Chapter 6
High Technology Industrialization and Internationalization:
Exploring International Technology Transfer

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ABSTRACT

Through exploring high technology industrialization and internationalization, the chapter reviews related issues from three interconnected levels: national, enterprise, and technology level. Part 1 gives a detailed discussion on technology transfer policy in different countries. Part 2 focuses on the issues of international technology transfer at enterprise level. Part 3 explores how technology characteristics can influence international technology transfer. The following parts review the methodologies and research gaps. Lastly, the chapter summarizes some key questions for future research.

1. INTRODUCTION

1.1 Backgrounds of Research

International technology transfer is a direct approach to improve national technology level and strengthen national competence. Introducing advanced technologies from foreign countries can boost the speed of technology development in the host country. Through technology import, host countries can often shorten the learning time, enjoy the latecomer advantage, and achieve technology leapfrogging. However, international technology transfer is not an easy process. Barriers existed because of huge gaps among countries in terms of social values, economic development, and technology level. There are more complicated issues if technology exporters belong to the developed world, while the technology importers come from developing world. Technology policies vary significantly due to the difference of conditions between developed and developing countries.

Since most technology exporters are companies from developed countries and most technology importers are from developing countries, this chapter will focus on technological transactions between developed and developing countries. Also due to the large policy differences between the two sides, typical countries will be selected for detailed discussions. As the largest developed country, United States is also the largest technology exporter in the world. This is because its unparallel global technological leadership built from the last century. Policy measures in United States can typically represent the interests of many other developed countries such as Europe Union, Japan, etc. From the perspective of developing countries, China and India have the largest market potential in the world. China is also the largest technology importer globally. It generates many business opportunities and attracts a lot of investments from developed countries. Therefore, technology policy of these countries will be discussed in this chapter.

1.2 Levels of Technology Transfer

This chapter focuses on the research of government's technology policy and its influence on international technology transfer. Technology policies have been a focal point for a long time. Due to the ever changing environment of world politics and economy, there are too many uncertainties in policy-making for every country. It is not uncommon some policies cannot meet government's original requirement as they were legislated. The rapid development of high technology has made stable technology policy a difficult task. Therefore, it is necessary to study the causal factors and intrinsic relationship of issues involved. It is also meaningful to evaluate the effect of current technology policies, so we can learn valuable lessons.

International technology transfer can be studied from different perspectives. One approach is to focus on the entities involved in the process, i.e. technology exporter, technology importer, and technology itself. A new approach is to explore the growing trends of international technology transfer from different perspectives of various levels. Through comprehensive literature review, this chapter investigates the mechanisms of international technology transfer from three interrelated levels:

1. National level;
2. Enterprise level;
3. Technology level.

Detailed discussions will be given to explore the problem areas in each level, and also to discover the intrinsic connections among these aspects. High-tech industries are emphasized due to their fast changing nature and growing impact on policy-making.

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