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The doctorate thesis titled, “Analyses of University-Industry (UI) Collaborative Research: The Case of Thailand National Research Universities (NRUs)” consists of 9 chapters.

CHAPTER 1: Introduction – Introduces the background and motivation of this study including previous studies on University-Industry Linkages (UILs), joint research and other UILs in developed and developing countries and Thailand’s UILs that indicates issues and brings up the objectives and research questions.

CHAPTER 2: Theoretical Background and Conceptual Framework – Provides the backgrounds of UILs regarding the university’s third mission, firms’ open science strategy and knowledge transfer activities. Then, the conceptual framework for investigating the causal relationships between the universities’ characteristics and their patterns of UI collaborative research is illustrated.

CHAPTER 3: Thailand’s UILs and Related Policies. – Introduces Thailand’s Science and Technology (S&T) related policies, the background related to Thai UILs for providing information of the UILs under the Thai context. It also provides an analysis of the effects of Higher Education System Reform that affected some universities’ characteristics such as the change in external research funding structure and a variety of UI collaborative research areas.

CHAPTER 4: Thailand’s Competitive Industry Clusters and their Technological Capabilities – Explores the overall situation of the technological capabilities and the Thai competitive cluster characteristics. It identifies two competitive clusters: shrimp and Hard Disk Drive (HDD). The value chain governance, technological upgrading and the research and development (R&D) activities of these two selected competitive clusters are further discussed.

CHAPTER 5: Academic Research Performance of the NRUs – Investigates the research performance of NRUs. The analysis begins with the benchmarking of research performance using relative indicators at national, regional and the global level. Then, the publications of the institutions with high research performances were analyzed using content-based co-citation analysis. It indicates that the NRU project had an influence on the universities’ research direction and focus. Each university has its own mission and research interests in line with its organizational path dependence and research infrastructures. The high-performing NRUs tended to specialize in research areas related to food and agriculture, chemical, and energy.

CHAPTER 6: Antecedents and Consequences of the NRUs’ Collaborative Research – Identifies the influences of university’s characteristics and research performances on its patterns of collaborative research and vice versa. Co-publications and co-patents were used as proxies to represent collaborative research projects. The longitudinal study was carried out by dividing the time span into two periods: before and after the announcement of the NRU project. It indicates that the NRUs with autonomous status tended to engage in collaborative research focusing relatively on scientific research in the second period. Most NRUs tended to keep improving their research performance aligned with their previous research specialization. However, only a few high-performing NRUs had their collaborative research in the first period highly associated with those of the second period.

CHAPTER 7: Academic Researchers’ Perspectives towards Collaborative Research – Investigates the academic researchers’ perspectives toward UI collaborative research based on the semi-structured interviews and surveys. Explores the relationship between academic researchers’ attitudes and the researcher characteristics. It indicates that most researchers, regardless of their characteristics, were highly concerned about the relatedness between their research agenda and collaborative research project and the novelty. The researchers who were in

autonomous universities or who had collaboration experience tend to manage well issues related to confidentiality of research results. The researchers from civil service universities tend not to be familiar with the collaborative research and still lack this capability and professionals related to intellectual property (IP) management.

CHAPTER 8: A Comparative Study: Collaborative Research in Thai Shrimp and HDD Industries–

Represents the comparative case study of the shrimp and HDD clusters. The research-performance-driven model of Thai shrimp industry represents the case that the universities' research performances enhanced the collaboration with the industry through the support from government and industry's competitiveness. The university and government research agencies had strong relationships in R&D collaboration. The technology transfer model of Thai HDD industry indicates the attempt of the private sector and government to spur the research activities and to build R&D capability related to HDD industry on the university side and local firms. Both cases indicate that openness of dominant firms associated with the more relational governance structure in the global value chain is one of the key antecedents leading to the establishment of UIL activities.

CHAPTER 9: Conclusions and Implications – Summarizes all findings and discusses the implications for designing policy interventions, academic management plan and firms' external R&D strategies. It explores the deep understanding of UIL and sheds light on the unique factors that affect the UI collaborative research in a developing country. It points out that the universities' characteristics for investigating the UI collaborative research of a developing country should include institutional autonomy, researcher performance and research agenda. The firms' value chain governance and history of their technology upgrading has an effect on the UI collaborative research. While the previous studies posed limitations for inferring causal relationships between research performance and UI collaborative research, this study confirms that engagement in UI collaborative research is enhanced by research performance; however, it rarely occurs in the reverse direction.

In summary, this doctorate thesis provides a comprehensive study for analyzing UI research collaborations in Thailand at the macro, meso and micro levels, in terms of government policy, UI linkages, industries, organizations of NRUs and individual researchers. It identified the universities' research performances based on content-based co-citation analysis. This doctorate thesis also provides practical examples on how late comer firms in different industrial sectors use UI collaboration to move up their positions in Global Value Chains (GVC). It indicates that the sectoral effect does not significantly explain the differences in UI patterns of collaborative research. Against conventional wisdom, the in-depth analysis of UIL demonstrates that UIL has been quite active in the low-tech sector like the Thai shrimp industry, offering an opportunity for upgrading industrial capability in a wider sector than considered. For these reasons, this thesis is considered valuable as a doctorate thesis in the field of Management of Technology.

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