The Role of Innovation Intermediaries in promoting triple helix system: the case study of MNC-dominated industries in Thailand

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Presentation Outline

- Introduction
- Thailand’s Industrial and S&T Policies
- Roles of Innovation Intermediaries in the Triple Helix Framework
- Emergence of Triple Helix Interaction on the back of cluster development
- Case studies: Innovation intermediaries in the automotive and hard disk drive sectors
- Conclusions
Introduction

- The aim is to highlight the role of intermediaries in network and technology development in Thailand with reference to the MNC sector.
- MNCs are significant in Thailand as a vehicle of FDIs and as an engine of industrial development. They are dominant in 2 important sectors in Thailand: automotive and hard disk drive sectors.
- Triple helix framework is used as a tool to analyze cluster strategy of industrial development in Thailand and better understand the national innovation system.
- The cluster approach was adopted to promote innovation and competitiveness in 2004.
Profile of Thailand’s Industrial Policy 1960-2010

- **1960s**: Industrialization for Export Promotion
- **1970s**:
  - Financial crisis in 1997
- **1980s**:
  - FDIs for Export Promotion
- **1990s**:
  - Ownership restriction relaxation
  - Abolishment of local content requirement in 2000
- **2000s**:
  - Liberalization of Trade and Investment Regime
  - Cluster Approach
A Triple Helix Analysis of Cluster Approach

Cluster Development

Stage 1: Preparation
Forging links between key actors, such as, firms, supporting institutions, universities and government agencies.

Stage 2: Formation of cluster cores
Cores of clusters are formed by key actors through joint activities, such as, meeting and R&D.

Stage 3: Emerging clusters
More actors join the clusters; the clusters become larger.

Stage 4: Becoming dynamic clusters
All related actors participate in the clusters with more joint activities.
# S&T Strategic Plan 2004 - 2013

## Economy

1. **Develop Clusters and Strengthen Community Economy and Quality of life**
   - Food
   - Automobile
   - Software & Microchip
   - Textile
   - Tourism
   - Health
   - Bio Industry
   - OTOP

### Core Technologies

- Bio technology
- ICT
- Materials technology
- Nano technology

## Scientific Knowledge

- Life science, physics, math, computer, material science

## Society

- Environment
- Youth
- The Underprivileged

## Steps

2. **Develop S&T human resource**
3. **Develop S&T infrastructure and institutions**
4. **Enhance S&T Public awareness**
5. **Improve S&T management system**

Understanding Industrial Cluster through Triple Helix Model

- **Universities**
- **Companies**
- **Trade associations**

**Institutions**

**Cluster Core**

**Networking**

**Industrial Cluster**

**Triple Helix Model of Interaction**
Roles of Innovation Intermediaries in Triple Helix Framework

University

- Traditional Roles
  - Teaching
  - R&D

Industry

- Traditional Roles
  - Production
  - Service Provision

Government

- Traditional Roles
  - Rules & Regulations
  - Funding

Intermediary Roles
- Sponsoring
- Brokering
- Boundary Spanning

Trilateral Networks or Collaborative Projects
Roles of Innovation Intermediaries

**Policy Level**
- Formulation of industrial/S&T policies
- Provision of funds

**Strategic Level**
- Creation of linkages and interactions
- Access to external resources

**Operational Level**
- Facilitation of knowledge flow
- Provision of services

**Sponsoring**

**Brokering**

**Boundary Spanning**
Policy Level – Sponsoring Role

Principal-Agent Relationship

Policy & Resources

Policy Makers

Principal

Funding Agencies

Intermediaries/
Agent of policy makers

Knowledge producer -
Uni, RIs
Knowledge user - firms

Agent of funding agencies

Performance

Source: Van der Meulen et al.
Strategic Level – Brokering Role

Structural Holes Closure in Social Capital

Asymmetric resource flow and relation
Symmetric resource flow and relation

Source: Ahuja (2000)
Operational Level – Boundary Spanning Role

Taking roles of the others in Triple Helix Model
Case study: Automotive Cluster Development

Government Policy

SME 007+

Banpong Bus Body

Foreign experts for HRD in design engineering

Other auto clusters

HRD for clusters

Training & Testing services

R&D

Special vehicle for agricultural sector project

Society of Automotive Engineering Thailand

Institutional Fragmentation

Teaching
Case study: HDD Cluster Development

IDEMA, Thailand

4 HDD manufacturers
1st-2nd tier manufacturers

Policy Research

BOI

NECTEC

HDD Cluster Development

KMITL

KKU

KMUTT

BOI

AID

APR

Industry/University Cooperative Research Centers

R&D, HRD project

R&D, HRD project

R&D, HRD project

R&D, HRD project

R&D, HRD project

R&D, HRD project

R&D, HRD project

BOI

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Emergence of Triple Helix Interaction

Automotive Industry

HDD Industry
Roles of Innovation Intermediaries

**Automotive Industry**

**Sponsoring Role**
- No permanent sponsoring intermediary

**Brokering Role**
- TAI provides only lists of experts without assistance in mediation process

**Boundary Spanning Role**
- TAI provides testing services and training for automotive industry

**Hard Disk Drive Industry**

**Sponsoring Role**
- NECTEC by HDDI formulated policy and provides funding for R&D and collaborative projects

**Brokering Role**
- HDDI established 3 I/UCRCs in universities to create sub-networks

**Boundary Spanning Role**
- HDDI established a central lab and a network of government testing labs for HDD industry
Intermediary Organizations

Roles

- **Sponsors**
  - Formulating and transmitting policy with budget

- **Brokers**
  - Forging linkage between triple helix actors
  - Building of interaction

- **Boundary Spanners**
  - Providing operational services which are roles of the others

Automotive

Hard Disk Drive

NECTEC by HDDI

3 I/UCRCs

Central labs & Universities

TAI
Conclusions

Triple Helix is a natural extension of the cluster development strategy of industrial development and of National Innovation System adopted by the government.

While triple helix network development can be enhanced by the role of intermediaries, the role of intermediaries is more effective with bottom-up strategy (as in the HDD case) than with top-down strategy (as in the Auto case).

Conflicts of interests between intermediaries can reinforce the effects of structural holes and capability gaps, making the whole system dysfunctional.

- The sponsoring role of intermediaries helps to reduce the gap between knowledge production at the level of universities and knowledge use at the level of firm.
- The brokering role of intermediaries enhances development of social capital.
- The boundary spanning role promotes knowledge circulation across the wider economy.
Thank you for your attention
References


