

Abstract

This research focuses on the implementations of open innovation in the business networks of a globalized economy. This research provides a comprehensive understanding of the open innovation process management in the business context. This research also proposes the determining factors, constraining factors, and managerial mechanisms of open innovation in various innovation types and network configurations.

This dissertation is composed of four parts: Part 1) Chapter 1 and Chapter 2, the introduction and the background of open innovation. Part 2) Chapter 3, the literature review on the previous theoretical implications and empirical studies of the open innovation implementations. Part 3) Chapter 4 and Chapter 5, the original analyses of various empirical implementations of open innovation in different industrial sectors. After the three parts, part 4) Chapter 6 concludes this research and discusses the impact and implications of the open innovation paradigm in the globalized business context.

Open innovation is a paradigm that promotes innovation from purposive utilizing and combining the internal and external ideas, knowledge, and resources. Open innovation is a distributed extension of the Schumpeterian innovation theory. Open innovation helps manage the product innovation, the process innovation, the market innovation, the input innovation, and the managerial innovation by allowing combinations of inbound, outbound, and coupled innovation processes across the boundary of an innovation organization.

Open innovation has become more and more influential in the emergence of a globalized economy. Both the digital production and the physical manufacturing are becoming more and more diverse and complicated. Companies and individuals have to

collaborate agilely and flexibly to survive the rapid-changing networked era. However, the study of open innovation is in its preliminary stage. Although open innovation has already been widely accepted as a helpful solution to manage the collective productions, the current theoretical and empirical frameworks in economics and management science are still unable to understand the mechanism of open innovation. Notably, we need to find an applicable managerial mechanism for the distributed open innovation in the business networks.

To solve the academic and practical issues, this research starts from a review of the Schumpeterian innovation theory. With the insights from Schumpeter's theories, this research further investigates the new institutional school for a consistent and unified managerial methodology on the issues of innovation management.

This research then analyzes the previous literature on open innovation. By comparing the different theoretical development, determining and constraining factors, practical experiences, empirical implementations, and managerial implications, this research has concluded and summarized the previous research in different levels of analysis.

After combining the theories, analytical tools, and methodologies from the Austrian school of economics, the new institutional school, and the management sciences, this research presents a comprehensive analytical framework with four axes: the open innovation processes, the innovation types, the organizational factors, and the network configurations. This framework can assign the most findings of the existing literature. This research then applies the game theory to provide a theoretical background of the analytical framework. As the game theoretical models suggest, the analytical framework of this research is able to analyze the business implementations of open innovation. We

will apply the framework to the comparative case studies of this research.

In the empirical research part, this dissertation comparatively analyzes seven commercial companies representing different types of productions and implementing different open innovation approaches. By comparing the successful cases with the failed cases, this research has identified the conditions, path dependencies, and the necessary and sufficient factors to implement open innovation in different innovation types and different production networks. The empirical case studies have proven that open innovation is an effective solution to deal with cooperation and coordination issues in the distributed business network. Particularly, the empirical research has suggested that the capital-intensive and the labor-intensive firms, being ignored by the previous research, can also benefit from open innovation implementations if organized and managed properly.

In the last chapter, this research discusses the impact and implications of the open innovation paradigm. This research suggests the open innovation paradigm can be applied to more business, organizational, and governance sceneries.

Keywords: Open innovation, distributed network, innovation management, innovation network