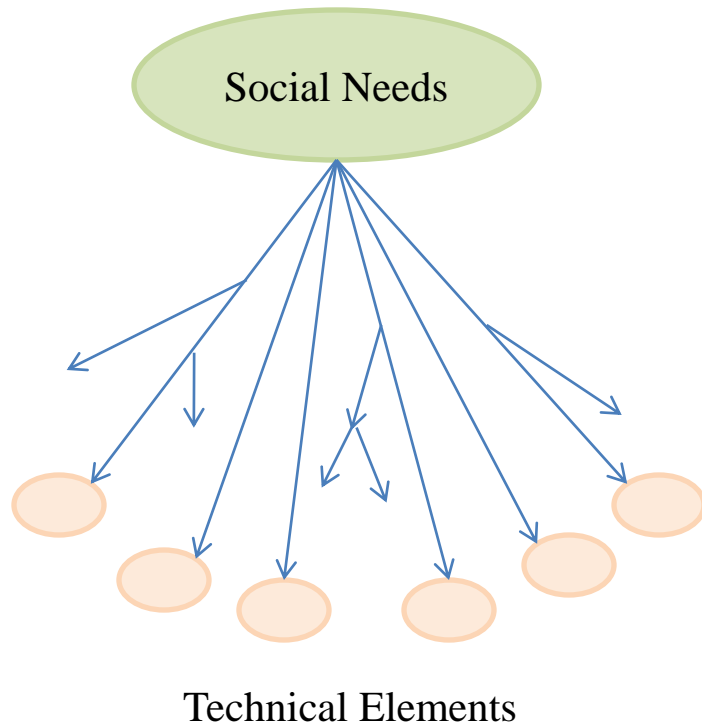
Existence of different culture, mission between university and industry

	University	Industry
Mission	Education & Research	Commercialization
Culture	Bottom Up	Top Down
Sense of Value	Systematization of Knowledge	Creating Profit & Growth
Time span	No limitation	Depend on Market
Subject for research	Basic Research	Industrial Research

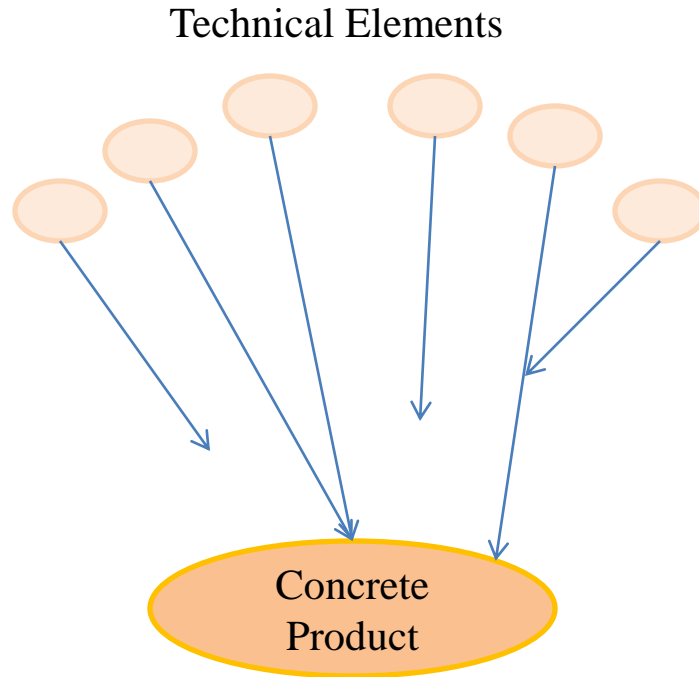


Difference Between “Research” and “Development”

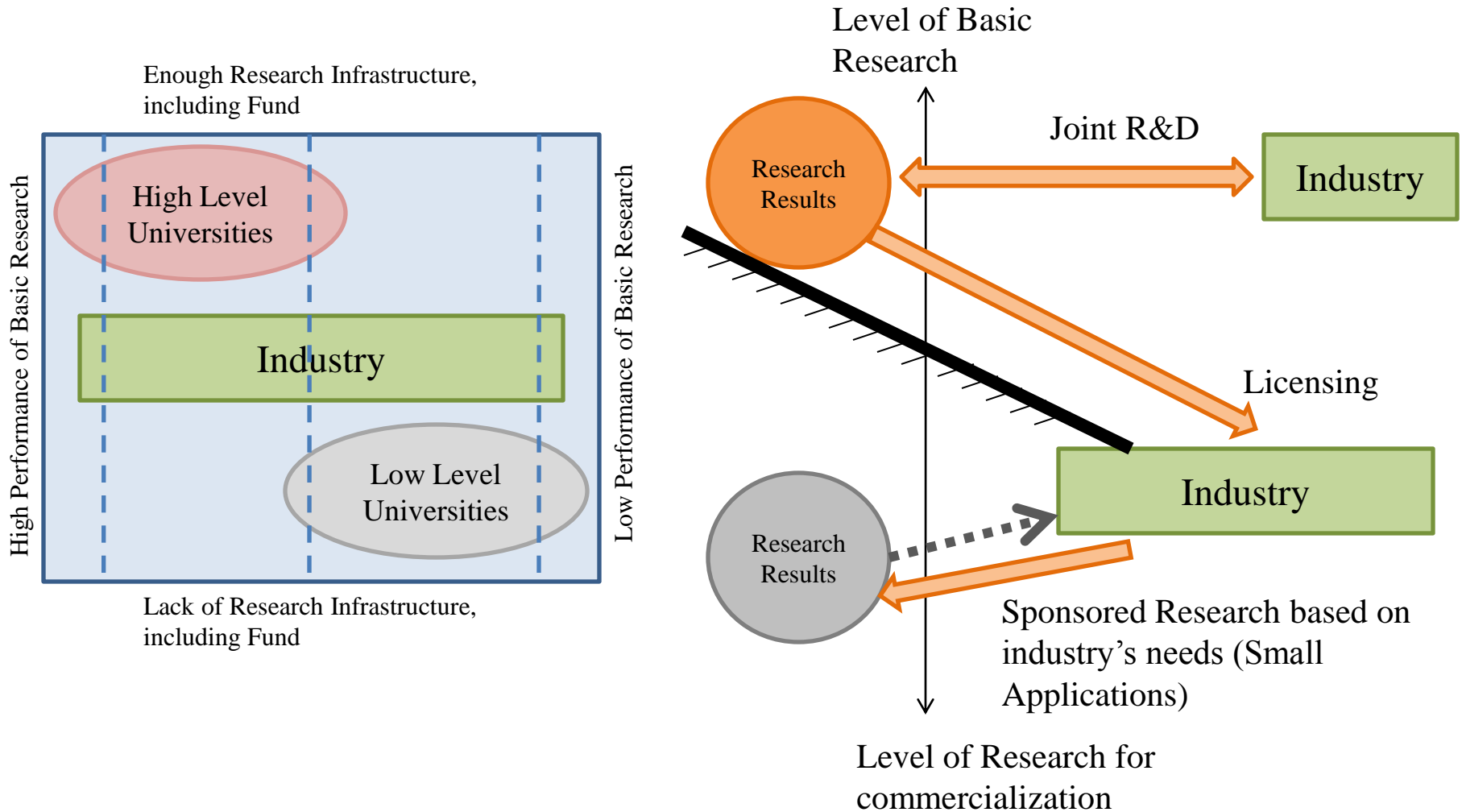
“Research” means “The Process to create valuable technical element”.



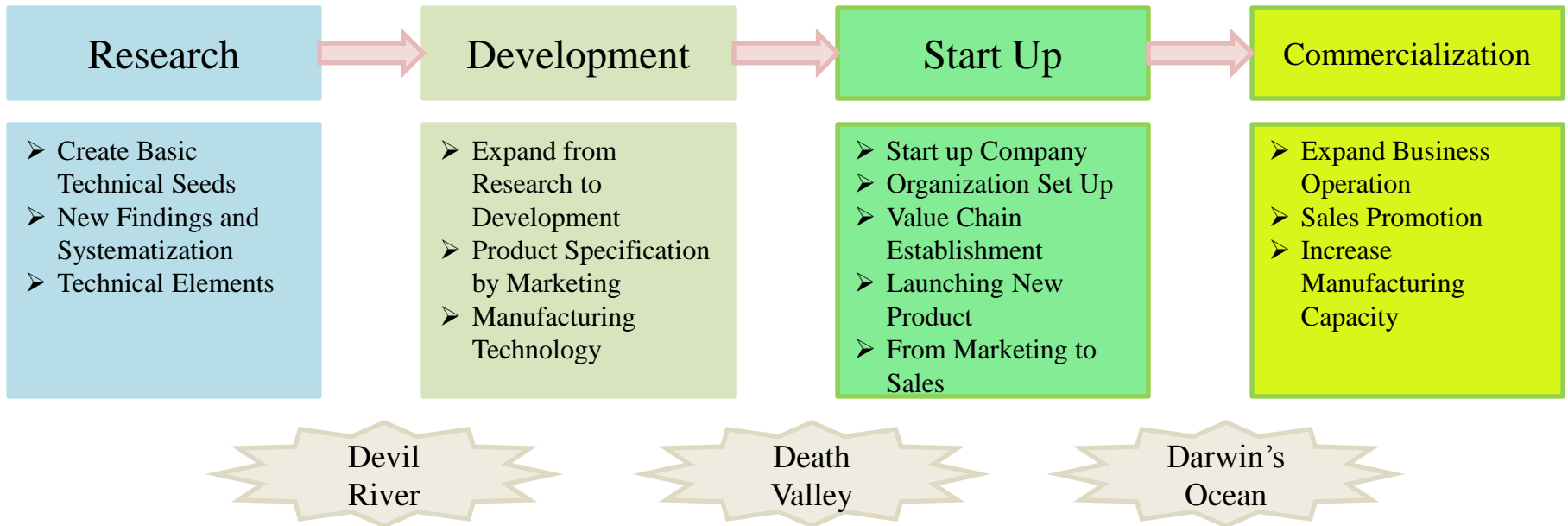
“Development” means “The Process to select valuable technical element and reduction to a product”.



Balance between university and industry



Commercialization Process from Research

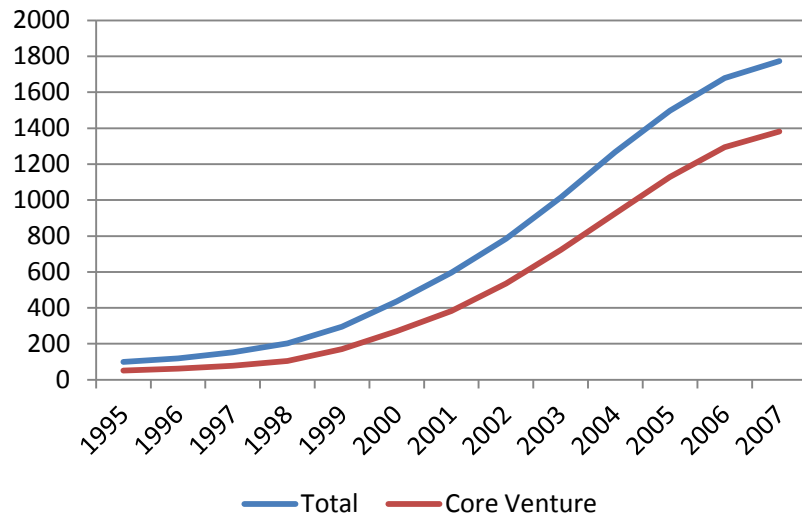


Problems	<ul style="list-style-type: none"> ➤ Research has opposite vector from Development ➤ Research towards Technical Seeds, and Development towards Specific Products 	<ul style="list-style-type: none"> ➤ Development is not reflected by Market ➤ Big Gap between Market Needs and Product Concept 	<ul 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

Venturing from university in Japan

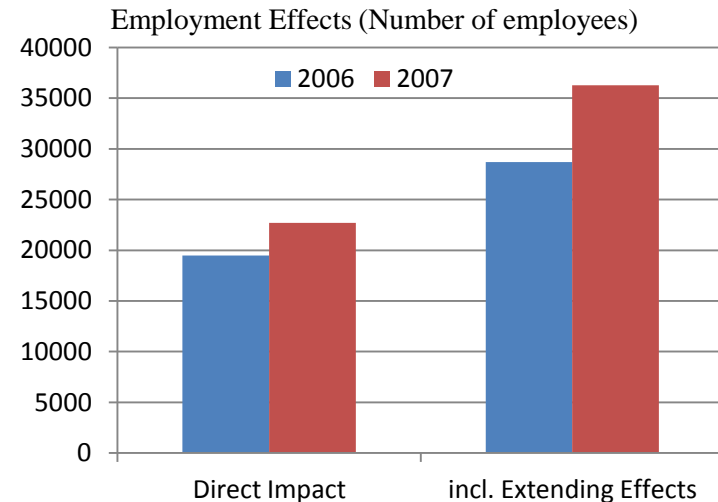
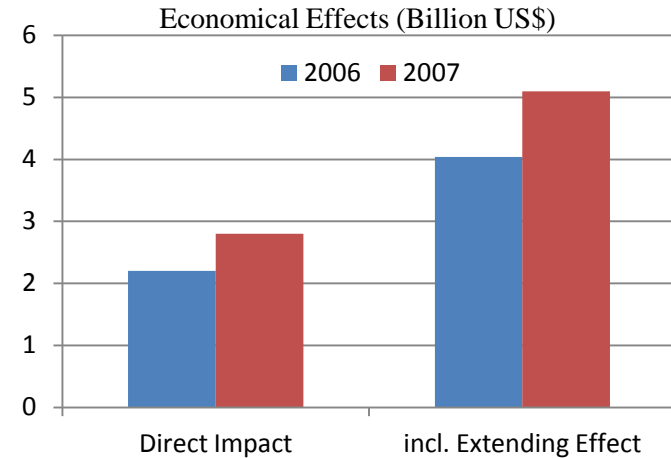
- By the end of 2007, totally 1,773 venture companies are under operation in Japan.
- Regarding its economical impacts, it is estimated that the total sales turnover is US\$ 2.8 billion and the total number of employees is 23,000.
- Economical impacts including its extending effects is US\$ 5.1 and 36,000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

Accumulated Number of Venture companies from university



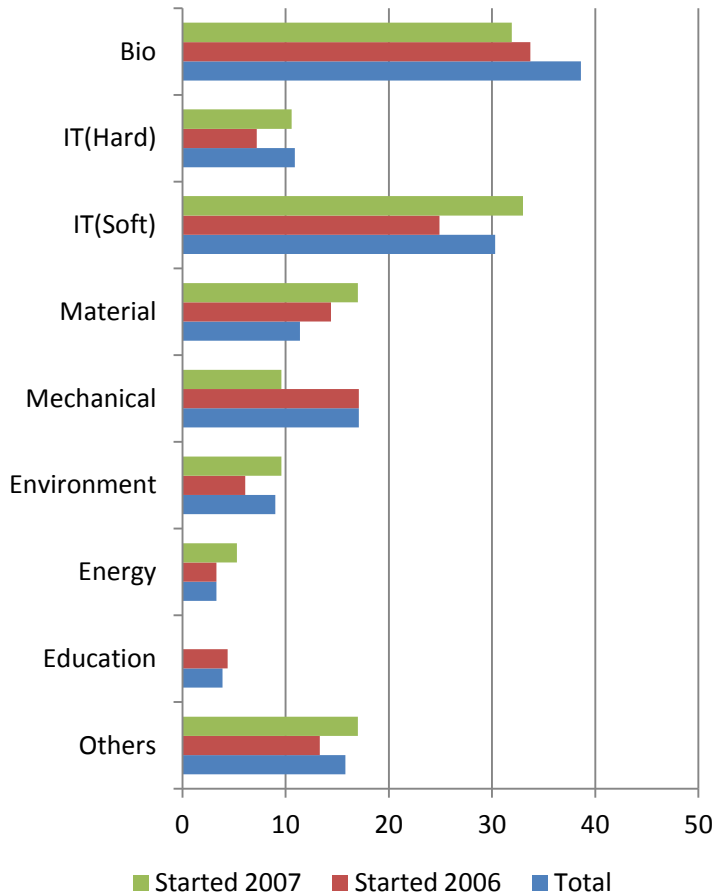
Core Venture:
Venturing based on Technical Seeds generated by universities +
Students' venturing related with universities

Source: University's venture companies investigation 2007



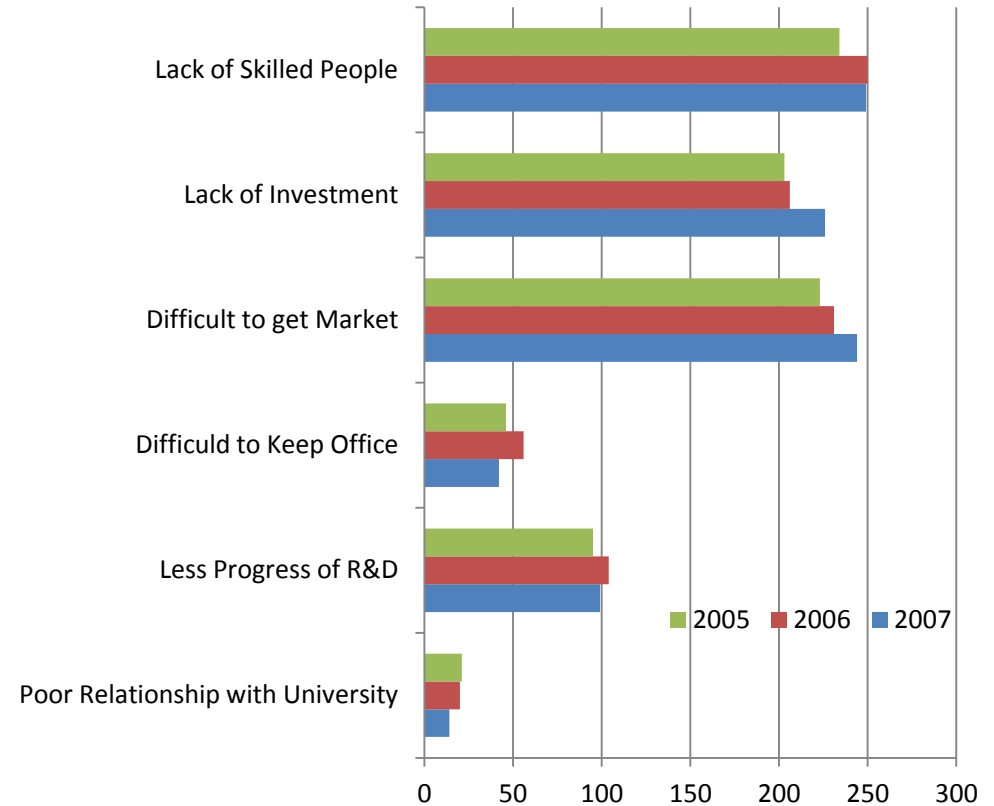
Subjects and Problems for Venturing from university in Japan

Industrial Fields of Venture Companies (%)



Source: University's venture companies investigation 2007

Subjects and Problem for Venture Companies (Number of Responses)

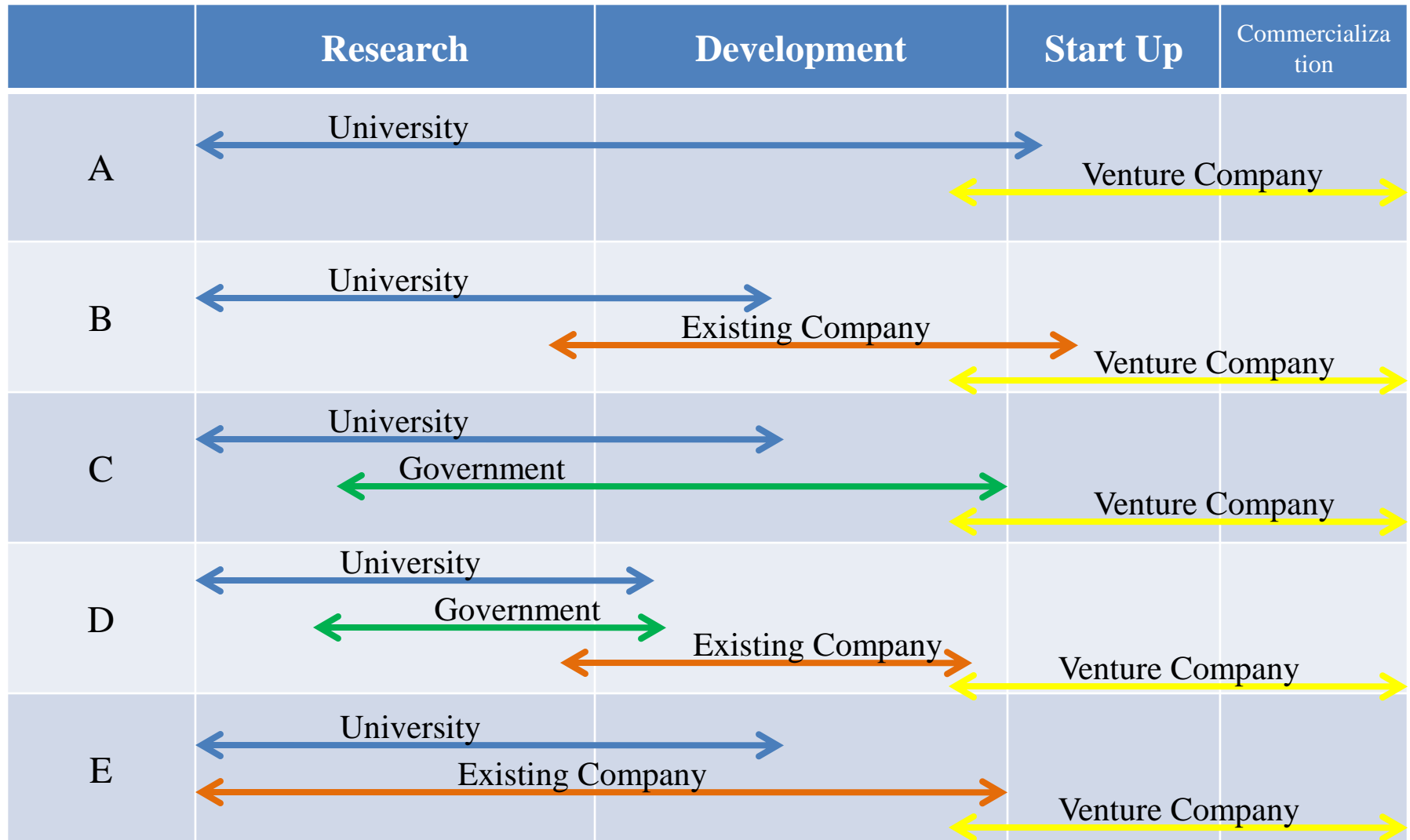


It is estimated that the reasons for subjects and problems are as follows.

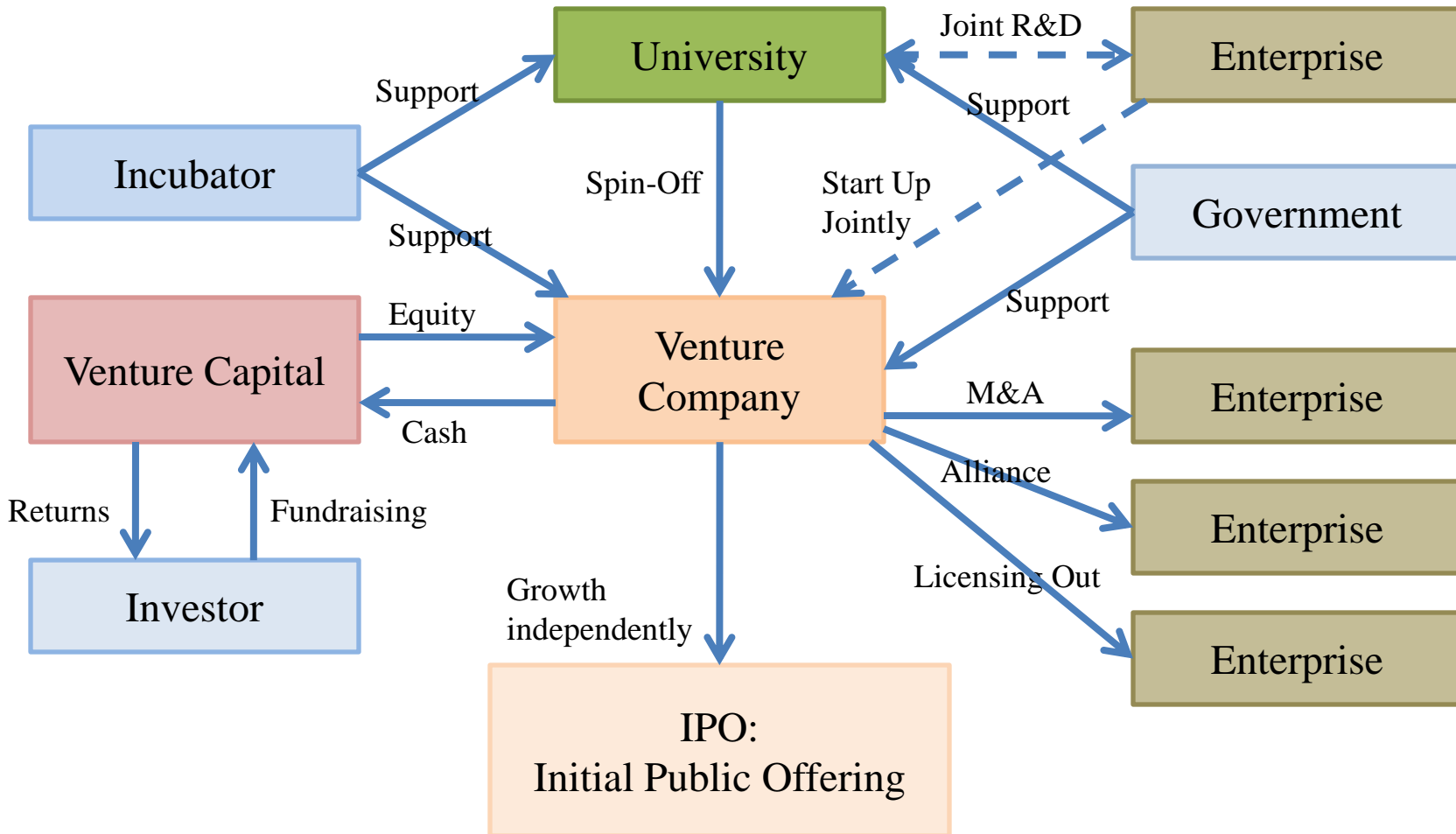
- Technical seeds from university is still in the research level and not matured in the product level.
- Many cases with management members of researchers who have lack of management experiences.

Comparison of Commercialization Process

Which type of process will make the best success?



Typical Process of Venture Spin-Off

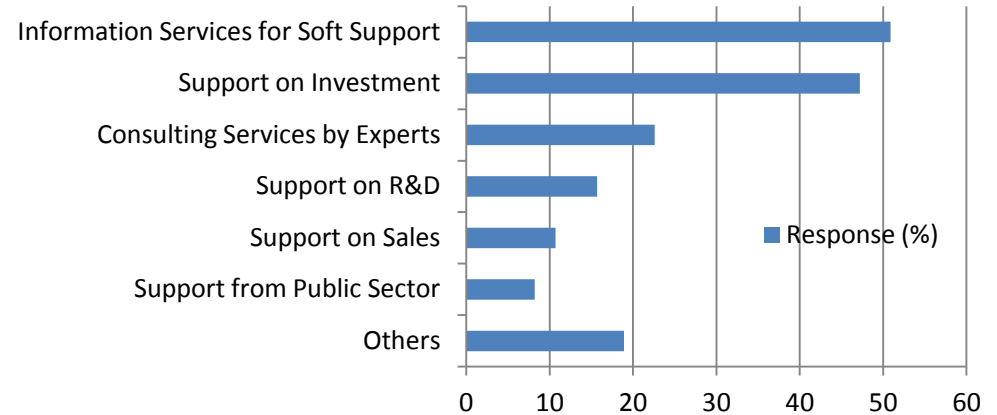


Services by Incubation Center

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



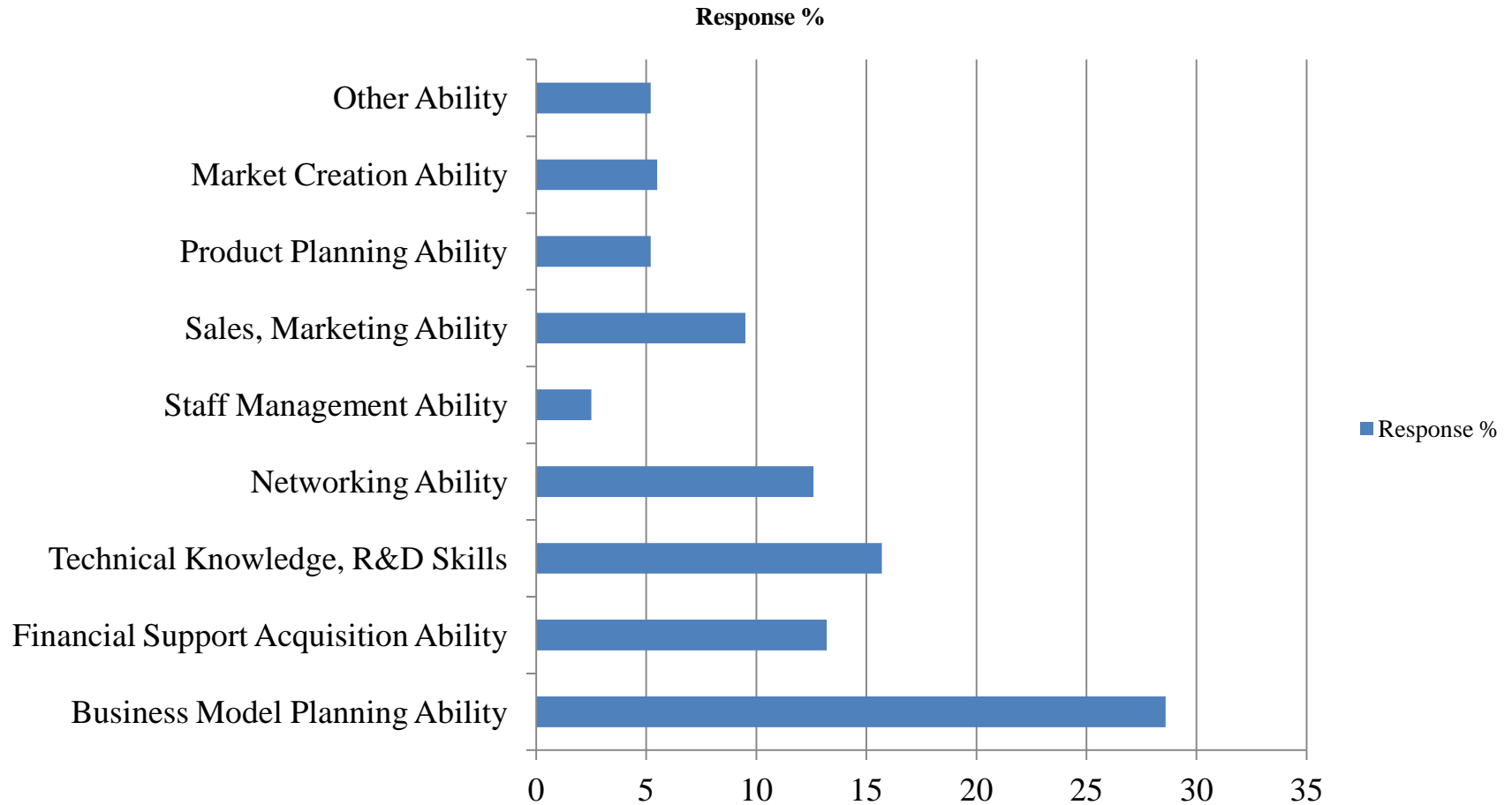
Comparison of Services by Business Incubators JAPAN/US

	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%

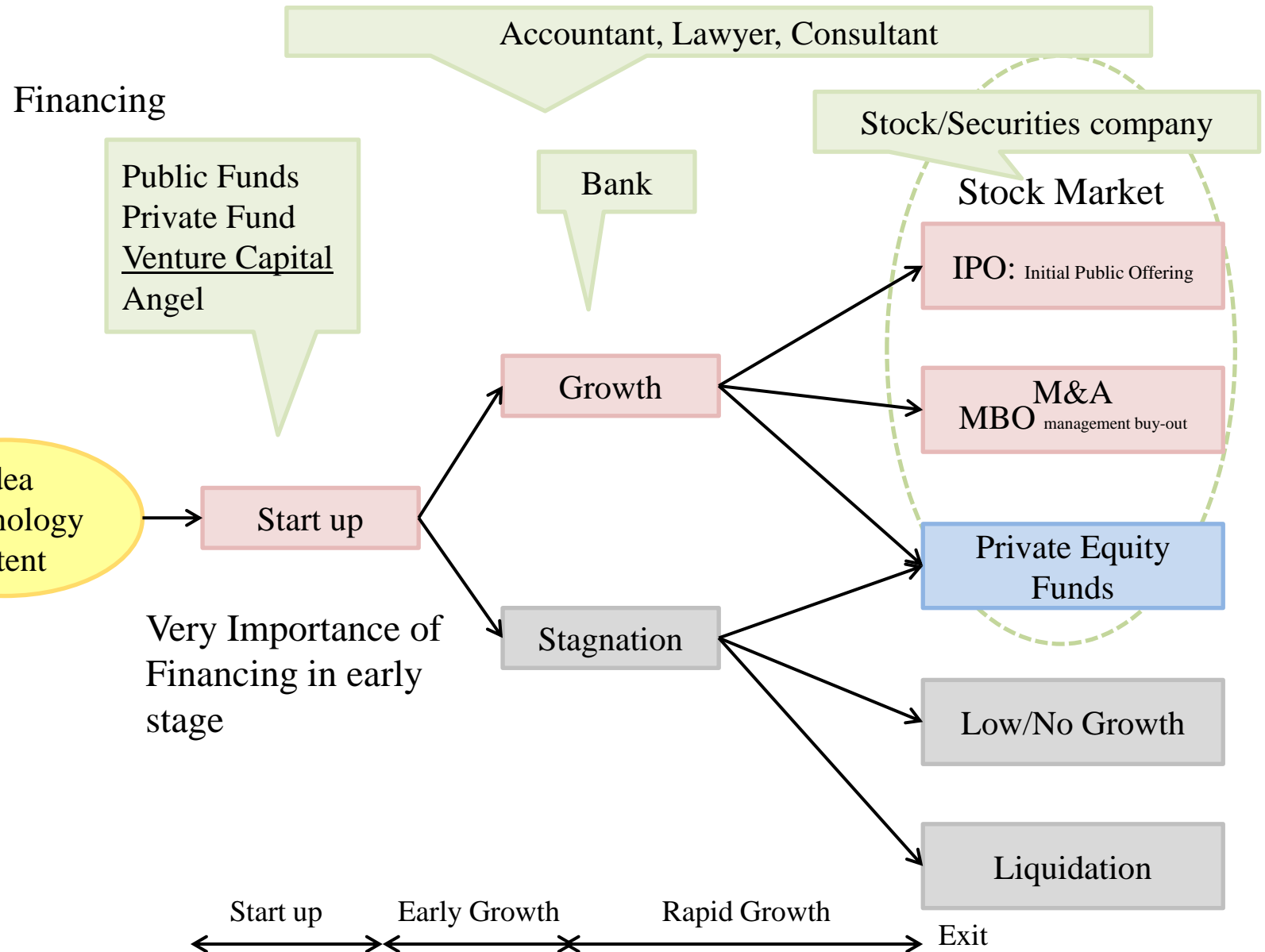
Skills required for Incubation Managers

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

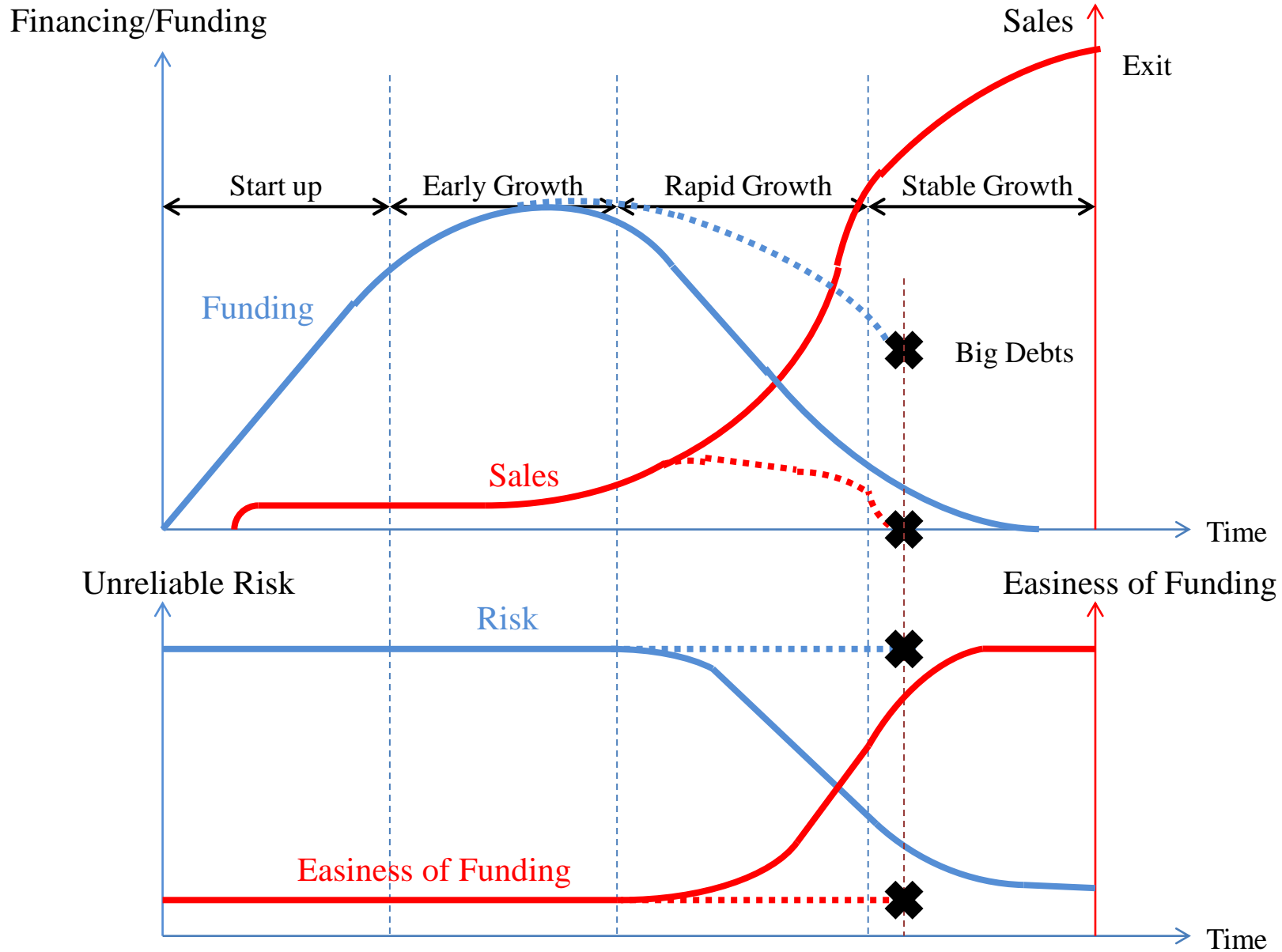
Skills Required for Management of Venturing Companies from University



Growth Process of Venturing Company



Growth Process of Venturing Company



Let me introduce one of the results of our research

“Financing from Venture Capitalist is a
Key success factor for venture company”

Hypothesis

Hypothesis 1:

Patents & patent applications are important for Japanese bioventures and can be used to attract VC financing.

Hypothesis 2:

The amount of & satisfaction with VC financing are significantly determined by the bioventures' abilities to protect their technologies with patents and utilize them.

Research methodology

Success variables (22 variables):

- Intellectual capital (7 variables)
- Alliance capital (5 variables)
- Human capital (5 variables)
- Product & market attractiveness (5 variables)

Performance variables (2 variables):

- Amount of VC
- Satisfaction with VC

Four-point 24 Likert scale web-based survey questionnaire
(1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree)

Survey samples:

17 Japanese and 10 foreign VC-backed bio-ventures.

The US (1), the UK (4), Switzerland (2), Sweden (1), Germany (1), and France (1).

Interviewee:

TOP-VC = an early-stage biotech VC investor in Tokyo

Results (1) – Mean Scores

Table 1: Mean scores of Japanese and foreign bioventures on variables that were important for their success in obtaining VC financing

(* Significant at 0.1, ** Significant at 0.05)

Variables	Japan	SD	Foreign	SD	t-sig.
Intellectual Capital:					
Patents	3.65	.606	3.20	1.135	1.34
Patent applications	3.65	.702	3.90	.316	-1.07
Out-licensing strategy	3.06	1.029	3.50	.850	-1.14
Cross-licensing strategy	1.47	.514	2.00	.667	-2.32**
In-licensing strategy	2.18	1.015	2.10	.738	0.21
Patent sales	2.53	.943	3.10	.876	-1.56
Exclusive patent exploitation	3.29	.772	3.00	.816	0.94

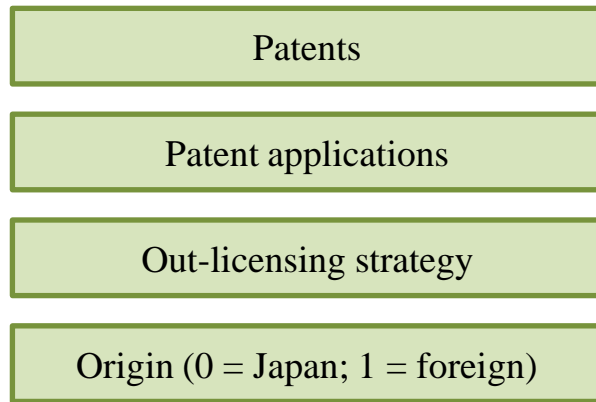
- Patents & patent applications are important for Japanese bioventures and can be used to attract VC financing.
- Out-licensing and exclusive patent exploitation were also important for VC financing

<Hypothesis 1: Verified>

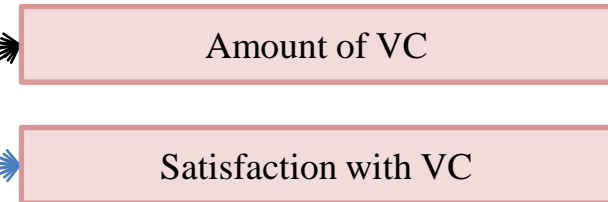
Results (2) - Multiple regression analyses

3 variables that were highly rated (mean ≥ 3) by both groups were used as independent variables.

Independent variables (IVs)



Dependent variables (DVs)



The regression with DV; “amount of VC” failed to reach significant level (F=1.81, p = .163)

The regression with DV ; “satisfaction with VC” is significant as follows:

	Satisfaction with VC
<i>Dummy Origin</i>	.862**
Patents	.136
Patent applications	.210
Out-licensing strategy	-.337*
Adjusted R ²	.177
F	2.39*

Mean scores:
Japan = 2.29
Foreign = 3.00
t-sig. = -2.25 **

<Hypothesis 2: Rejected>

* Significant at 0.1, ** Significant at 0.05

Results (3) - Factor analysis

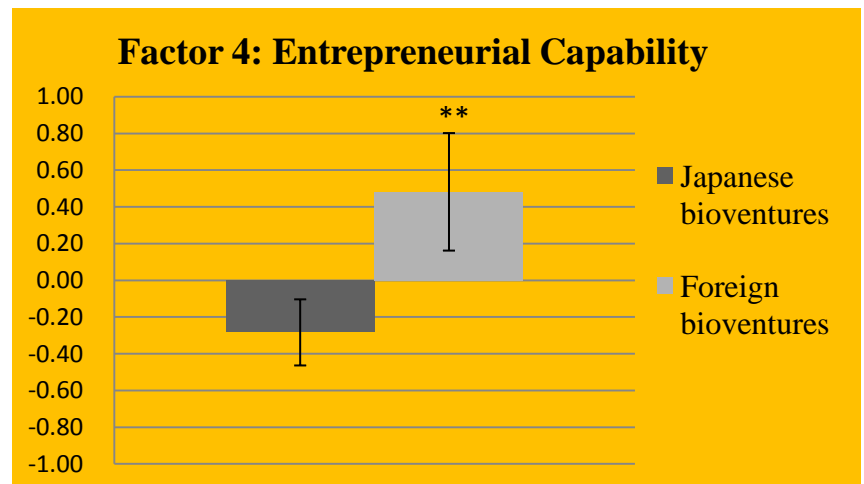
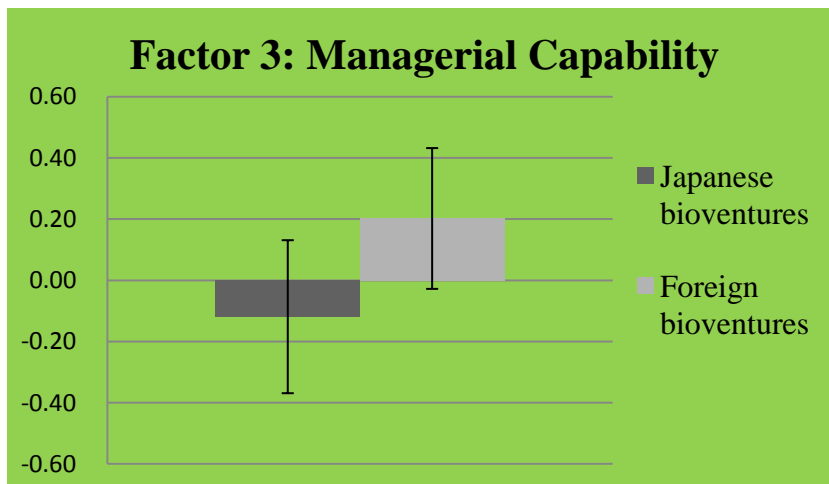
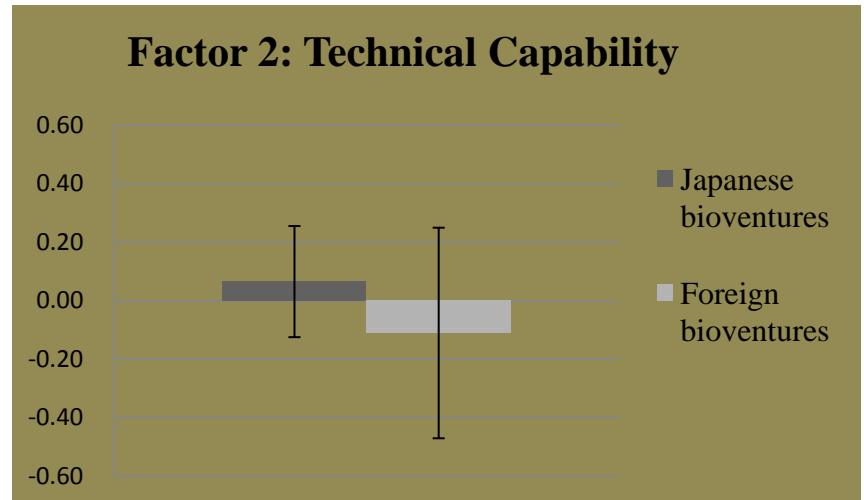
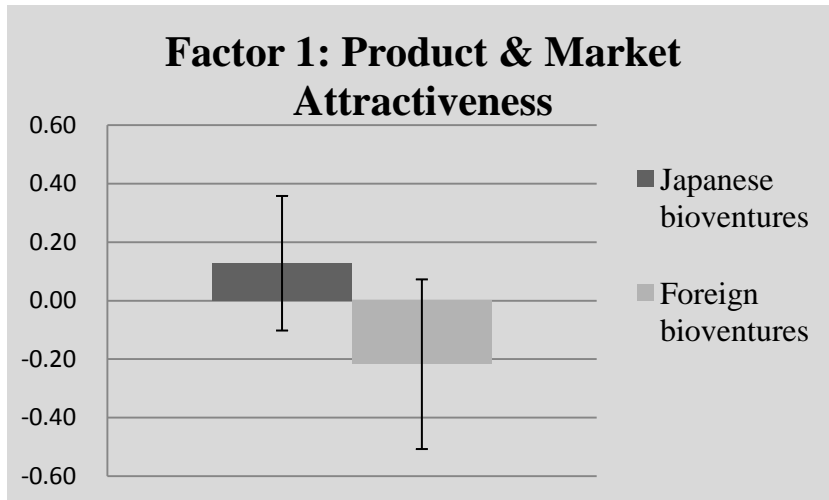
4 VC financing success factors were developed to be used a guideline for new bio-ventures.

	Eigen value (Total)	% Variance
Factor 1: Product & Market Attractiveness	4.15	29.67
Exclusive patent exploitation (0.85)		
New untapped market (0.72)		
Many products under development (0.63)		
Large and growing market (0.61)		
Factor 2: Technical Capability	2.05	14.62
Founder/CEO with managerial experience (0.77)		
Upstream alliance (0.72)		
Patents (0.64)		
Large and growing market (0.53)		
Factor 3: Management Capability	1.97	14.05
Management with diverse skill set (0.82)		
In-licensing strategy (0.72)		
Out-licensing strategy (0.56)		
Large management team (0.53)		
Factor 4: Entrepreneurial Capability	1.35	9.62
Founder/CEO with VC experience (0.80)		
Founder/CEO with entrepreneurial experience (0.61)		

Extraction Method: Principal Factor Analysis

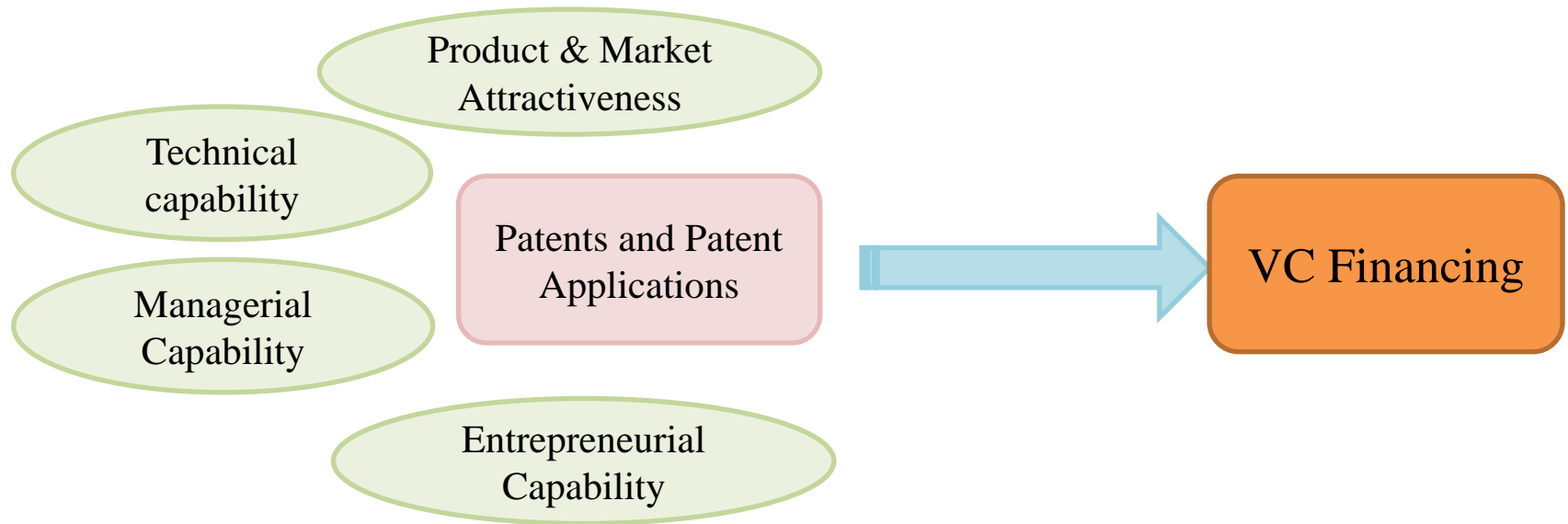
Rotation Method: Varimax Rotation(Note: Component loading of 0.5 as a cut-off for significance)

Results (4) - Mean factor score analysis



Research Results

1. Patents & applications were important for both the Japanese and foreign bio-ventures and were used to attract VC financing.
2. Out-licensing & exclusive patent exploitation strategies were also important for their competitiveness and for attracting VC financing.
3. However, patent protection & utilization had no significant impact on the amount of and satisfaction with VC.
4. Because the Japanese respondents are not satisfied with the VC funding, it is advised that they should start acquiring and developing their internal “entrepreneurial capability” and international alliances.



Topic 7; Summary

1. Positioning of University in the Business Operation
2. Difficulty for collaboration between university and industry
3. Balance between university and industry
4. Comparison of Commercialization Process
5. Subjects and Problems for Venturing from university in Japan
6. Skills required for Incubation Managers
7. Factors to get Financing from Venture Capitalist

Let's Challenge Start-up for Commercialization together!

Thank you for listening!

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