

Research Design for Innovation Studies

(Innovation System Engineering)

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/ Graduate School of Engineering

University of Tokyo

Sep 26 2016

Today's Agenda

- Course Overview
- Introduction of Lecture Topics
- Logistics

Sotaro SHIBAYAMA

Education

- PhD (R&D management) @ U Tokyo
- Master (Economics) @ University of New England
- BS/Master (Pharmaceutical Sciences) @ U Tokyo

Career

- 2000—2005 Consultant in private sector
- 2007—2008 Imperial College London [UK]
- 2009—2010 Georgia Institute of Technology [USA]
- 2010—2011 U Turin [Italy]
- 2009—2011 MEXT NISTEP (visiting scholar)
- 2011—2012 U Tokyo RCAST (assistant Prof)
- 2012—2015 U Politec Valencia [Spain] (visiting scholar)
- 2012— U Tokyo Sch Eng (associate Prof)
- 2016 — U Tokyo Sch Pharm Sci (associate Prof)

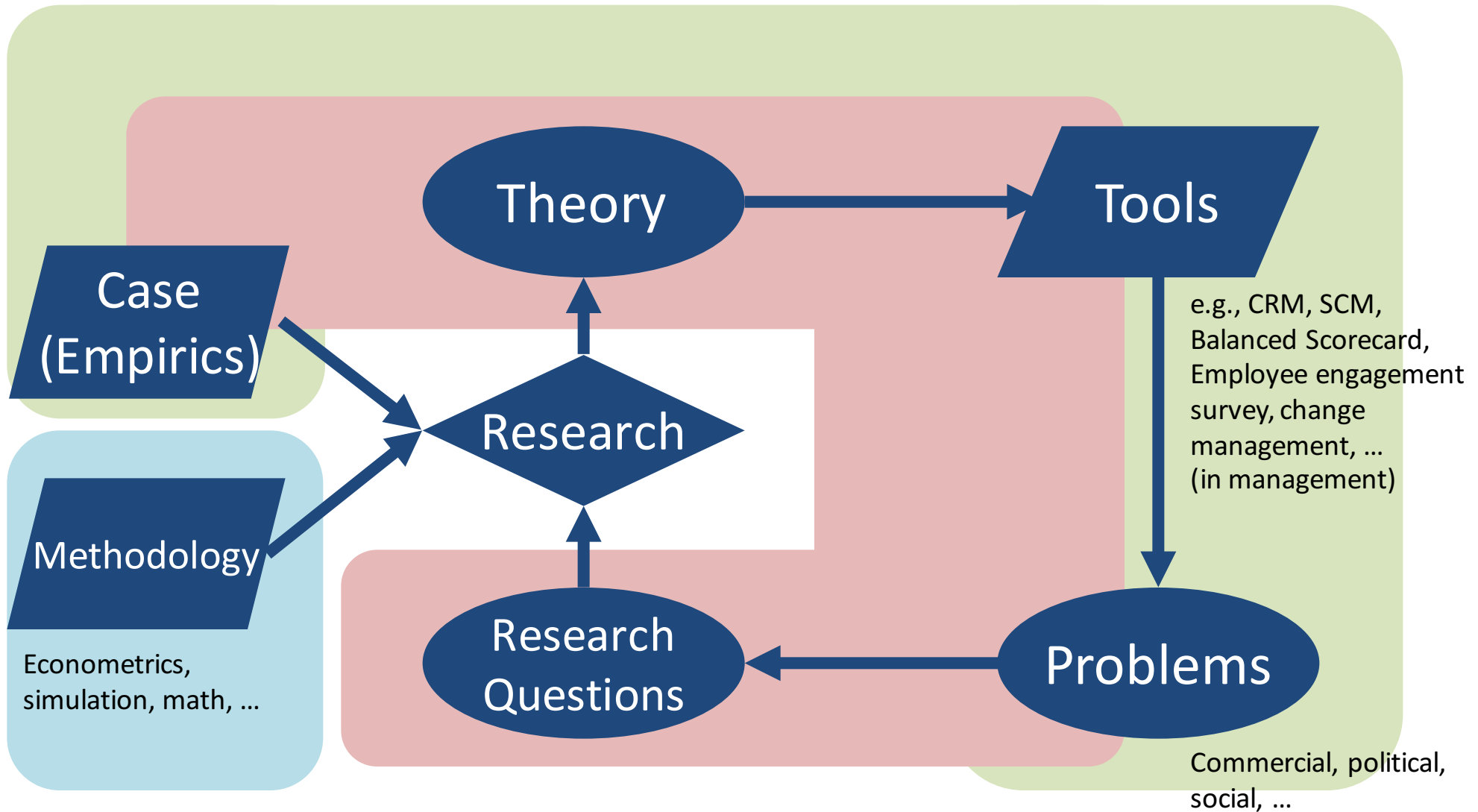
COURSE OVERVIEW

What is this course for?

OBJECTIVES

- To provide with an understanding of key conceptual frameworks and analytical tools needed for innovation management
- To develop your ability to innovate
- To develop your skills for research design, or more generally, for problem finding

Positioning of this course



What is this course for?

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Why “problem finding”?

- Research questions are often GIVEN by supervisors - lack of opportunity to come up with your own problem
- Research questions often not elaborated – too broad, ambiguous, ...
- Technically motivated but theoretically unjustified
 - Unless you intend technical progress, applying state-of-the-art techniques to damn questions isn't a clever way of using your time.

Why innovation matters?

- Innovation -- *process of creating value from ideas* -- is a survival imperative and a hope for the future.
 - Businesses cannot survive without innovation, particularly in the contemporary dynamic/chaotic economic/political/technological landscape.
- This is true in many different scenes.
 - *National competition*: Design of “*national innovation system*” is critical.
 - *Scientific competition*: Science is by definition about new ideas.
 - *Social innovation*: Many problems we face today need engagement of the public sector and third sector (NPO, etc.).
 - *Individual’s survival*: One needs to be ready for change.

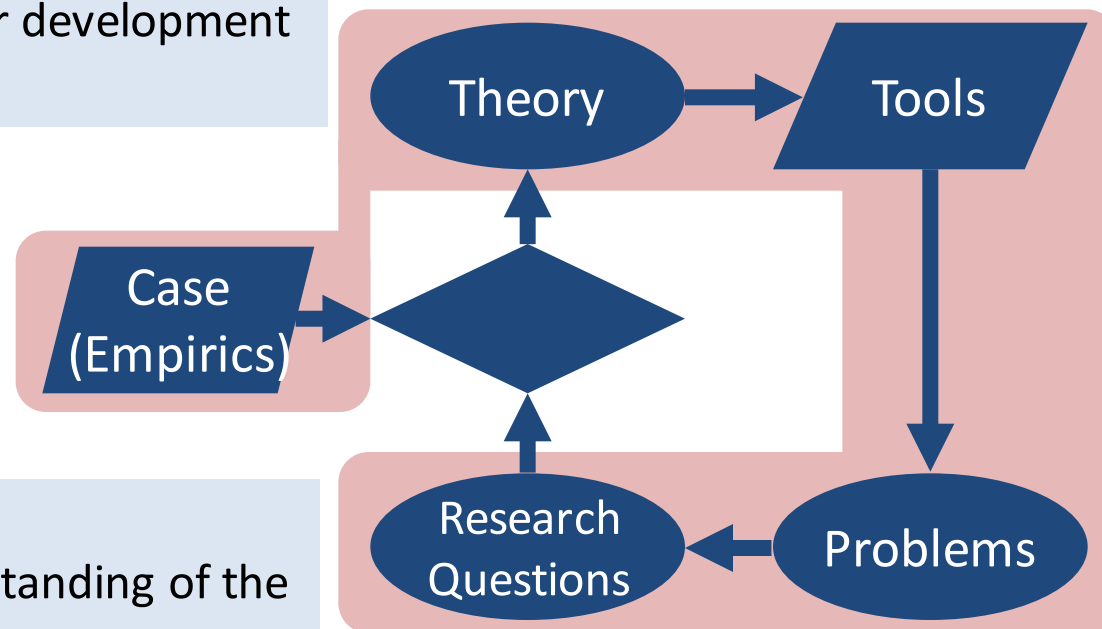
How is the course delivered?

Theory

- To provide with general picture of innovation theories
- To present the frontier and limitation of theories
- To motivate further development of theories

Tools

- To understand efficacy and limitation of existing tools
- To motivate further development of tools/theories



Case study

- To facilitate understanding of the theories/tools
- * I'll try to show a broad range of / up-to-date cases

Research Question development [Project]

- To develop research design/problem finding skills

Class Activities / Homework

- Lectures
 - Theories, application tools, case studies on several topics (later outlined)
- Homework / classroom presentations (depending on enrolment)
 - Case analysis, applying some tools/theories
 - Literature analysis
- Student project

Student Project

- Based on your own interest
 - Related to innovation studies
 - Different from your thesis topic
- Individual basis
- Guidance given later
- The goal is to FIND a research question but NOT to SOLVE the question.
(Different set of skills needed, beyond the scope of this course)

Examples of previous projects

- *The Role of Research in the Emerging Economies*
- *Bitcoin and remittances: potential for market disruption?*
- *The Effectiveness of Technology Transfer in a Culturally Different Partnership*
- *Industry 4.0 in relation to company's performance*
- *Novel approach to IP protection for research tools*
- *Impact of university policies in preventing conflicts of Interest in research/academia*
- *How does group size affect creativity of research in different fields*
- *University-industry collaboration as an incentive of academic innovation*
- *Impact Measurement and the Distribution of Scientific Capital*

Calendar (Tentative)

1	Sep. 26 (today)	Guidance
2	Oct. 3	Lecture 1
	Oct. 10	National holiday
3	Oct. 17	Lecture 2
4	Oct. 24	Lecture 3
5	Oct. 31	Lecture 4
6	Nov. 7	Presentation
7	Nov. 14	Lecture 5
8	Nov. 21	Lecture 6
9	Nov. 28	Lecture 7
10	Dec. 5	Presentation
11	Dec. 12	Lecture 8
	Dec. 19 – Jan. 2	Winter break
	Jan. 9	National holiday
12	Jan. 16	Lecture 9
13	Jan. 23	Reserved

Grading

- (Bi?)Weekly assignment
- Class presentation
 - Depending on enrolment
- Project (writing)

* Grading breakdown (%) announced by Oct 17 (3rd class). No assignment/evaluation before that.

Misc.

- Prerequisite
 - None
- Language policy
 - Delivered in English
- Office hour
 - By appointment
 - shibayama@tmi.t.u-tokyo.ac.jp
- Course information and materials
 - <http://sotaroshibayama.weebly.com/>

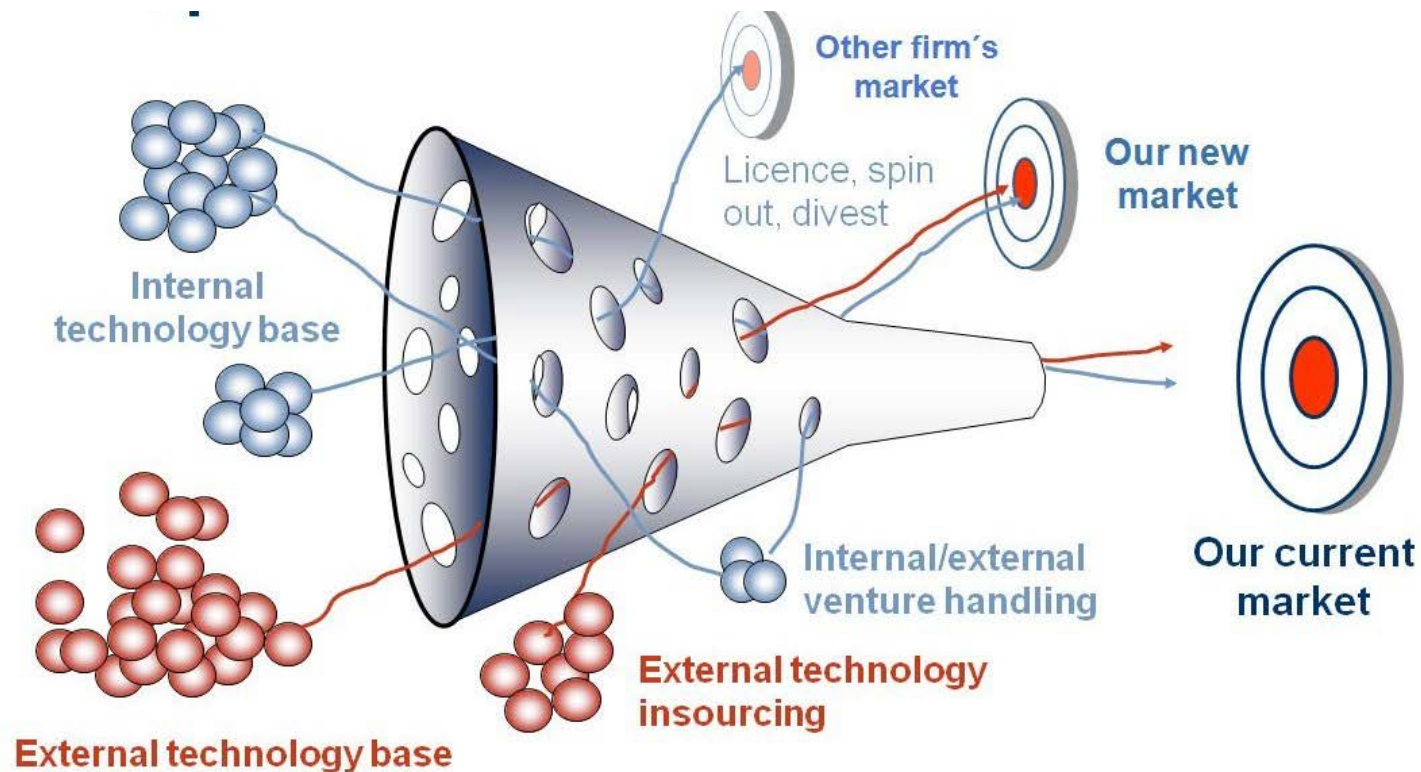
OVERVIEW OF LECTURE TOPICS

Lecture Topics

- Open innovation
- Innovation network
- Academic entrepreneurship
- Product/service innovation
- Diffusion and adoption
- Knowledge and innovation
- Business model & value capture
- Building capability and organization
- Discontinuous & disruptive innovation
- Social innovation
- Innovation system

Open Innovation

“Use of both inflows and outflows of knowledge to improve internal innovation and expand the markets for external exploitation of innovation”



Source: Henry Chesbrough, Open Innovation; Renewing Growth from Industrial R&D, 10th Annual Innovation Convergence, Minneapolis, Sept. 27, 2004

Open Innovation

The Loch Ness Monster and Friends

Anscott2
Jul 04, 2016

~The Loch Ness Monster (Nessie) has come to visit the ruins of Urquhart Castle on the banks of Loch Ness. She has brought some friends, a mermaid and a dragon, and she has at...

210 SUPPORTERS

343 DAYS LEFT

2k 27 62



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Start: January 25, 2016
End: March 20, 2016
Time: 11:59pm EST

STEAM

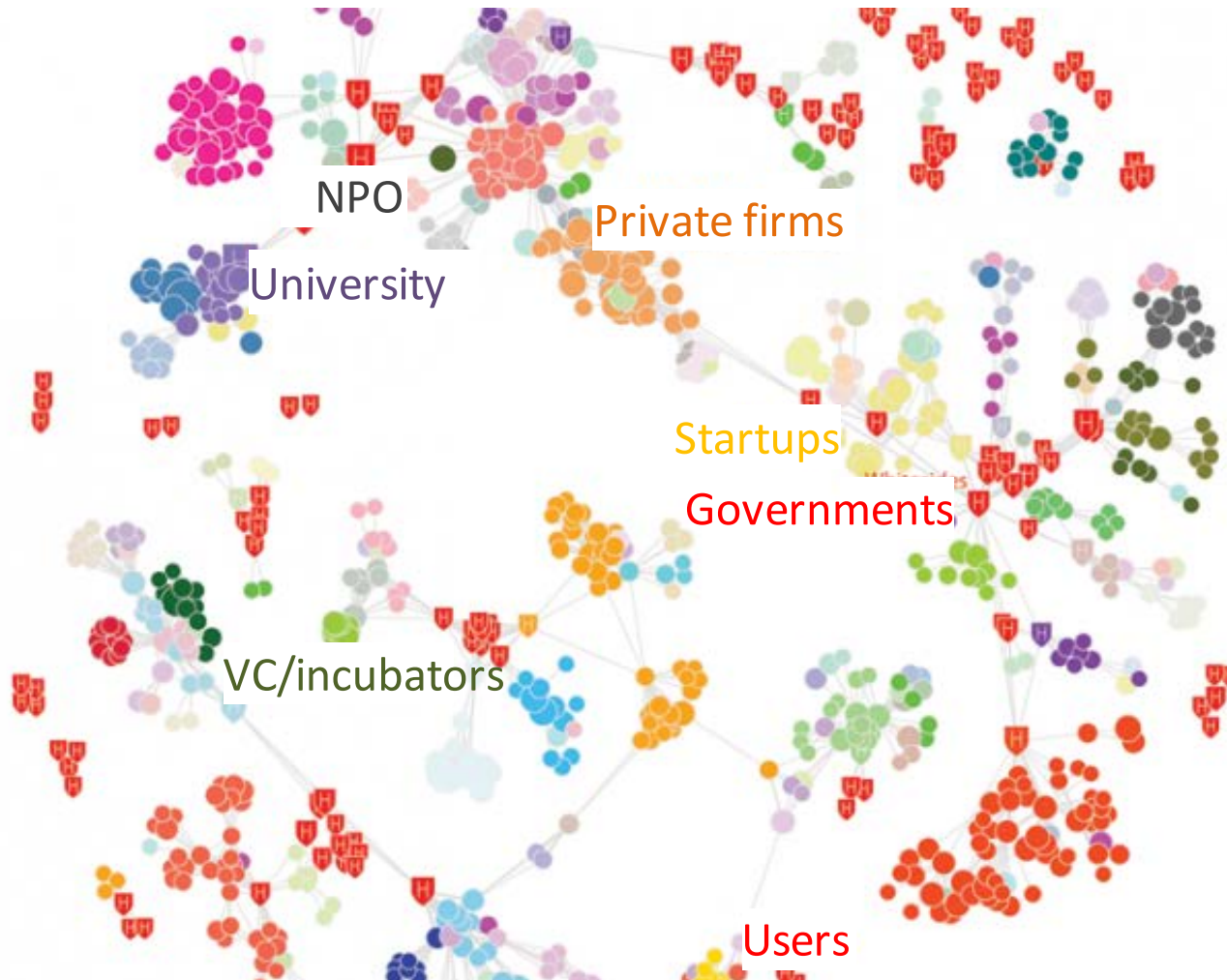
Diversifying the Innovation Pipeline

9/26/16

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Network of Innovation



Academic Entrepreneurship



The screenshot shows the Stanford Biodesign website. The browser address bar displays "biodesign.stanford.edu". The navigation menu includes "STANFORD BYERS CENTER FOR BIODESIGN", "PROGRAMS", "OUR IMPACT", "ABOUT US", "NEWS & EVENTS", "GIVING", "RESOURCES", and a search icon. Below the navigation is a large green banner with the text "STANFORD COURSES" and a description: "Stanford Biodesign offers a portfolio of courses for Stanford undergraduate (U), graduate (G), and postdoctoral (P) students. Those not enrolled at Stanford can explore our distance learning course." To the left of the text is a photograph of two students working together at a table.

BIODESIGN INNOVATION

A two-quarter, project-based course that brings together multidisciplinary student teams to address real-world medical needs by learning and applying the end-to-end biodesign innovation process. (G) (P)

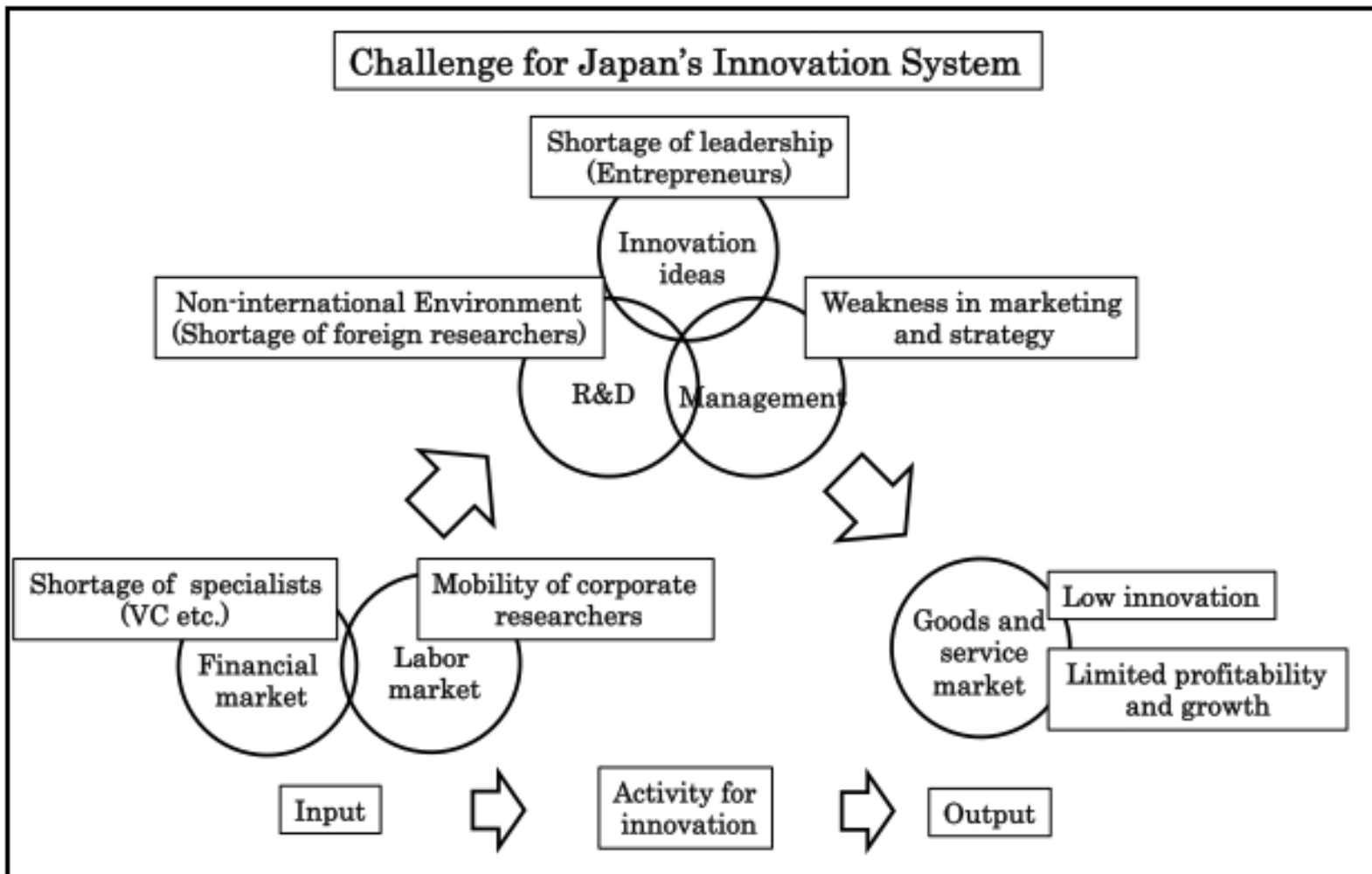
[LEARN MORE →](#)



Knowledge and Innovation



Innovation System



Source: RIETI website

9/26/16

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Organizational Strategies

Implementation	External	Spin-Out <ul style="list-style-type: none"> • Spin out • Management-buy-out 	Startup Share <ul style="list-style-type: none"> • Corporate venture capital
	Internal	Intrapreneurship <ul style="list-style-type: none"> • Corporate venturing • Intrapreneurship 	Spin-In <ul style="list-style-type: none"> • M&A • Integration
		Internal	External
		Source	

Source: Linz (2001)

Organizational Capability

Dynamic capability

Exploratory learning

Absorptive capacity

Creative climate

Resource-based view

Innovative leadership



Social Innovation

“A solution to a social problem that is more effective, efficient, sustainable, or just than current solutions. The value created accrues primarily to society rather than to private individuals.”



Online volunteering



Microcredit



P2P lending



Distance learning

Source: Stanford Graduate School of Business and websites of each group

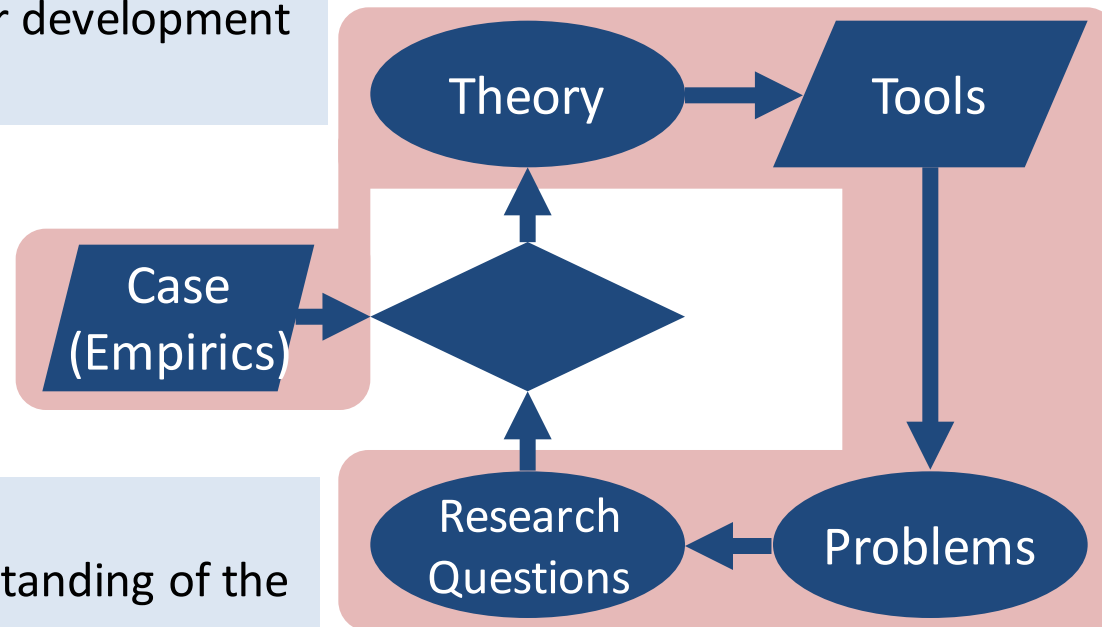
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LOGISTICS

Teaching Assistant

- Mr. Yu-Sheng Kao (TMI, Eng)

Registration

- E-mail to sunkao1035@gmail.com with the following information:
 - Full name
 - Student number
 - Affiliation (school + department)
 - Email address that is accessible
- Important announcements are made in class and by email.

<http://sotaroshibayama.weebly.com/>

SOTARO SHIBAYAMA

HOME RESEARCH PUBLICATION EDUCATION RELATIONS ABOUT CONTACT

KNOWLEDGE
MANAGEMENT
INTELLECTUAL PROPERTY
PHARMACEUTICAL
R&D MANAGEMENT
SCIENCE
TECHNOLOGY POLICY
SCIENTIFIC PRODUCTION
UNIVERSITY-INDUSTRY RELATIONSHIP

INEQUALITY
GAME THEORY
PHARMACEUTICAL ORGANIZATION
OPEN SCIENCE & THEORY
EVOLUTIONARY BIOLOGY
SOCIOLOGY

BIOLOGY
ACADEMIC
FUNDING
ORGANIZATIONAL BEHAVIOR
ACADEMIC TRAINING
ECONOMICS
ACADEMIC BIOTECH
ENTREPRENEURSHIP

HIGH-TECH INDUSTRY
SOCIAL CAPITAL
INNOVATION

The University of Tokyo
Graduate School of Pharmaceutical Sciences /
Science, Technology and Innovation Governance Education & Research Program /
Department of Technology Management for Innovation
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan
E-mail: shibayama[at]oo.alumni.u-tokyo.ac.jp

[ResearchGate] [Google Scholar] [Academia.edu] [SSRN] [ORCID]

Recent Publications

Seminars, etc.

- Morichika, N. & Shibayama, S. (2016) Use of Dissertation Data in
- [Innovation System Engineering](#) (2016)

- Science, Technology, and Innovation Governance (STIG) education program
 - Interdisciplinary certificate program about STI
- Program guidance
 - From 4:50 pm, Sep. 28
 - @ Room 203, Law Sch. Bldg.
 - <http://stig.pp.u-tokyo.ac.jp/?p=1873>
- *Innovation System Engineering* is “Mandatory-Elective” of the program.

Next Week (Oct 3)

- Lecture 1
- Starting at 4:50 pm
- Room 33, Eng. Bldg. 3 (Same as today)
- No assignment

