757

F273.1
(58

博士

▶ 上海市社会科学 ◀

文库

罗炜 著

企业合作创新理论研究

QIYE HEZUO CHUANGXIN LILUN YANJIU

復旦大學出版社

图书在版编目(CIP)数据

企业合作创新理论研究/罗炜著. —上海:复旦大学出版社,2002.12
(上海市社会科学博士文库)
ISBN 7-309-03412-0

Ⅰ.企… Ⅱ.罗… Ⅲ.企业管理-经济合作-研究
Ⅳ.F273.7

中国版本图书馆 CIP 数据核字(2002)第 083747 号

出版发行 复旦大学出版社
上海市国权路 579 号 200433
86-21-65118853(发行部) 86-21-65642892(编辑部)
fupnet@fudanpress.com http://www.fudanpress.com
经销 新华书店上海发行所
印刷 上海第二教育学院印刷厂
开本 850×1168 1/32
印张 9.125 插页 1
字数 204 千
版次 2002 年 12 月第一版 2002 年 12 月第一次印刷
定价 16.00 元

如有印装质量问题,请向复旦大学出版社发行部调换。

版权所有 侵权必究

本书摘要

自熊彼特(J. A. Schumpeter)于1912年首次提出创新概念以来,学者们谈到技术创新,更多的是关注企业内部的研究开发。然而从20世纪80年代开始,国际技术领域出现了一种技术资源外向(Outsourcing)的趋势,以美国、日本、欧盟为代表,越来越多的企业加强了彼此之间的合作,通过资源共享和优势互补,共同开发新技术参与国际竞争,我们将这种创新方式称之为合作创新。近年来,随着国际竞争的日益激烈,企业研究开发成本的迅速增长,企业对稀缺性科学技术专利需求的不断上升,以及与技术创新商业化相联系的风险逐渐增大,企业间合作创新已经成为技术创新的重要组织模式。

对合作创新行为的研究逐渐引起众多学者的兴趣。他们在研究中大多采取数理统计和案例分析等实证研究方法,相对而言理论观点较为分散,尚未形成完整的理论体系。本书试图运用不同的理论揭示合作创新的内在机理,构建企业合作创新的理论框架,并对中国企业合作创新行为的特点进行实证分析。

合作创新概念的界定是理论体系建立的基点,目前学者们对此还未达成统一的认识。本书认为合作创新的概念有广义与狭义之分,广义的合作创新是指企业间或企业、大学、研究机构为了一个共同的创新目标,投入各自的优势资源和能力,分工协作共同完成技术创新的行为,合作发生在技术创新的全过程中。狭义的合

作创新是指以合作研究开发为主的一种基于创新的技术合作契约关系，合作集中在技术创新过程的研究开发阶段。

在这一认识基础上，本书依据“概念基础→实证归纳→理论分析→系统研究→实践应用”的思路，循序渐进地构建合作创新的理论体系。多种理论的交叉融合是本书的一大特点。作者将交易成本理论、资源和能力理论、博弈论应用于分析企业的合作创新行为，并创造性地实现了这三种理论的整合，为解释合作创新的内在机理，分析企业的合作创新过程建立了有力的理论依据。

交易成本经济学将合作关系看作是一种介于市场和层级组织之间的经济组织形式，高额的组织成本和高额的市场交易费用使得许多技术创新活动以自主的方式或市场交易的方式进行都是不经济的，合作创新可以最大限度地降低交易费用，是当前技术和市场环境下技术创新的合理选择。合作创新的交易成本包括沟通成本、谈判签约成本、履约成本，以及合作失败的风险成本，企业在选择创新战略及合作伙伴时，应充分考虑不同情况下的交易成本。

企业长期竞争优势的源泉在于企业的核心能力，而核心能力建立在企业组织学习和知识积累的基础之上。合作创新不仅实现了资源和能力的共享，有利于企业间的技术学习和技术转移，更重要的是，合作的协同效应能够创造新的资源和能力。从企业资源和能力的观点来看，合作创新为企业的技术学习、知识和能力的创造提供了一条有效的途径。通过对技术学习过程的深入剖析，本书建立了合作创新技术学习的概念模型，并在这一模型的基础上，结合合作创新过程中影响企业能力发展的因素，构建了企业合作创新能力发展过程模型。

对企业合作创新行为进行数理模型分析是本书的又一创新

点。这项研究源于学者们对技术溢出效应导致的技术创新市场失效问题的思考。合作创新能够将技术溢出的外部效应内部化，激励企业进行研究开发，从而有利于社会福利。研究采用了博弈论方法，建立两阶段双寡头博弈模型，在第一阶段（研发阶段），两企业进行研究开发投资（或者合作，或者非合作）以降低产品成本，研究开发过程中存在技术溢出；第二阶段（产出阶段），两企业在给定第一阶段研发投资的情况下，在产品市场上进行古诺（Cournot）竞争，选择产量使自己的利润最大化。通过建立不同的博弈模型，本书解决了以下问题：合作创新相对于自主创新具有更高的创新绩效；企业之间的能力差异将决定它们参与合作创新的动机是共享成本还是共享技术；企业合作创新过程中的组织模式选择问题；企业与大学的合作方式，以及合作伙伴的选择问题。最后，本书通过我国家电行业中科龙与小天鹅的合作创新案例对博弈分析的结果进行了验证。

在多种理论分析的基础上，本书运用系统的观点从更高的层次对企业合作创新行为进行讨论。合作创新是一个开放式系统，不同的组织之间形成合作创新网络，这些组织包括供应商、客户、竞争者、大学、研究机构、金融机构等。合作创新行为还将直接或间接地受到外部环境的影响，包括科学技术环境、市场环境、产业环境、制度环境等，政府行为对合作创新起着关键的作用。从系统的观点来看，合作创新实际上是市场中各种不同组织之间及各种组织与外部环境之间相互沟通、相互交流、相互作用，共同创造新知识和新产品的过程。

以上内容构成了一个完整的合作创新理论体系。在本书的最后部分，我们还将这一理论运用于中国企业的合作创新实践。我

此为试读，需要完整PDF请访问：www.ertongbook.com

国企业的技术创新面临资金约束、技术约束和制度约束，合作创新是克服这些约束的必由之路。与西方国家目前的发展趋势相比较，我国企业的合作创新具有鲜明的中国特色。

本书的研究将有助于我国企业合作创新理论体系的建立和完善，同时为企业技术联盟与产学研合作创新的发展提供有意义的指导。

ABSTRACT

Since the concept of innovation was first presented by J. A. schumpter in 1912, scholars have paid more attention to inner-firm research and development(R&D). However, a new trend: Outsourcing has appeared in international technology fields since 1980s. More and more firms, represented by American, Japanese and European firms, strengthen collaboration between each other. Through sharing resources and advantages, they jointly exploit new techniques to face international competition. This kind of innovating mode could be called cooperative innovation. With the increasing intensification of international competition, the rapid mounting up of firms' R&D costs, firms' rising demands of scarce science and technology patents and the increasing risks related to industrialization of technological innovation, cooperative innovation between firms has been one of the important organizational forms of technological innovation in recent years.

Research on cooperative innovation behaviors has gradually attracted numerous scholars. Empirical methods such as statistics and case analysis are mostly employed in their studies. Comparatively, theoretical viewpoints are decentralized and have not formed an integrated theoretical system. In this monograph, we

try to explain the internal mechanism of cooperative innovation with different theories, construct the theoretical frame of cooperative innovation between firms, and empirically analyze the characteristics of cooperative innovation behaviors of China firms.

The definition of cooperative innovation is the base of the theoretical system. However, uniform understanding of the concept has not been formed at present. In this monograph we suggest that cooperative innovation could be comprehended both in broad sense and in narrow sense. Seen from a broad sense, cooperative innovation means firms, universities and research organizations, which are under a common innovating objective, devote their own advantageous resources and capability, divide the work and collaborate to achieve a technological innovation. In this case, cooperation occurs during the whole process of technological innovation. Seen from a narrow sense, cooperative innovation is a kind of technological collaboration contract, which is based on innovation. Cooperative R&D is the basic form in this case and collaboration is generally focused on R&D phase of the process of technological innovation.

Based on this understanding, we gradually construct the theoretical system of cooperative innovation along the following sequence of thought: concept foundation, empirical induction, theoretical analysis, systematic study and experimental application. It is a characteristic that multiple theories are syncretized in this

article. Through deeply study and discuss, we apply transaction cost theory, resource and competence theory and game theory to the analysis of firms' cooperative innovation behaviors and realize the integration of these three theories in a creative way. This integration provides powerful theoretical bases for explaining the internal mechanism and analyzing the process of cooperative innovation.

Cooperative relationship is looked upon as a form of business organization between market and hierarchy in transaction cost economy. Either high organizing cost or expensive market transaction cost makes many technological innovation activities uneconomical either in hierarchy or in market. Cooperative innovation can reduce transaction cost most, so it is a rational innovating mode under current technological and market environment. The transaction cost of cooperative innovation consists of communicating cost, negotiating and contracting cost, performing cost and venture cost as the contract is unsuccessful. Firms should adequately consider the transaction cost in each instance as they choose their innovating strategies and partners.

Firm's persistent competitive advantage is derived from its core competence, which is based on inner-firm organizational learning and knowledge accumulation. Cooperative innovation achieves resources and competence sharing, in favor of technology learning and technology transfer between firms. Moreover, the synergy due to collaboration may create new resources and com-

petence. Seen from resource and competence based view, cooperative innovation provides an effective path for firm's technology learning and the creation of knowledge and competence. A conceptual model concerning technology learning is set up after we deeply analyzed the technology learning process. Based on this model, another process model concerning competence creation during cooperative innovation process is built up combining the facts that affect competence creation.

It is creative that we construct mathematical models to analyze firm's cooperative innovation behaviors. Model research is derived from academic discussion on technological innovation market failure due to technology spillovers. Cooperative innovation could internalize the externality resulted from spillovers and give firms incentives to engage in research and development. Accordingly, it is beneficial to social welfare. Game theory is used in research. Innovation is modelled as a two-stage duopoly game process: in the first stage(R&D stage), the two firms spend in R&D, either cooperatively or not, in order to reduce unit cost. Technology spillovers exist in R&D process. While in the second stage (output stage), they engage in Cournot quantities competition on the products market, taking into account the R&D spending in the first stage and choosing the right output to maximize their own profit. Through diverse game models, the following problems are resolved in this paper. Cooperative innovation has higher performance than independent innovation; Compe-

tence heterogeneity between firms will determines their motives of cooperation, either cost-sharing or skill-sharing; How to choose the organizational form of cooperative innovation; How to choose the organizational form and partner in industry-university cooperative innovation.

Based on former multi-theory analyses, we utilize systematic view to discuss cooperative innovation behaviors from a higher level. Cooperative innovation is an open system, in which diverse organizations, such as suppliers, purchasers, competitors, universities, research institutes and finance institutes, etc., form cooperative innovation network. In addition, cooperative innovation behaviors could be affected directly or indirectly by external environment, such as science and technology condition, market surrounding, industry circumstance and institution setting, etc., in which the government plays a key role. Seen from systematic view, cooperative innovation is actually a process in which various organizations in market and external environment contact with one another, communicate with one another and affect one another to jointly create new knowledge and new products.

All the contents above construct an integrated theoretical system of cooperative innovation. At the end of this monograph, we apply the theory to cooperative innovation practice of China firms. China firms are generally confronted with restrictions of capital, technology and institution during their technological innovation process and cooperative innovation is the only way to

此为试读,需要完整PDF请访问: www.ertongbook.com

overcome these restrictions. Contrast to the current trend of western countries, cooperative innovation in China has clear China features. The government and industry sectors have to make more efforts to promote the development of cooperative innovation in China.

This research will help to build and improve the theoretical system of cooperative innovation between firms in China. At the same time, it can also give significant guidance to the development of technical alliances and university industry cooperative innovation.

目录

引　言 …… 1

第一章　合作创新的概念基础 …… 19

第一节　创新战略 …… 19

第二节　合作创新的概念界定 …… 27

第三节　合作创新的类型与主体 …… 34

第四节　合作创新的起源与发展 …… 38

第二章　合作创新的动机与组织模式 …… 45

第一节　合作创新的动机和优势 …… 45

第二节　合作创新的组织模式 …… 55

第三节　创新的组织安排 …… 64

第三章　合作创新的交易成本分析 …… 70

第一节　交易成本理论对合作创新的解释 …… 70

第二节　合作创新的交易成本 …… 76

第三节　创新战略决策的交易成本分析 …… 80

第四节　合作伙伴选择的交易成本分析 …… 85

第四章　基于资源和能力理论的合作创新分析 …… 91

第一节　企业资源和能力理论 …… 92

第二节　合作创新与企业能力发展 …… 99

第三节　合作创新技术学习模型 …… 111

第四节　影响合作创新能力发展的决定因素 …… 116

第五节 合作创新能力发展过程模型 …… 121
第六节 合作创新与学习竞赛 …… 124
第五章 合作创新的博弈分析 …… 130
第一节 研究综述 …… 131
第二节 技术溢出情况下企业合作创新的博弈模型 …… 137
第三节 企业能力差异与合作创新动机 …… 152
第四节 企业合作创新组织模式的选择 …… 165
第五节 企业—大学合作创新方式及合作伙伴选择 …… 175
第六节 案例分析 …… 184
第六章 合作创新系统 …… 193
第一节 合作创新网络 …… 193
第二节 合作创新的外部环境 …… 199
第三节 合作创新与技术—产业生命周期 …… 205
第四节 合作创新系统构成 …… 212
第七章 中国企业的合作创新 …… 215
第一节 中国企业的创新战略选择 …… 215
第二节 我国企业合作创新的现状 …… 234
第三节 中外企业合作创新与技术学习 …… 243
参考文献 …… 256
后 记 …… 269

CONTENTS

Preface 1

Chapter Ⅰ Concept Base of Cooperative Innovation(CI) 19

1.1 Innovation Strategy 19

1.2 Definition of Coöperation Innovation 27

1.3 Types and Dominant Party 34

1.4 Origin and Development 38

Chapter Ⅱ Motives and Structure of CI 45

2.1 Cooperation Motives and Advantages 45

2.2 Structural forms of CI 55

2.3 How to organize a cooperation 64

Chapter Ⅲ Transaction Cost(TC) Analysis on CI 70

3.1 Explaining CI by TC Theory 70

3.2 The Transaction Cost of CI 76

3.3 TC Analysis on Innovation Strategy 80

3.4 TC Analysis on Choosing Cooperation Partners 85

Chapter Ⅳ CI Analysis Based on the Theory of Resource and Competence 91

4.1 Resource and Competence Theory 92

4.2 The Relations between CI and the Development of

Enterprises' Competence ····· 99
4.3 The Model on Technique-learning through CI ··· 111
4.4 Determinants that Affect the Improvement of Enterprises' Competence in the Course of CI ····· 116
4.5 The Model on Competence Improvement process in the Course of CI ····· 121
4.6 The Relations between CI and Learning Competition ····· 124
Chapter Ⅴ Game Theory Analysis on CI ····· 130
5.1 Research Review ····· 131
5.2 Game Model on CI with Technology-spillover ··· 137
5.3 The Relations between Competence discrepancy and the motives of CI ····· 152
5.4 How to Choose the Structure of CI ····· 165
5.5 How to Choose the Forms and Partners in a Enterprise-University CI ····· 175
5.6 Case Analysis ····· 184
Chapter Ⅵ CI System ····· 193
6.1 CI Network ····· 193
6.2 Outer-environment of CI ····· 199
6.3 CI in a Technology-Industry Lifecycle ····· 205
6.4 Structure of CI System ····· 212
Chapter Ⅶ CI in China ····· 215
7.1 Innovation Strategy ····· 215
7.2 The Status of CI in China ····· 234

7.3 CI and Technique-learning between China and foreign Companies ····· 243
Literature ····· 256
Postscript ····· 269

此为试读,需要完整PDF请访问: www.ertongbook.com