Disclosing Activities by inventors and Commercialization: a case of Japanese company A

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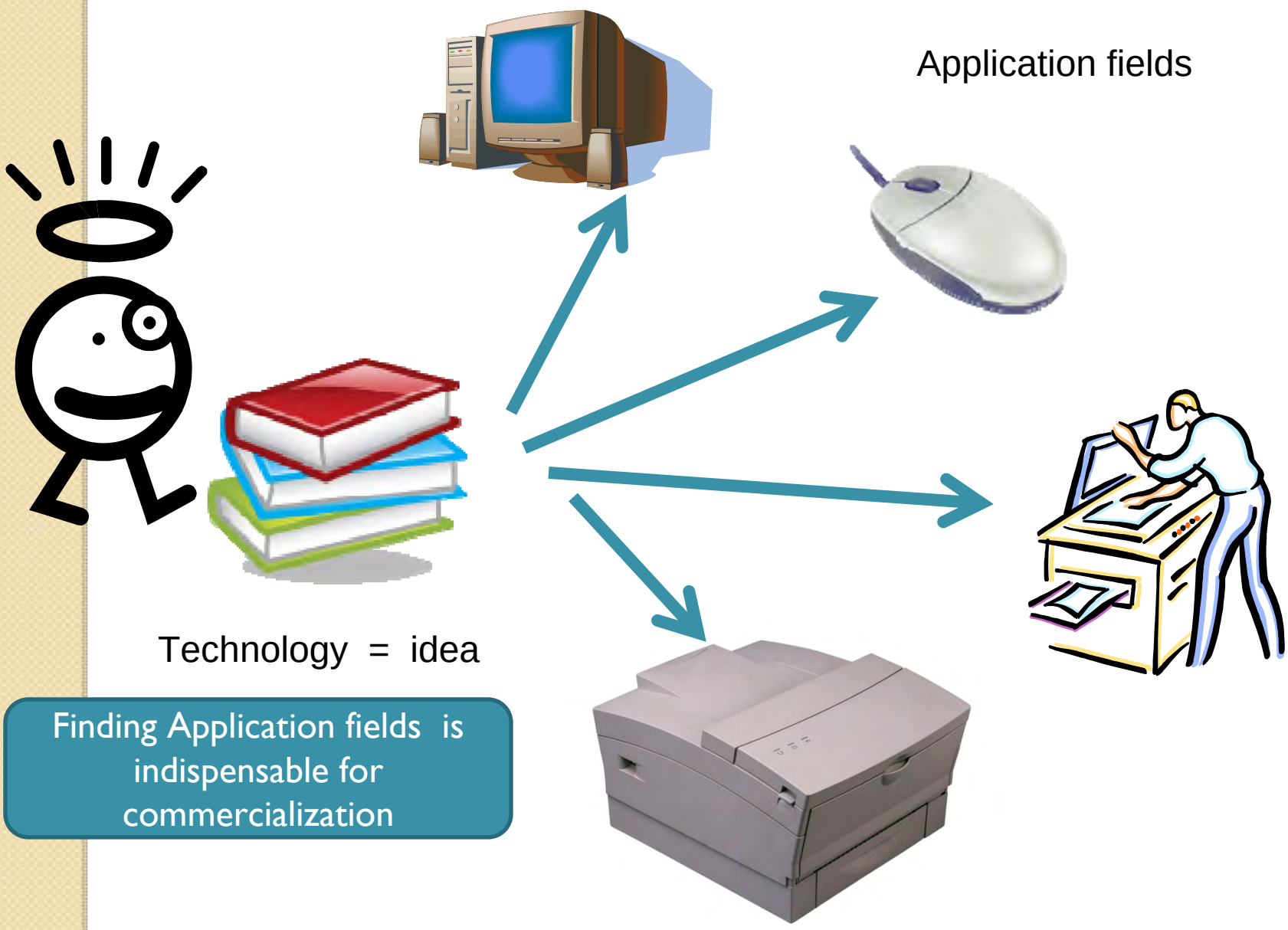

Application fields
Technology = idea
Finding Application fields is indispensable for commercialization

Do technologies have inbuilt application fields ?

Case1) PARC of Xerox Co.

→ They failed to find application fields for their state-of-art technologies.

(Instead of PARC, **Apple and Sun microsystems** did)

Case2) DuPont

→They succeeded in commercialize **nylon** because they could find appropriate application fields(hose, stockings).

Background of the research

- Finding appropriate application fields is important for commercializing new technologies.
- According to open innovation, disclosing technologies to outside organizations could be useful in order to find appropriate application fields.
- However, there are still some questions unanswered;
  - Can we disclose technologies to people randomly ?
  - Is there any effective and efficient way to find appropriate application fields ?

Research Questions

- To whom and in what manner should the inventors disclose their technology in order to win approvals (in spontaneous projects)?

Methodology

- A questionnaire survey conducted from December 2007 to February 2008.
- The subjects are 106 senior researchers working for research institute of Electronics maker, Company A.
- We asked them to remember projects in which they had been involved, and what happened in the development process, especially how they disclose their technologies to others.
- We just focus on "spontaneous research (39 cases).
  - 21 projects succeeded in commercialization and implementation of the operation,
  - 18 projects failed in commercialization.
  - 6 researchers joined both successful projects and failure one.
- We tested them with

  (1) Mann-Whitney U-test and a Student's t-test. (comparison between successful projects and failure one)

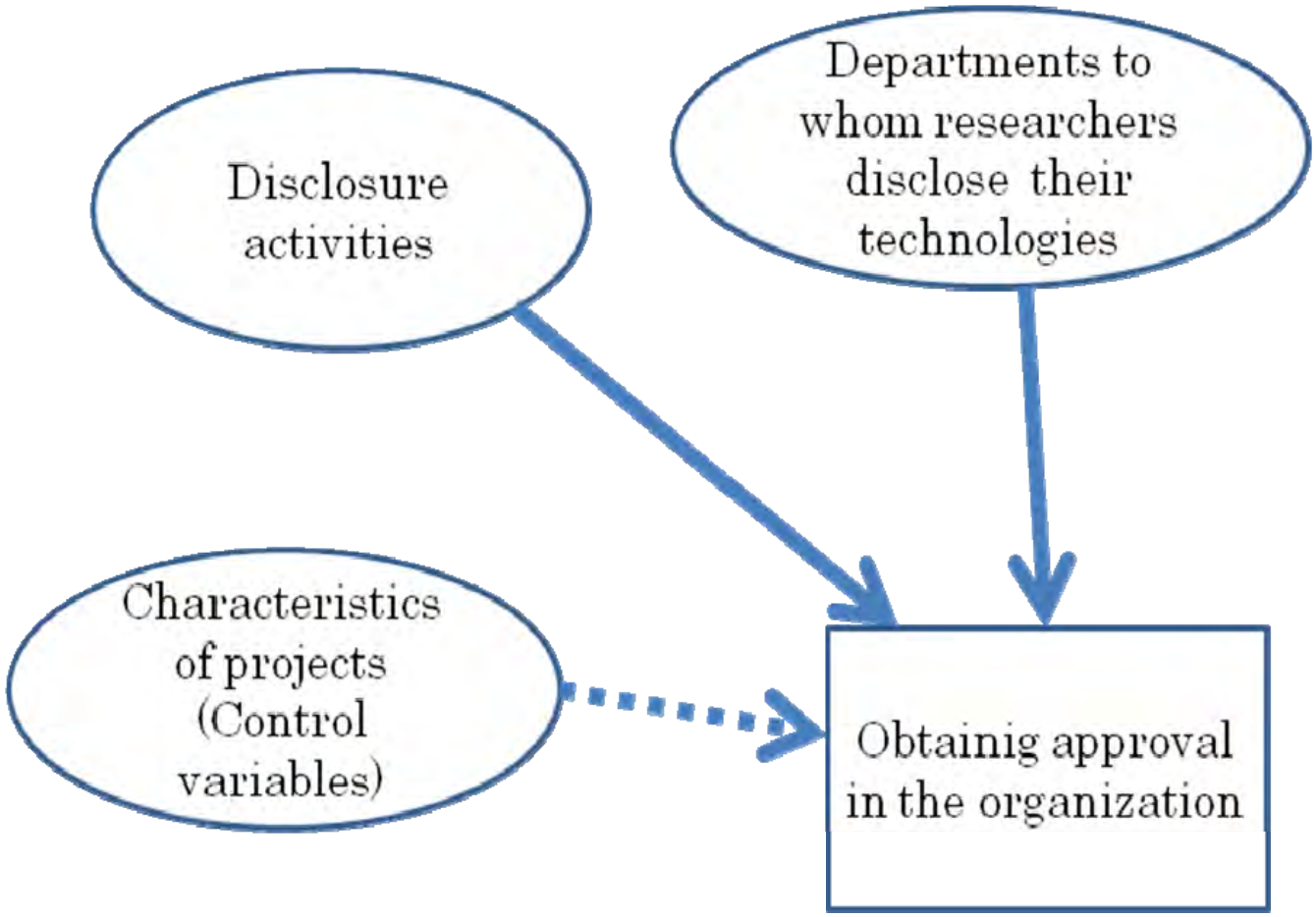
  (2) Multiple regression analysis (causal relation)

Highlight of results (1)

category	variables	Successful projects average (n = 15)	Failure projects average (n = 12)	unpaired student t-test	Mann-Whitney U-test
Characteristics of projects	No. of project members#	2.133	1.167	* *	*
	Certainty of application field of technology	1.571	2.333	*	*
Characteristics of the activities for seeking application fields	No. of persons who engage in seeking application field#	3.000	1.900	*	
	Timing of disclosure, inside	2.467	3.583	*	*
	Timing of disclosure, outside	3.000	4.083	*	
	Various members to whom technology is disclose, inside	4.200	2.333	* *	* *
	Various members to whom technology is disclosed, outside	4.286	2.333	* *	* *
Parties to whom inventors disclose their technology**	R&D for business unit inside +	0.700	0.300	*	
	Sales, inside +	0.500	0.100	*	
	New product development and marketing, outside +	0.857	0.143	* *	* *

Statistically significance 0.5%>, ** 0.01%> Answers are graded on the basis of Liker 5 point-scale

Research Model for multiple regression analysis



1)Departments to whom researchers disclose their technologies

- Inside + Outside organization
  1. R&D dept.
  2. R&D for business unit dept
  3. New product development and marketing dept.
  4. Sales dept
  5. Intellectual property and law dept.
  6. Production dept.
  7. Upper level of R&D dept.
  8. Upper level of business unit

We got answers on these questions in the form of dummy variables (0-1 data).

Total 16 departments

Variables

- *Independent Variables*
  - (1)Departments to whom researchers disclose their technologies
  - (2)Disclosing activities
    - number of persons who engaged in seeking application fields,
    - timing of disclosure to inside/outside organizations
    - variety of persons to whom inventors disclose their technologies (inside/outside)
- *Control variables*
  - (1) the number of members who join the projects,
  - (2) the inventors' successful experiences,
  - (3) the variety of members' backgrounds,
  - (4) the degree of uncertainty on application fields of the technology,
  - (5) attractiveness of technology from the standpoints of rival companies
  - (6) satisfaction with budgets that they are provided
- *Dependent variables*
  - the degree of approval of the project,

Highlight of the multiple regression analysis(2)

standard partial regression coefficient statistically significant

	Model 1 (n = 39)	Model 2 (n = 39)	Model 3 (n = 39)
		0.612*	0.618**
		—0.417**	—0.379**
		0.532**	0.357**
			—0.325*
			0.489**
		—0.085	—0.041
		0.753	0.834
		0.568	0.695
		0.523	0.638

Results

- The projects that have a larger number of members tend to succeed in getting approval.
- However, in terms of the number of persons who engage in exploring applications and disclosing their technologies, it is preferable to have lesser number of people working on the projects.
- The inventors should disclose their technologies to a variety of people. However, the departments to whom they disclose should be limited to a few.
  - Inventors should not show their new technologies to the upper-level employees of their companies' R&D departments.
- Disclosing technologies to outside organizations could be sometimes effective in acquiring approval in the companies.
  - When the inventors disclose their technologies to "departments of new product development and marketing of outside companies," the success rate would increase.

Analysis

- Inventors have to choose the width and parties to whom they disclose their technologies.
  - ○ : department of product development and marketing outside the organizations
  - × : upper level of R&D department in the organization

Guess Why ???

- "Not Ordered Syndrome ?"
  - Bosses tend to hate the projects that start without their orders.
  - Bosses tend to destroy spontaneous projects.
- Outsiders' views give fresh insight to the projects.
- Outsiders give the credit to the projects.
- Will "Detour strategy" work for winning approval?

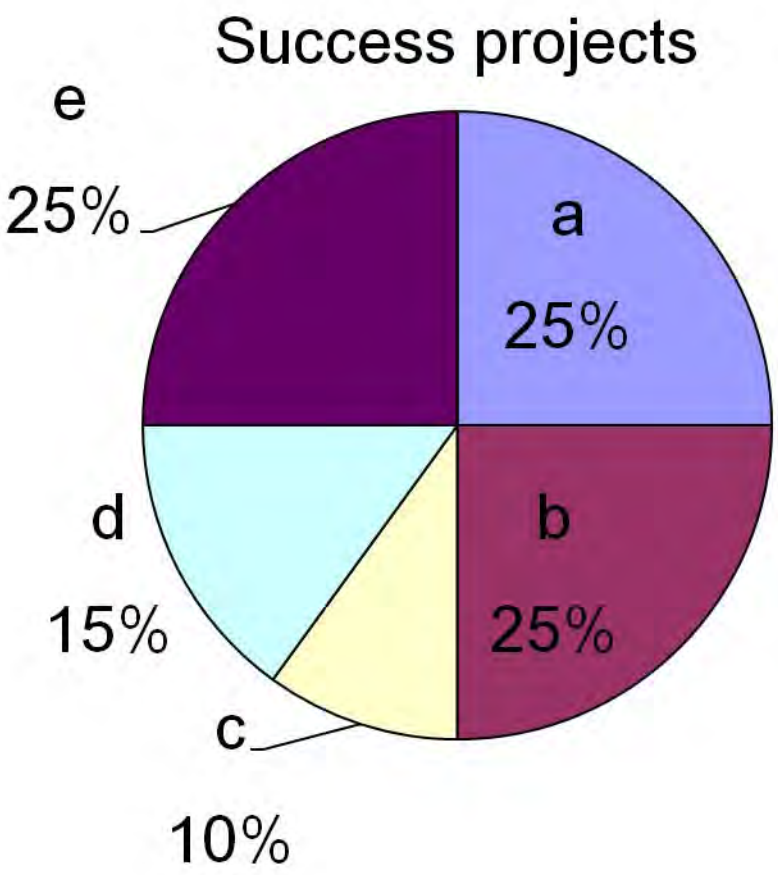
Further discussion

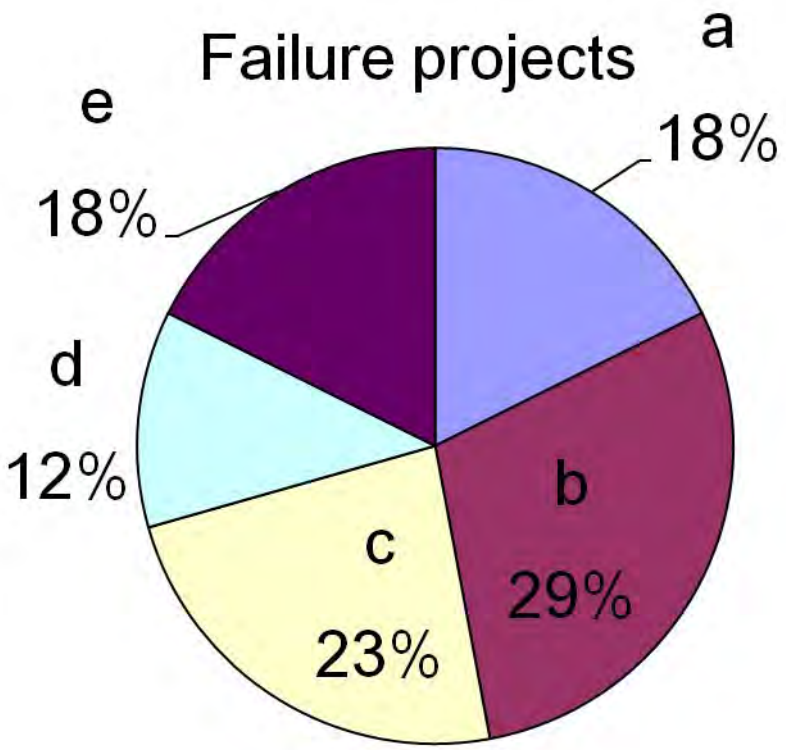
- We need to check the direction of causal relations (getting approval →disclosing activities or vice versa ?)
- Can we generalize the results ?

  (need more data)

THANK YOU FOR YOUR ATTENTION.

Distributions of research area





* Statistically the difference is **not** significant