Research Team

New Product Development & Market Entry Modeling

Technology and Operation Managements Laboratory
Department of Industrial Management
National Taiwan University of Science and Technology - 2009

RESEARCH TEAM

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Technology and Operation Managements Laboratory
Department of Industrial Management - NTUST

Research Topic

New Product Development

RESEARCH OBJECTIVES

Study of New Product Development (NPD) and its

relationship to resource allocation strategy

~Case of ICT based industry~

- Performance evaluation of resource allocation strategies

- *Under different workload scenarios*

- *Under different suppliers*

RESEARCH MOTIVATIONS

- Against the competitive business environment, new product development (NPD) performance has considered as a critical factor by firms.

- In high-tech industries, the product life cycle is short and the capital is intensive. In order to stay ahead of the competitor in such industry, an enterprise must pay more attention to the NPD process and to R&D resource allocation. Moreover, a firm must strategically manage its R&D resources to maintain its competitive advantage (Aaker 1995).
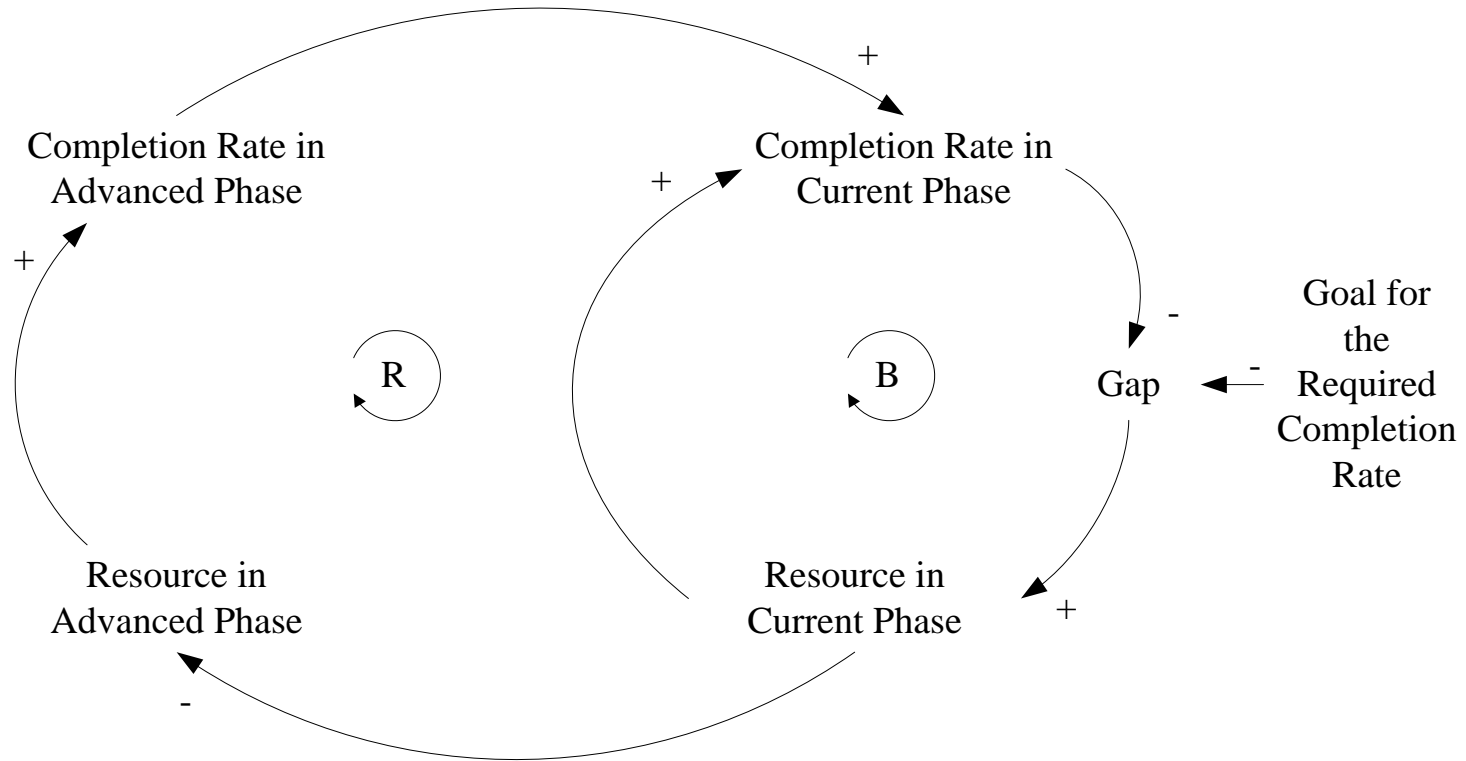
RESEARCH LITERATURE

Figure 1 presents a causal structure that is derived from Repenning (2000).
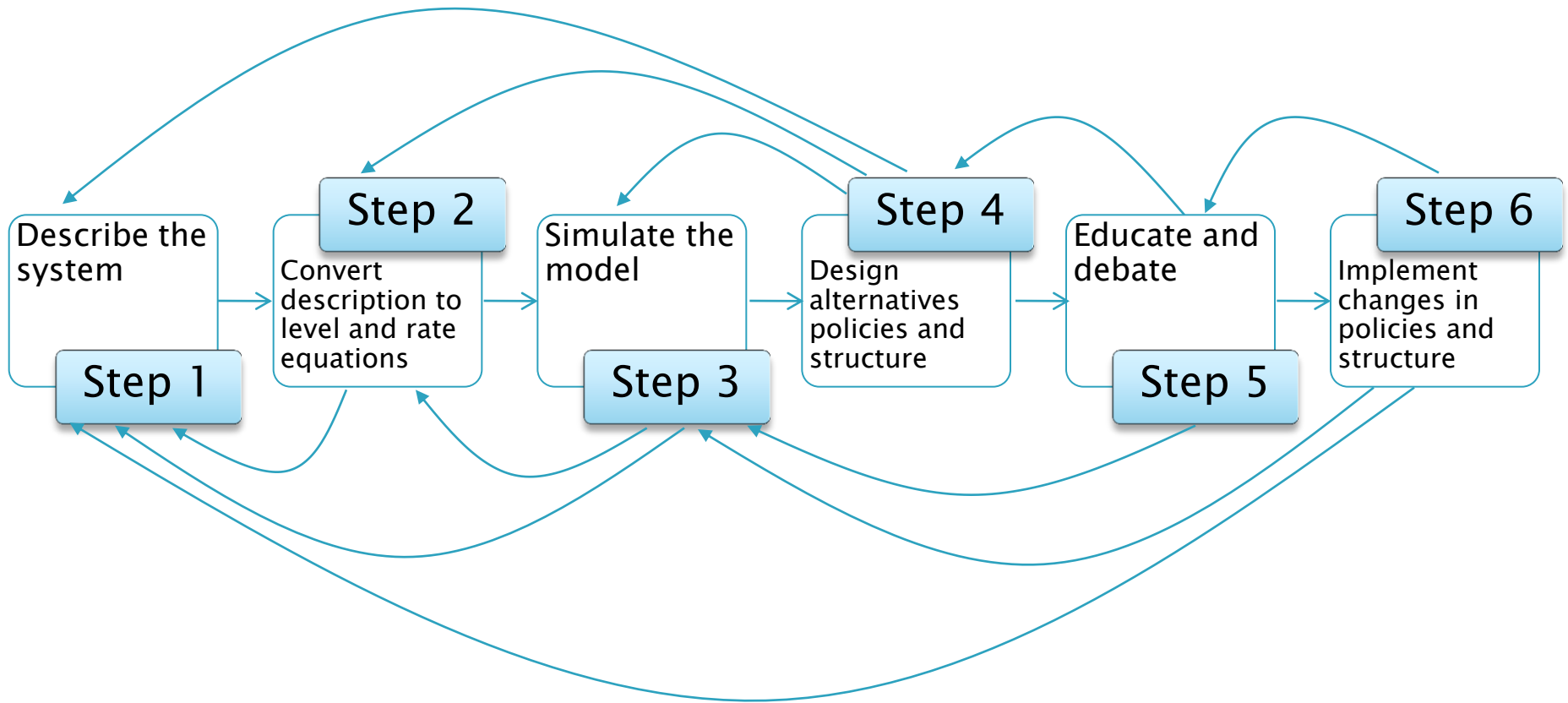
RESEARCH PROCESSES

Figure 2 – System dynamics steps from problem symptoms to improvement.
Source: http://www.systemdynamics.org/

RESEARCH OUTPUT

Working Paper/Proceedings:

Wang K.-J., Lee Y.-H., Wang S. and Chu C. P. (2009) Performance evaluation of resource allocation strategies for new product development under different workload scenarios, Journal of Modeling in Management, 4(2), 91-113. (EI)

Wang K.-J. and Su S. F. (2009) Performance evaluation of different resource-allocation strategies for new-product-development projects, European Journal of Operational Research, submitted. (SCI)

Lee Y.-H., Wang S., Wang K.-J. (2007) Impact analysis of new product development under different supplier relationships, 2007 International Conference on Business and Information, July 11-13, Tokyo, Japan. (Best Paper Award of the conference)

Patent:

1. 發明人：王孔政、李芸慧，發明名稱：一種以系統動態技術衡量新產品開發績效之系統及方法, 台灣發明專利. (準備中)
2. Wang K.-J., Lee, Y.-H., (2010) US Patent (Pending) System and method for assessing performances of new product development process.

Research Topic

Market Entry Modeling

RESEARCH OBJECTIVES

Study of market entry modeling to China and its implication to company's strategy
~Case of Biotech Pharmaceutical industry~

- Market entry modeling to China
  - Qualitative – Case study method
  - Analytical network process method
- Core competencies study for market entry process
  - Qualitative – Case study method
- Location decision study for market expansion
  - Quantitative – Questionnaire survey
  - Analytical network process method

RESEARCH MOTIVATIONS

- Along with the technology development in pharmaceutical field, nowadays the necessity of biotech pharmaceutical product is increased *(George Wolff ,2001).*

- In China, the Biotech pharmaceutical industry has been growing rapidly. In 2008 the market size of China's biotech pharmaceutical industry was about 70 billion Yuan, whose growth rate passed the whole market size of China's medicine market. *(Source: China Research and Intelligence, www.shcri.com)*

Figure 3 China market

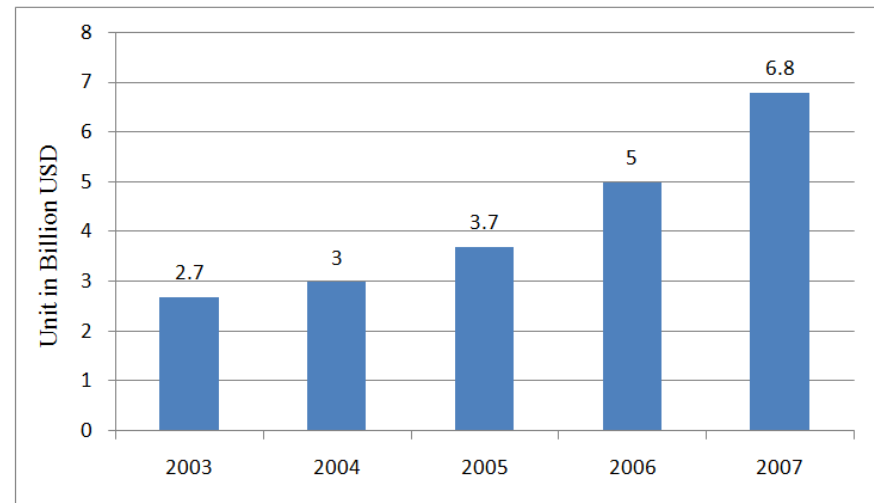Figure 4 Market scale of biotech pharmaceutical industry in China
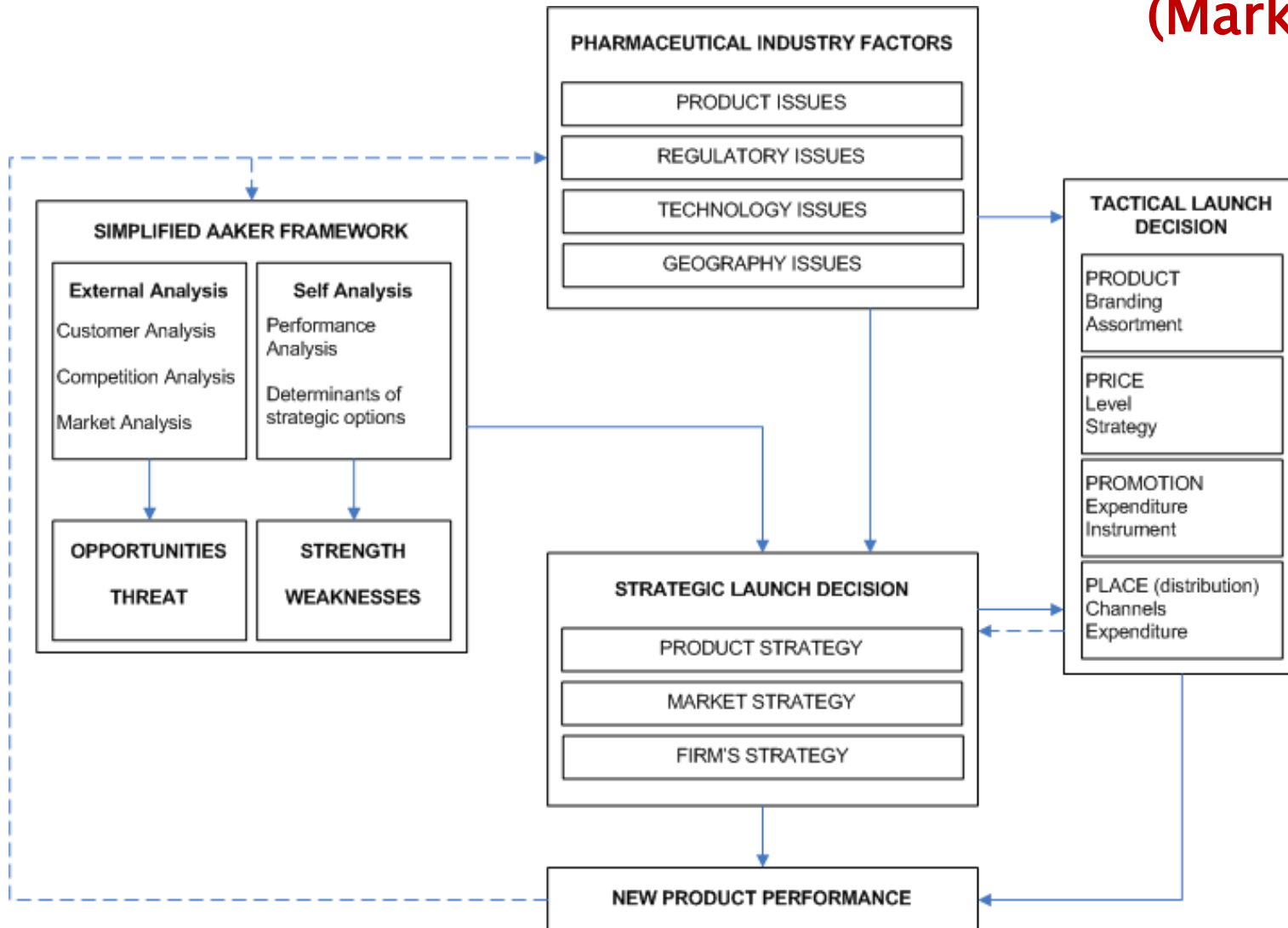
Figure 5 The new product launch strategy model for pharmaceutical company (Trim and Pan, 2005)
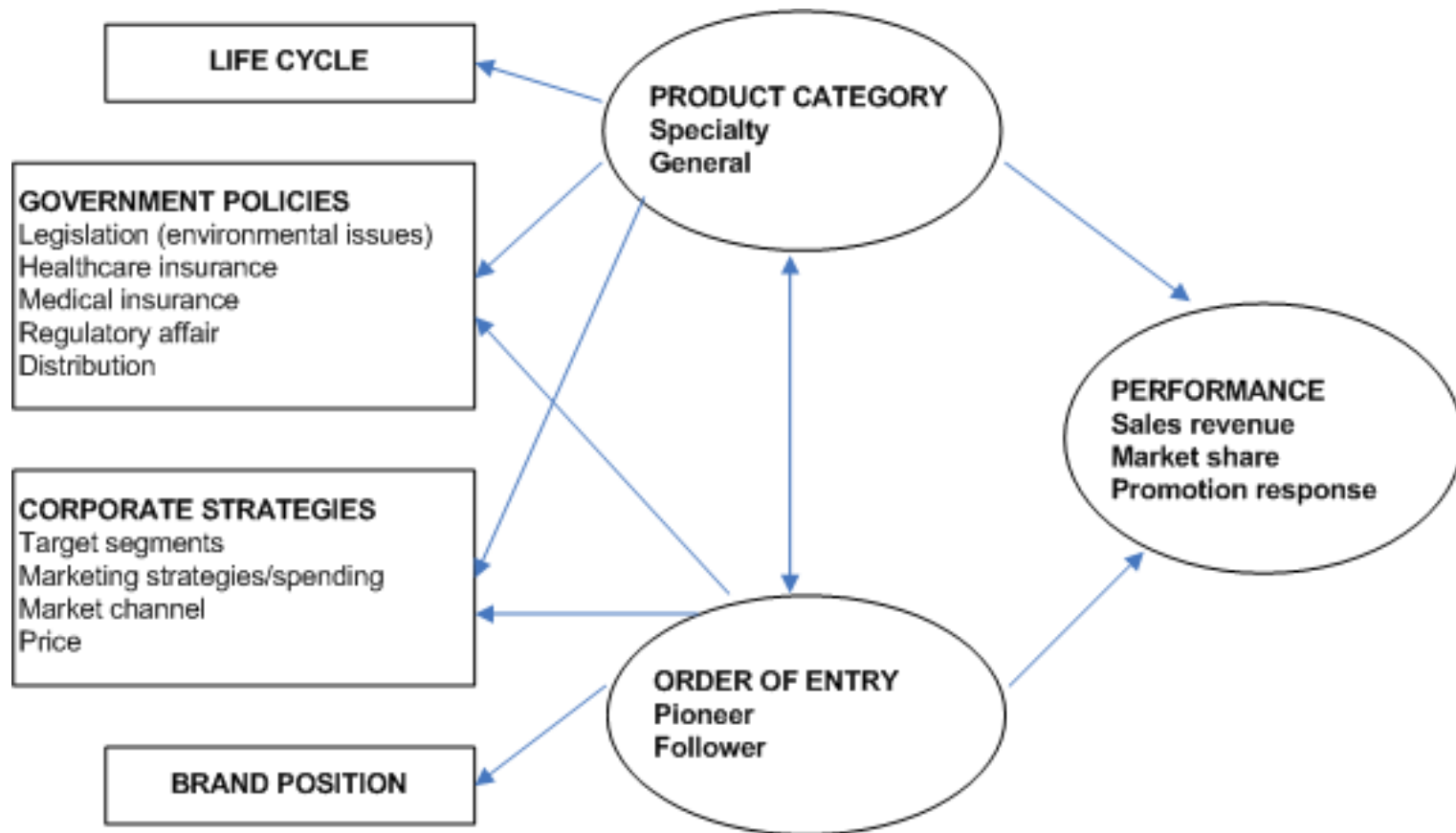
Figure 6 Proposed structural construct for pharmaceutical companies entering China market (Liu and Cheng, 2000)

RESEARCH LITERATURES
(Core Competence)

INDUSTRIAL ORGANIZATION

COMPETENCE THEORY

1 INDUSTRY STRUCTURE

B RESOURCES AND COMPETENCES POTENTIAL OF PROFITABILTY

2 STRATEGY **C**

3 COMPETITIVE PRIORITIES

CHOICE OF INTERVENTION

D RESOURCES MANAGEMENT POLICIES

RECOURCES

A

COMPETENCES

4 PERFORMANCES

COMPETITIVE ADVANTAGE
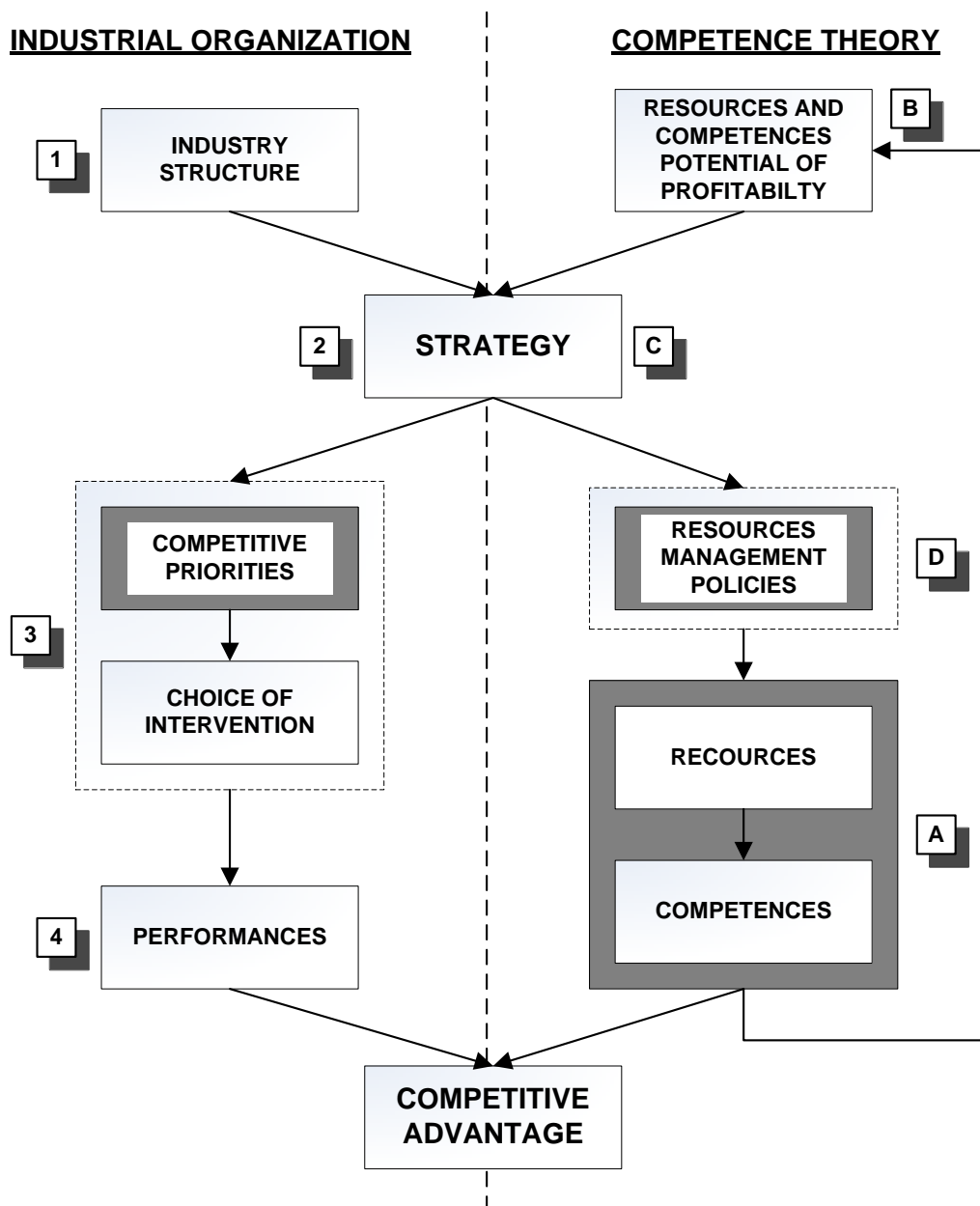
Figure 7 Proposal for the integration of IO and CT by the joint analysis of a competitive priorities and resources/competencies (in shaded box); the significance of strategy is evidenced by a dotted square (Toni and Tonchia 2003)

RESEARCH LITERATURES
(Core Competence)

Top–Down
From strategic thinking
down to identifying core
competency

1. From external-in: ESS rationale
2. From internal-out: RBV rationale
3. From bottom-up: micro perspective (core competency oriented)
4. From top-down: macro perspective (strategic thinking oriented)

Internal-Out
From resource base to
shape the competitive
edge (RBV rationale)

CORE COMPETENCY

External-In
From environment to examine
the fitness of competency
(ESS Rationale)

Bottom-Up
From core competency up
to solidifying the strategic
thinking

Figure 8 The rationale of structuring the POCCI model (Yang et al. 2006)

RESEARCH LITERATURES
(Location Decision)

Second-Tier City GDP Growth (2004)

Figure 9
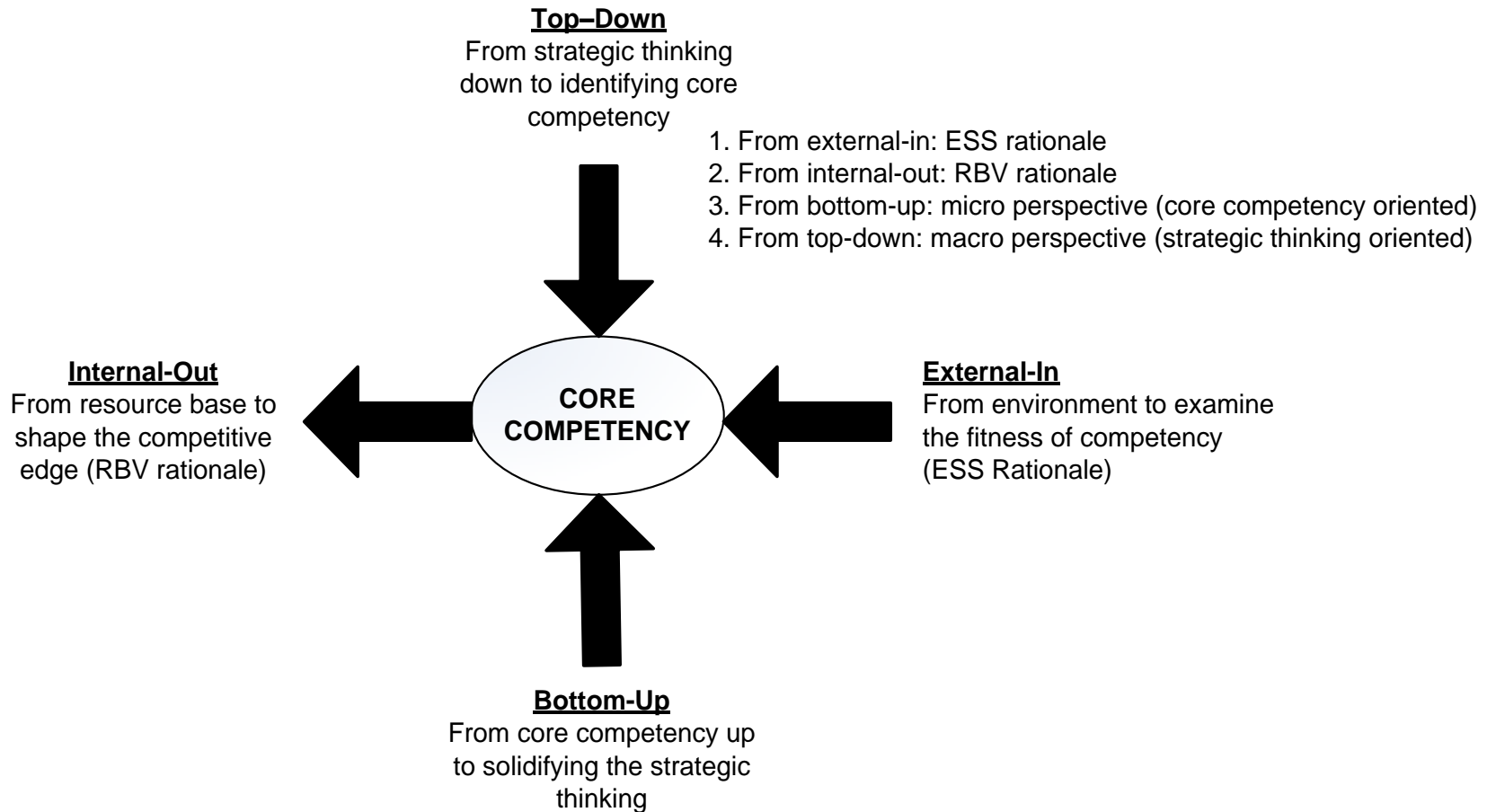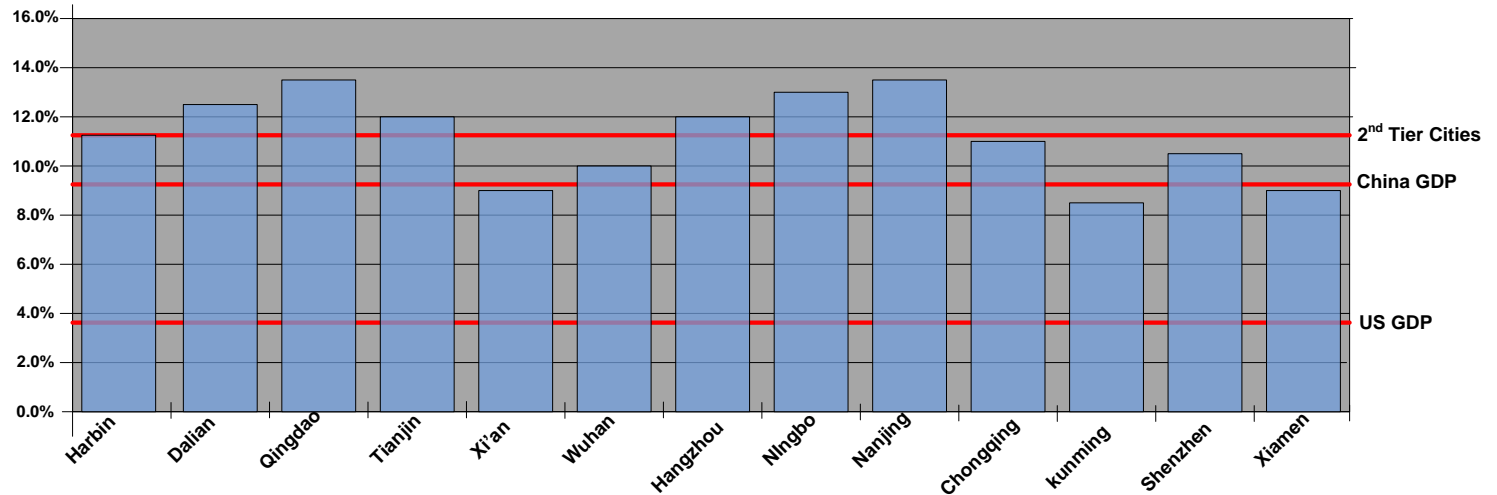Second tier city GDP growth and destination of global export into China

Destination of Global Exports into China

- 2-nd Tier City 53%
- Shanghai 21%
- other 18%
- Guangzhou 4%
- Beijing 4%

RESEARCH PROCESSES

Exploratory Study
- Combining literature review process, questionnaire survey and qualitative depth interview

Involving Biotech pharmaceutical SMEs
- Involving SMEs as respondents from top 10 biotech pharmaceutical companies

SMEs Background
- Last Position as General Manager to Board member ; 15 – 30 years of experiences ; Marketing strategy and Business development expert

STEP	PROCESS	OUTPUT
Preliminary Data Collection	1. Preliminary Questionnaire 2. Preliminary Interview — Literature Review	Preliminary Data and Information: a. Corporate Core Business b. Corporate Market Entry Analysis Process c. Corporate Market Entry Strategy & Tactical d. Company's core competencies and location decision
Main Data Collection	1. Questionnaire 2. Depth Interview	Similar with the previous part
Data Analysis, Model Construction, Propositions formulation	Questionnaire data processing (Statistical approach and Nvivo Software) — Interview data and information interpretation 1. Model Construction (Market Entry Model of Bio-Pharmaceutical Industry in China) 2. Market Entry Core Competencies Propositions 3. Location Decision Propositions of Biotech Pharmaceutical Industry in China	a. Market Entry Model b. Market Entry Core Competencies Propositions c. Location Decision Propositions of Biotech Pharmaceutical Industry in China
Verification & validation	1. Focus Group Discussion 2. Finalization	Similar with the previous part
Conclusion	1. Conclusion 2. Future Research	Conclusion & Future Research suggestions

Research Methodology

RESEARCH OUTPUT

Working Paper/Proceedings:

Wang K.-J., Yuliani Dwi Lestari, Fini Winata, Lee Yun Huei, Hsu-Hua Lee and Tsau-Tang Yang. (2010). Analytical Network Process (ANP) Market Entry Model for Biotech Pharmaceutical Industry in China.
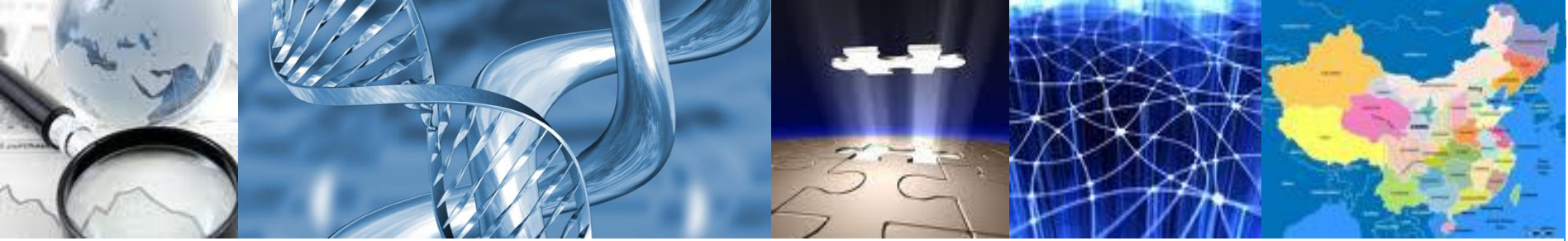
Wang K.-J., Yuliani Dwi Lestari, Lee H.-H, and Yang T.-T. (2010). Corporate Core Competence for MNC's Market Entry: A case of China Biotech Pharmaceutical Industry.

Lee Yun Huei, Hsu-Hua Lee and Tsau-Tang Yang. (2010). Market Entry Model for Biotech Pharmaceutical Industry in China.

Kung-Jeng Wang (Corresponding author)[1], Yuliani Dwi Lestari[1], Lee Y.-H.[2] and Yang T.-T. [3] Location decision determination by analytical network process - A case study of biotech pharmaceutical industry in China second tier cities.

Kung-Jeng Wang (Corresponding author)[1], Yuliani Dwi Lestari[1], Lee Y.-H. [2] and Yang T.-T.[3] Location determinants of market expansion-A case study of biotech pharmaceutical industry in China second tier cities.

THANK YOU