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管理信息系统精要

（第6版）

ESSENTIALS OF MANAGEMENT INFORMATION SYSTEMS

—MANAGING THE DIGITAL FIRM

(Sixth Edition)

肯尼思·C·劳东（Kenneth C. Laudon）
简·P·劳东（Jane P. Laudon） 著
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中国人民大学出版社

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总　序

随着我国加入WTO，越来越多的国内企业参与到国际竞争中来，用国际上通用的语言思考、工作、交流的能力也越来越受到重视。这样一种能力也成为我国各类人才参与竞争的一种有效工具。国家教育机构、各类院校以及一些主要的教材出版单位一直在思考，如何顺应这一发展潮流，推动各层次人员通过学习来获取这种能力。双语教学就是这种背景下的一种尝试。

双语教学在我国主要指汉语和国际通用的英语教学。事实上，双语教学在我国教育界已经不是一个陌生的词汇了，以双语教学为主的科研课题也已列入国家“十五”规划的重点课题。但从另一方面来看，双语教学从其诞生的那天起就被包围在人们的赞成与反对声中。如今，依然是有人赞成有人反对，但不论是赞成居多还是反对占上，双语教学的规模和影响都在原有的基础上不断扩大，且呈大发展之势。一些率先进行双语教学的院校在实践中积累了经验，不断加以改进；一些待进入者也在模仿中学习，并静待时机成熟时加入这一行列。由于我国长期缺乏讲第二语言（包括英语）的环境，开展双语教学面临特殊的困难，因此，选用合适的教材就成为双语教学成功与否的一个重要问题。我们认为，双语教学从一开始就应该使用原版的各类学科的教材，而不是由本土教师自编的教材，从而可以避免中国式英语问题，保证语言的原汁原味。各院校除应执行国家颁布的教学大纲和课程标准外，还应根据双语教学的特点和需要，适当调整教学课时的设置，合理选择优秀的、合适的双语教材。

顺应这样一种大的教育发展趋势，中国人民大学出版社同众多国际知名的大出版公司，如麦格劳-希尔出版公司、培生教育出版公司等合作，面向大学本科生层次，遴选了一批国外最优秀的管理类原版教材，涉及专业基础课，人力资源管理、市场营销及国际化管理等专业方向课，并广泛听取有着丰富的双语一线教学经验的教师的建议和意见，对原版教材进行了适当的改编，删减了一些不适合我国国情和不适合教学的内容；另一方面，根据教育部对双语教学教材篇幅合理、定价低的要求，我们更是努力区别于目前市场上形形色色的各类英文版、英文影印版的大部头，将目标受众锁定在大学本科生层次。本套教材尤其突出了以下一些特点：

● 保持英文原版教材的特色。本套双语教材根据国内教学实际需要，对原书进行了一定的改编，主要是删减了一些不适合教学以及不符合我国国情的内容，但在体系结构和内容特色方面都保持了原版教材的风貌。专家们的认真改编和审定，使本套教材既保持了学术上的完整性，又贴近中国实际；既方便教师教学，又方便学生理解和掌握。

● 突出管理类专业教材的实用性。本套教材既强调学术的基础性，又兼顾应用的广泛性；既侧重让学生掌握基本的理论知识、专业术语和专业表达方式，又考虑到教材和管理实践的紧密结合，有助于学生形成专业的思维能力，培养实际的管理技能。

● 体系经过精心组织。本套教材在体系架构上充分考虑到当前我国在本科教育阶段推广双语教学的进度安排，首先针对那些课程内容国际化程度较高的学科进行双语教材开发，在其专业模块内精心选择各专业教材。这种安排既有利于我国教师摸索双语教学的经验，使得双语教学贴近现实教学的需要；也有利于我们收集关于双语教学教材的建议，更好地推出后续的双语教材及教辅材料。

● 篇幅合理，价格相对较低。为适应国内双语教学内容和课时上的实际需要，本套教材进行了一定的删减和改编，使总体篇幅更为合理；而采取低定价，则充分考虑到了学生实际的购买能力，从而使本套教材得以真正走近广大读者。

● 提供强大的教学支持。依托国际大出版公司的力量，本套教材为教师提供了配套的教辅材料，如教师手

册、PowerPoint 讲义、试题库等，并配有内容极为丰富的网络资源，从而使教学更为便利。

本套教材是在双语教学教材出版方面的一种尝试。我们在选书、改编及出版的过程中得到了国内许多高校的专家、教师的支持和指导，在此深表谢意。同时，为使我们后续推出的教材更适于教学，我们也真诚地期待广大读者提出宝贵的意见和建议。需要说明的是，尽管我们在改编的过程中已加以注意，但由于各教材的作者所处的政治、经济和文化背景不同，书中内容仍可能有不妥之处，望读者在阅读时注意比较和甄别。

徐二明

中国人民大学商学院

2005 年 1 月

改编者的话

由美国纽约大学教授肯尼思·C·劳东和信息系统专家简·P·劳东合著的《管理信息系统精要》一书，是一本优秀的管理信息系统教材，堪称学习国外先进的管理信息系统知识的范本。该书基于以下的前提，即信息系统知识对于创建有竞争力的企业、管理全球公司、增加商业价值以及为顾客提供有用的产品和服务是必备的。同时，它所提供的管理信息系统知识，对本科生和MBA学生的未来职业成功是不可缺少的。

互联网的发展、贸易全球化和信息经济的发展已经对信息系统在企业和管理中的作用作出了新的定义。互联网技术正在为新的商业模式、业务流程和知识分配的方法提供基础。

公司正在依靠互联网和网络技术来电子化地处理更多的工作，将遍及全球的工厂、办事机构和销售人员无缝隙地联系起来。诸如可口可乐、戴尔电脑和宝洁等领先公司正在将它们的网络扩展到供应商、消费者和组织外部的其他群体，以便能及时地对消费者的需求和市场的变化作出反应。思科系统公司的经理们能够使用信息系统在任何时刻“合并”他们的报表，即给出基于最新的订单、折扣、收益、产品产量、员工费用等数据的财务报表。总经理能够分析组织中所有层次的业绩。这种既在公司内部又在公司外部，从仓储到总裁办公室，从供应商到消费者的数据集成正在改变我们组织和管理商业公司的方式。最终，这些变化导致纯数字化公司的出现，使公司的所有内部流程及其与顾客和供应商关系的数字化成为可能。在数字化公司，人们在任何时间、任何地点都能得到支持企业决策的信息。这就是该书以“管理数字化公司”（*Managing the Digital Firm*）为副标题的缘故。

该书包括四篇。第1篇介绍了信息系统的组织和管理基础、战略角色及驱动电子商务和新兴数字化公司的组织和管理变革。第2篇具体阐释了组成组织的信息技术基础设施的硬件、软件、数据存储和远程通信技术，以及互联网技术在创建数据集成的基础设施过程中的作用。第3篇论述了信息系统在提升业务流程和制定企业管理决策中的作用，重点介绍了信息系统在企业中的应用和知识管理系统。第4篇集中介绍了建立和管理组织信息系统的过程，包括：利用信息系统重新设计组织，理解系统的商业价值和管理变革，信息系统的安全和控制。

对于这样一本难得的畅销教材，在改编过程中，我们一方面本着“学习原著灵魂”的原则，基本完整地保留了原书的正文，只删去了前言、第5章的第3节“信息社会中的伦理”和每章后的复习题、讨论题等辅助内容；另一方面，本着“信、达、雅”的原则翻译了原书前言的一部分（作为本篇“改编者的话”的一部分）和专业术语，还翻译了原书的简明目录，方便读者学习使用。需要说明的是，改编本删去的章后辅助内容，大部分可在网站 www. prenhall. com/laudon 上找到，有兴趣的读者可上网查阅。原书的前言全面介绍了该书的框架结构和教辅课件等，读者可在人大经管图书在线（http：//www. rdjg. com. cn）上找到。

本书的改编和翻译由三位同志完成，他们是葛新权、孙志恒、王斌。由葛新权负责审校并定稿。

由于改编者水平有限，不妥之处恳请读者予以指正。

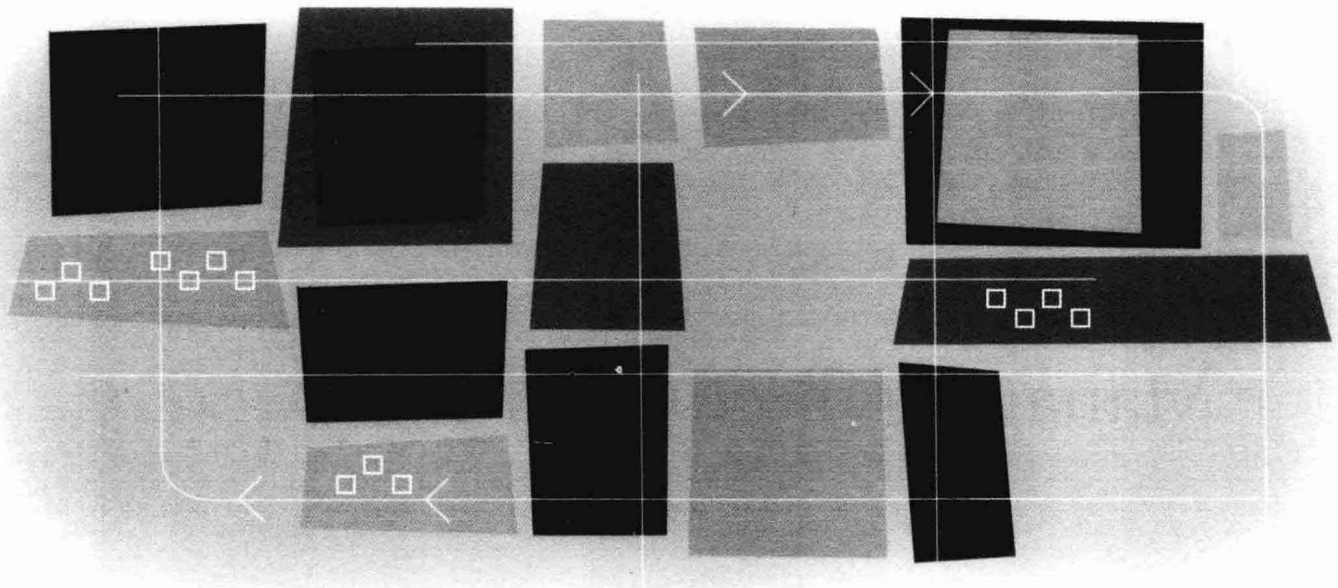
葛新权

于北京育新花园

简明目录

BRIEF CONTENTS

PART I

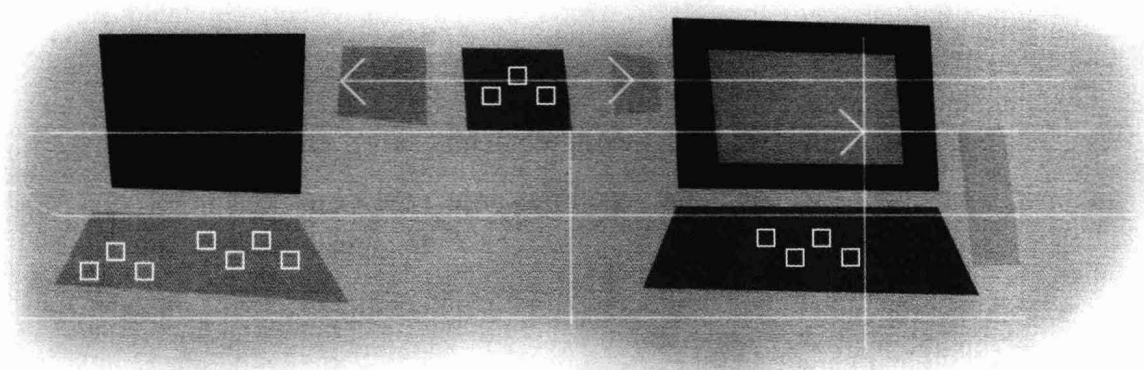


Organizations, Management, and the Networked Enterprise

PART I *describes the organizational and managerial foundations of information systems. This Part describes the critical role played by the various types of information systems in organizations and surveys the sweeping changes created by e-business, e-commerce, and the digital integration of the enterprise. Chapters in this Part provide an extensive introduction to real-world systems, focusing on their relationships to organizations, management, business processes, strategy, and important ethical and social issues.*

PART I PROJECT
Analyzing Business Processes for an Enterprise System

CHAPTER 1



Managing the Digital Firm

OBJECTIVES

As a manager, you'll need to know how information systems can make businesses more competitive, efficient, and profitable. After reading this chapter, you will be able to answer the following questions:

1. What is the role of information systems in today's competitive business environment?
2. What exactly is an information system? What do managers need to know about information systems?
3. How are information systems transforming organizations and management?
4. How have the Internet and Internet technology transformed business and government?
5. What are the major management challenges to building and using information systems?

FOCUS ON THE FEATURES

CASE STUDIES

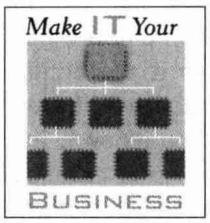
OPENING CASE: *J.C. Penney's Invisible Supplier*

WINDOW ON TECHNOLOGY *UPS Competes Globally with Information Technology*

WINDOW ON ORGANIZATIONS *A Brazilian Dime Store Becomes an E-Commerce Success*

WEB ACTIVITIES

www.prenhall.com/laudon | Internet Connection: Exploring the UPS Web Site | Interactive Study Guide | Additional Case Studies | International Resources

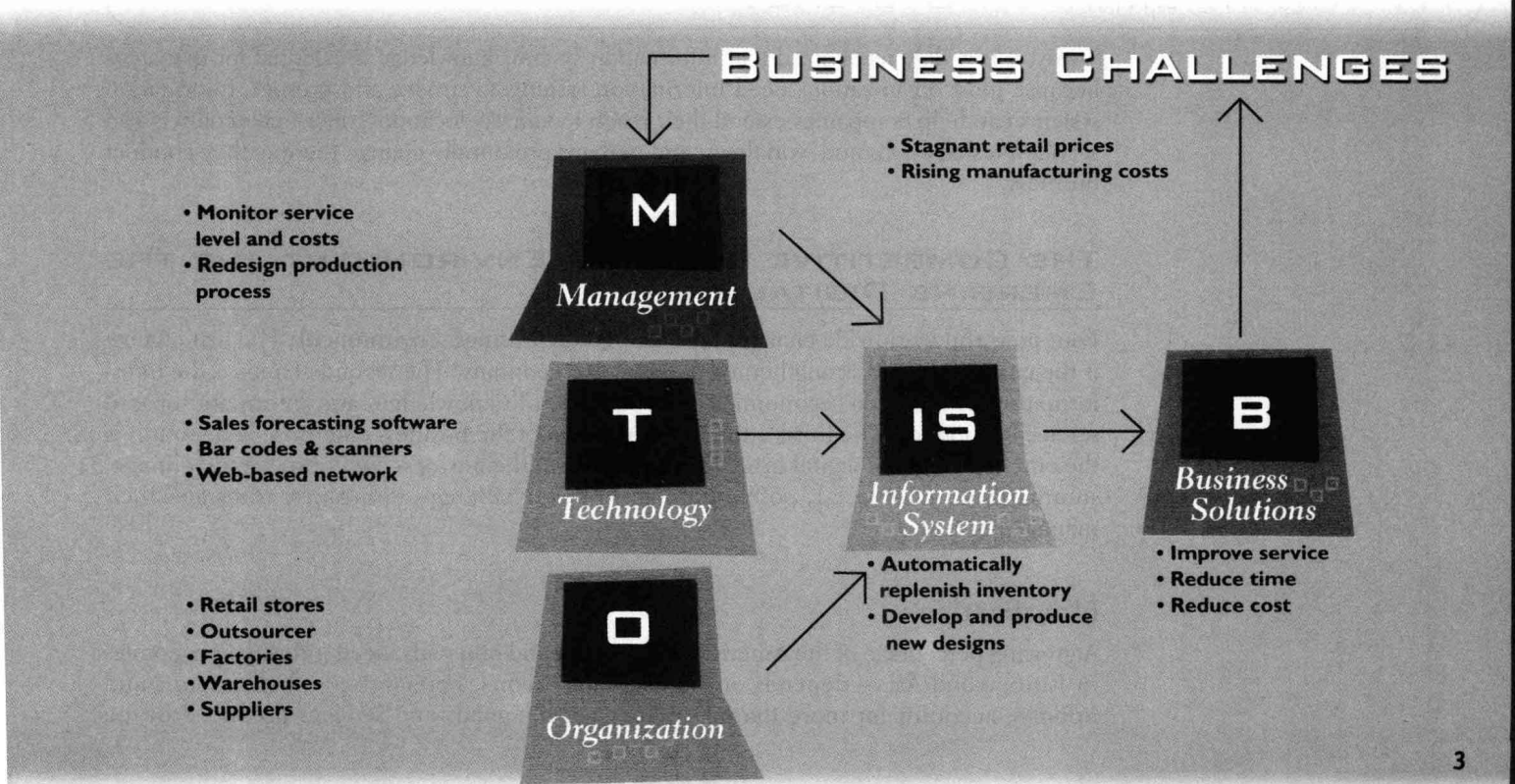


On a blustery Saturday afternoon in January, Scott Olson browsed through the shirts at a J.C. Penney store in the Rosedale Mall in Roseville, Minnesota, and bought a white, wrinkle-free Penney-brand dress shirt, size 16 neck, 32/33 sleeve. The record of the sale was instantly transmitted to a computer in Hong Kong. By the following Wednesday afternoon, a Taiwan factory had shipped an identical replacement shirt to the same Roseville Penney store.

Since adopting this streamlined supply chain and production system, Penney stores now hold almost no inventory of house-brand dress shirts. A Hong Kong shirtmaker called TAL Apparel Ltd. runs the entire supply and production process for Penney-brand dress shirts. TAL collects point-of-sale data on Penney shirts directly from Penney stores in North America and runs the numbers through a computer model it designed to determine how many shirts to make in what sizes, styles, and colors. Based on past sales data, TAL's sales forecasting system determines the ideal inventory level for each specific shirt size, color, and style and directs its Taiwan manufacturer to produce only the exact amount of each item that each Penney store needs. TAL's manufacturer then ships the shirts directly to each Penney store, bypassing Penney warehouses entirely. The manufacturer assigns article numbers and bar codes for accurate and easy scanning of products and faster movement across loading docks, sending Penney advanced shipping notices of the contents and destination of each package. Penney can access TAL's systems electronically to check on production and shipping status and to obtain inventory information. Delivery accuracy has reached 100 percent.

TAL is a behind-the-scenes giant in fashion apparel. It is the world's largest producer of dress shirts, making one out of every eight dress shirts sold in the United States. With low-cost Asian manufacturing facilities and powerful information systems, it supplies labels that include Calvin Klein, Ralph Lauren, Tommy Hilfiger, J. Crew, Banana Republic, Liz Claiborne, and Brooks Brothers. TAL coordinates its work with its overseas offices and factories in Thailand, Malaysia, Indonesia, China, and Mexico using a network based on Web technology.

Big-name retailers are turning to outsourcers such as TAL to manage their critical production and inventory functions because TAL can perform them better and at lower cost. Before working with TAL, Penney routinely held up to six months of inventory in its warehouses and three months of inventory in its stores. Its sales forecasts were based on outdated information systems that often overestimated the amount of inventory it had to keep in stock. For Penney-brand shirts manufactured by TAL, its inventory is now zero. By reducing the amount of inventory they hold, retailers such as Penney can cut warehousing costs and reduce the amount of unsold goods that have to be marked down in price. It costs Penney 29



cents per shirt to have its own warehouse workers sort out orders in the United States. TAL can accomplish the same task for 14 cents per shirt, and it can immediately restock hot-selling styles. Because there are no TAL-made shirts in Penney's regional warehouses, TAL will air-freight shirts that have sold out more quickly than its computer model predicted.

Penney has started to let TAL use its powerful information systems and expertise to take over the design and market testing of new shirt styles. Within a month after TAL design teams in New York and Dallas create a new style, TAL factories can produce 100,000 new shirts in a wide array of colors and sizes for test marketing at 50 J.C. Penney stores. TAL uses data from the sales of these shirts to determine if the new style will sell and the number of shirts to make in each size and color for Penney. TAL manages the entire production process, from design to ordering thread and fabric, so it can bring a new style from testing to full retail rollout within four months, much faster than Penney could on its own. In a market where stagnant retail prices and rising manufacturing costs are squeezing profits, TAL's systems have produced startling efficiencies and cost savings.

Sources: Gabriel Kahn, "Invisible Supplier Has Penney's Shirts All Buttoned Up," *The Wall Street Journal,* September 11, 2003; "IBM Boosts Quality and Productivity at TAL," www.ibm.com, accessed September 18, 2003; "Electronic Commerce in Hong Kong Reference Case: TAL Apparel Ltd.," Government of Hong Kong, 2002; "TAL Case Study 2003," www.tradecard.com, accessed September 26, 2003; and www.tapgroup.com accessed September 18, 2003.

The changes taking place at J.C. Penney and TAL Apparel exemplify the transformation of business firms throughout the world as they rebuild themselves as fully digital firms. Such digital firms use the Internet and networking technology to make data flow seamlessly among different parts of the organization; streamline the flow of work; and create electronic links with customers, suppliers, and other organizations.

All types of businesses, large and small, are using information systems, networks, and Internet technology to conduct more of their business electronically, achieving new levels of efficiency, competitiveness, and profitability. In this chapter we begin our investigation of information systems and organizations by describing information systems from both technical and behavioral perspectives and by surveying the changes they are bringing to organizations and management.

1.1 Why Information Systems?

Today, it is widely recognized that information systems knowledge is essential for managers because most organizations need information systems to survive and prosper. Information systems can help companies extend their reach to faraway locations, offer new products and services, reshape jobs and workflows, and perhaps profoundly change the way they conduct business.

The Competitive Business Environment and the Emerging Digital Firm

Four powerful worldwide changes have altered the business environment. The first change is the emergence and strengthening of the global economy. The second change is the transformation of industrial economies and societies into knowledge- and information-based service economies. The third is the transformation of the business enterprise. The fourth is the emergence of the digital firm. These changes in the business environment and climate, summarized in Table 1-1, pose a number of new challenges to business firms and their managements.

Globalization

A growing percentage of the American economy—and other advanced industrial economies in Europe and Asia—depends on imports and exports. Foreign trade, both exports and imports, accounts for more than 25 percent of the goods and services produced in the

TABLE 1-1 *The Changing Contemporary Business Environment*

Globalization
Management and control in a global marketplace
Competition in world markets
Global workgroups
Global delivery systems
Rise of the Information Economy
Knowledge- and information-based economies
New products and services
Knowledge: a central productive and strategic asset
Time-based competition
Shorter product life
Turbulent environment
Limited employee knowledge base
Transformation of the Business Enterprise
Flattening
Decentralization
Flexibility
Location independence
Low transaction and coordination costs
Empowerment
Collaborative work and teamwork
Emergence of the Digital Firm
Digitally enabled relationships with customers, suppliers, and employees
Core business processes accomplished via digital networks
Digital management of key corporate assets
Rapid sensing and responding to environmental changes

United States, and even more in countries such as Japan and Germany. Companies are also distributing core business functions in product design, manufacturing, finance, and customer support to locations in other countries/regions where the work can be performed more cost effectively. J.C. Penney's outsourcing of its inventory management to TAL Apparel Ltd. in Hong Kong, described in the chapter-opening case, is one example. The success of firms today and in the future depends on their ability to operate globally.

Today, information systems provide the communication and analytic power that firms need to conduct trade and manage businesses on a global scale. Controlling the far-flung global corporation—communicating with distributors and suppliers, operating 24 hours a day in different national environments, coordinating global work teams, and servicing local and international reporting needs—is a major business challenge that requires powerful information system responses.

Globalization and information technology also bring new threats to domestic business firms: Because of global communication and management systems, customers now can shop in a worldwide marketplace, obtaining price and quality information reliably 24 hours a day. To become competitive participants in international markets, firms need powerful information and communication systems.

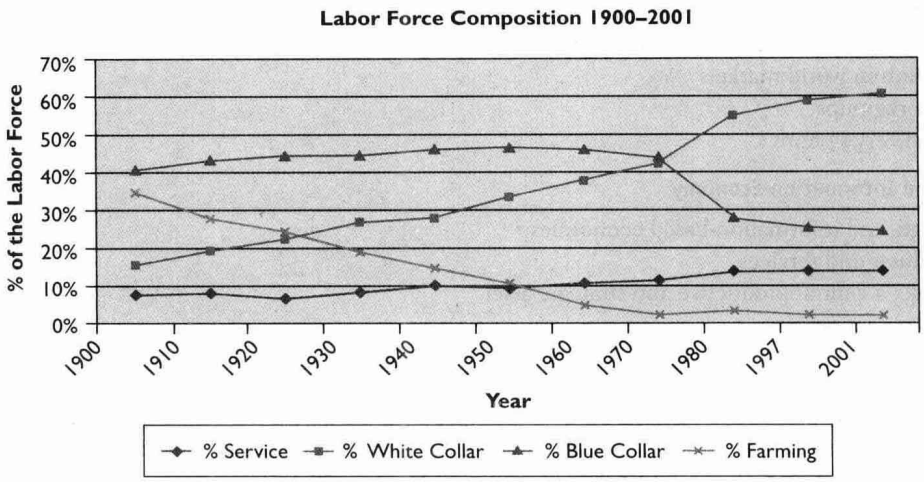
Rise of the Information Economy

The United States, Japan, Germany, and other major industrial powers are being transformed from industrial economies to knowledge- and information-based service economies, whereas manufacturing has been moving to lower-wage countries. In a knowledge- and information-based economy, knowledge and information are key ingredients in creating wealth.

FIGURE 1-1 *The growth of the information economy*

Since the beginning of the twentieth century, the United States has experienced a steady decline in the number of farm workers and blue-collar workers who are employed in factories. At the same time, the country is experiencing a rise in the number of white-collar workers who produce economic value using knowledge and information.

Sources: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 2002,* Table 588; and *Historical Statistics of the United States, Colonial Times to 1970,* Vol. 1, Series D, pp. 182–232.



The knowledge and information revolution began at the turn of the twentieth century and has gradually accelerated. By 1976, the number of white-collar workers employed in offices surpassed the number of farm workers, service workers, and blue-collar workers employed in manufacturing (see Figure 1-1). Today, most people no longer work on farms or in factories but instead are found in sales, education, health care, banks, insurance firms, and law firms; they also provide business services, such as copying, computer programming, or making deliveries. These jobs primarily involve working with, distributing, or creating new knowledge and information. In fact, knowledge and information work now account for a significant 60 percent of the U.S. gross national product and nearly 55 percent of the labor force.

In knowledge- and information-based economies, the market value of many firms is based on largely intangible assets, such as proprietary knowledge, information, unique business methods, brands, and other "intellectual capital." Physical assets, such as buildings, machinery, tools, and inventory, now account for less than 20 percent of the market value of many public firms in the United States (Lev, 2001). Knowledge and information provide the foundation for valuable new products and services, such as credit cards, overnight package delivery, or worldwide reservation systems. **Knowledge- and information-intense products,** such as computer games, require a great deal of knowledge to produce, and knowledge is used more intensively in the production of traditional products as well. In the automobile industry, for instance, both design and production now rely heavily on knowledge and information technology.

知识和信息密集型产品(knowledge-and information-intense products) 需要大量知识学问进行生产的产品。

So much of contemporary business is driven by knowledge and information that information technology and systems have taken on tremendous importance. Investment in information technology now accounts for more than one-third of all capital invested in the United States and more than 50 percent of invested capital in information-intensive industries, such as finance, insurance, and real estate. Figure 1-2 shows that between 1980 and 2003, private business investment in information technology grew from 19 percent to more than 35 percent of all domestic private business investment. If one included investments in managerial and organizational change programs required to use this technology effectively, information–system-related business and consulting services, or the cost of labor to firms using computer equipment, total information technology expenditures would actually be double this amount.

Transformation of the Business Enterprise

There has been a transformation in the possibilities for organizing and managing the business enterprise. Some firms have begun to take advantage of these new possibilities. The traditional business firm was—and still is—a hierarchical, centralized, structured arrangement of special-