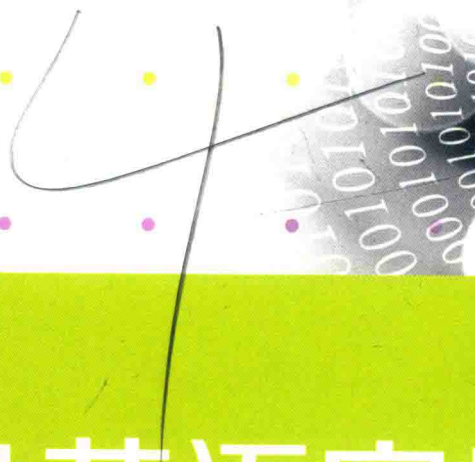




应用型本科信息大类专业“十三五”规划教材



# 计算机英语实用教程

主编 钱小红 刘春燕 姜东洋



华中科技大学出版社

<http://www.hustp.com>



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中国·武汉

## 内 容 简 介

本书是面向大学本科计算机及相关专业英语课程的教材,内容涉及广泛,包括计算机文化典故、最新的科研成果、业界前沿课题和发展趋势,同时还有计算机硬件、软件、操作系统、软件开发、计算机网络、数据库、计算机安全、电子商务、分布式系统等相关知识。

本书包括 10 章,每章都分为对话与阅读两部分,对话部分采用场景式教学和体验式学习相结合的方式,融合了角色扮演、多人会话等有效的训练方法。阅读部分给出了计算机及 IT 相关的技术文章及重难点单词的解析。

为了方便教学,本书还配有电子课件等教学资源包,任课教师和学生可以登录“我们爱读书”网(www.ibook4us.com)免费注册并浏览,或者发邮件至 hustpeiit@163.com 索取。

本书适合作为国内各高等院校计算机、软件工程等相关专业“专业英语”课程的教材,也可作为广大技术人员和自学者的参考读物。

### 图书在版编目(CIP)数据

计算机英语实用教程/钱小红,刘春燕,姜东洋主编. —武汉:华中科技大学出版社,2018.8  
应用型本科信息大类专业“十三五”规划教材

ISBN 978-7-5680-4350-2

I. ①计… II. ①钱… ②刘… ③姜… III. ①电子计算机-英语-高等学校-教材 IV. ①TP3

中国版本图书馆 CIP 数据核字(2018)第 191451 号

计算机英语实用教程

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策划编辑:康 序

责任编辑:史永霞

封面设计:抱 子

责任监印:朱 玢

出版发行:华中科技大学出版社(中国·武汉)

电话:(027)81321913

武汉市东湖新技术开发区华工科技园

邮编:430223

录 排:华中科技大学惠友文印中心

印 刷:武汉科源印刷设计有限公司

开 本:787mm×1092mm 1/16

印 张:14

字 数:367 千字

版 次:2018 年 8 月第 1 版第 1 次印刷

定 价:35.00 元



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## 前言

## PREFACE

英语是计算机及 IT 行业的行业性语言,有着其他语言不可替代的功能。无论是学习最新的计算机技术,还是开发计算机产品或者使用计算机相关的产品,都离不开对计算机英语的熟练掌握,熟练掌握计算机英语对于计算机相关人员职业发展具有积极的影响。

本书是按照最新《大学英语教学大纲》对专业英语的要求,为计算机英语课程而编写的教材。本书选材广泛,内容丰富,涉及计算机基础知识、计算机组成、软件开发、软件系统、计算机网络、数据库、计算机安全、电子商务和因特网世界等方面,全面介绍和讲解了深刻影响着人们生活的信息技术。

本书在对话场景的设计上以三位计算机专业大学本科生 Peter、Kevin 和 Sophie 的学习生活为主要背景,话题围绕各章主题展开。

本书教材信息量大,知识性强。本书共有 10 章,每章内容分为对话和阅读两大部分,对话部分涉及学习生活中与客户、同学或同事间的交流,融合了角色扮演、多人会话等行之有效的训练方法;阅读部分包括三篇文章,都是计算机相关技术文章,分为精读和泛读,老师可以根据教学学时的安排选择讲解,章节内容的安排能较好地满足课堂教学的需要,上课时采用场景式教学和体验式教学相结合的方式,有利于学生在课堂上即时消化吸收,实用性强。

本书是编者多年实践教学经验和课程教学改革的结晶,力求让学生在角色扮演中理解并掌握计算机英语的相关知识,同时培养学生的人际交流和团队协作能力,在就业等方面具备更强的竞争力。

本书由武汉华夏理工学院钱小红、刘春燕,辽宁机电职业技术学院姜东洋担任主编;由武汉晴川学院胡婧,南宁学院雷渊,桂林理工大学南宁分校李建锋,大连科技学院刘瑞杰担任副主编。全书最终由钱小红审核并统稿。

本书在出版的过程中得到华中科技大学出版社的鼎力支持,同时刘春燕也为本书的编写和顺利出版付出了心血,在此一并表示感谢!

为了方便教学,本书还配有电子课件等教学资源包,任课教师和学生可以登录“我们爱读书”网([www.ibook4us.com](http://www.ibook4us.com))免费注册并浏览,或者发邮件至 [hust-peiit@163.com](mailto:hust-peiit@163.com) 索取。

尽管在本书编写的过程中,编者做了大量的工作,但由于计算机领域的发展

日新月异,加上编者水平有限,书中难免有不尽如人意的地方,敬请广大读者不吝赐教。

编者

2018年6月

前言

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## Unit 1

Basic Introduction to Computers  
and Information

## 英文原文

## Part 1 Dialogue

## Dialogue: Buying a New Computer

(Today is Saturday. Peter, Sophie and Kevin come to the Computer Sales Center to buy a computer.)

**Jane:** May I help you?

**Sophie:** Yes. I want to buy a computer<sup>[1]</sup>. Do you have any good suggestions?

**Jane:** Um, what kind of computer do you want to buy, a desktop one or a notebook one?

**Sophie:** A notebook one, because it is easy to carry.

**Peter:** What about "Lenovo"? I've used a computer of this **brand** and it works well.

**Kevin:** I think "Sony" may be better.

**Sophie:** "Sony"? Japanese brand computers are not in the scope of my choice.

**Jane:** Lenovo computers are fashion in style and the **after-sales** service is very good. Many people are using this brand of computers.

**Kevin:** Um, do you have some Lenovo Y470 laptop series products?

**Jane:** Sorry. Lenovo Y470 laptop series are out of stock. I do recommend you to consider edge series, especially edge 40. It is a **versatile** laptop for student and it has a key function to save the system, 4 GB RAM and incredible Intel core i7 with turbo boost and so on.

**Sophie:** Wow, That sounds very good!

**Peter:** What about the after-sale service?

**Jane:** As far as I know, the customers who bought this computer said the after-sale service of this computer is very good, and the **warranty** period is three years. Your satisfaction is guaranteed.

**Peter, Kevin:** What's the price?

**Jane:** It is 3669RMB.

**Sophie:** Can you give me a slightly lower price? <sup>[2]</sup>

**Jane:** Um, let me ask the store manager on this question, Moment please!

(After a few minutes)



**Jane:** Thanks for your patience. You can buy the computer at a **preferential price**.

**Sophie:** How much do the discount?

**Jane:** A total of 3500 RMB.

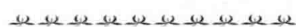
**Kevin:** Does it include some **complimentary stuff**?

**Jane:** Yes, it includes a wireless mouse, a wireless keyboard, quality assurance for 3 years and so on.

**Sophie:** Well, I'll take it! Thanks for your valuable suggestions.

**Jane:** **My pleasure.** Thanks for your purchase. Have a nice day!

**Sophie, Peter, Kevin:** Thank you.



## Exercises

Work in pairs, and make up a similar conversation by replacing the scenarios with other material in the below.

[1] I want to buy a new tablet computer.

[2] Can you give me a lower discount?

## Words

brand/brænd/n. [商] 商标, 品牌

after-sales 售后

versatile/'vɜ:sətəɪl/adj. 多才多艺的; 多功能的, 多用途的

warranty/'wɒrənti/n. 保证, 担保

preferential/,prɪfə'renʃl/adj. 优先的; 优先选择的; 特惠的

complimentary/,kɒmplɪ'mentri/adj. 赠送的; 赞美的; 表示敬意的; 恭维的

stuff/stʌf/n. 材料, 原料, 资料

## Part 2 Reading

### Section A: Computer Overview

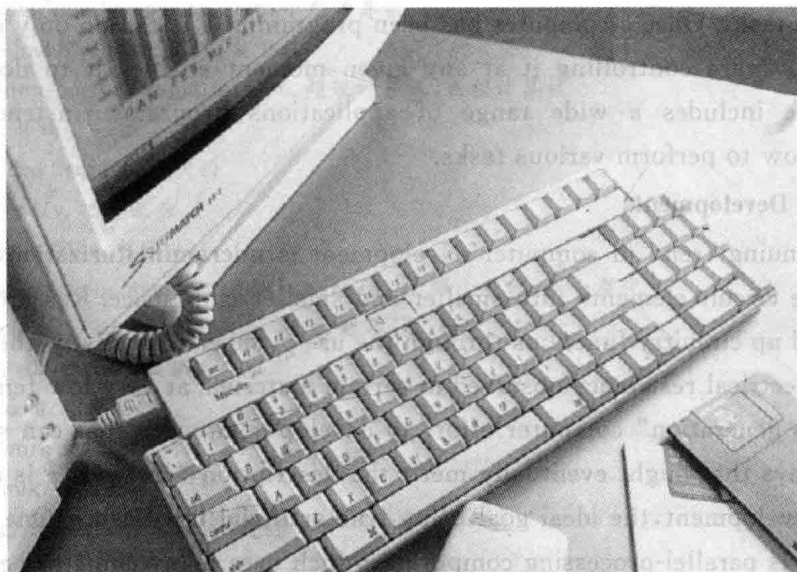
#### I. Introduction

A computer is an electronic device that can receive a set of instructions, or program, and then carry out this program by performing calculations on **numerical** data or by **manipulating** other forms of information.

The modern world of high technology could not have come about<sup>①</sup> except for the development of the computer. Different types and sizes of computers find uses throughout society in the storage and handling of data, from secret governmental files to banking

① come about: 发生, 产生

**transactions** to private household accounts. Computers have opened up a new era in manufacturing through the techniques of **automation**, and they have **enhanced** modern communication systems. They are essential tools in almost every field of research and applied technology, from constructing models of the universe to producing tomorrow's weather reports, and their use having in itself opened up new areas of **conjecture**. Database services and computer networks make available a great variety of information sources<sup>①</sup>. The same advanced techniques also make possible invasions of personal and business **privacy**. Computer crime has become one of the many risks that are part of the price of modern technology.



## II. Hardware

Modern digital computers are all **conceptually** similar, regardless of size. Nevertheless, they can be divided into several categories on the basis of cost and performance: the personal computer or **microcomputer**, a relatively low-cost machine, usually of **desktop** size (though “**laptops**” are small enough to fit in a **briefcase**, and “**palmtops**” can fit into a pocket); the **workstation**, a microcomputer with enhanced graphics and communications capabilities that make it especially useful for office work; the **minicomputer**, generally too expensive for personal use, with capabilities suited to a business, school, or laboratory; and the **mainframe** computer, a large, expensive machine with the capability of serving the needs of major business enterprises, government departments, scientific research establishments, or the like (the largest and fastest of these are called **supercomputers**). A digital computer is not a single machine; rather, it is a system composed of five distinct elements: (1) a central processing unit; (2) input devices; (3) memory storage devices; (4) output devices; and (5) a communications network, called a **bus**, which links all the elements of the system and

① Database services and computer networks make available a great variety of information sources. 数据库服务和计算机网络使各种各样的信息源可供使用。这句话由于宾语(a great variety of information sources)较长,因此将宾语的补语(available)放到了宾语的前面。文中下一句话也属同样情况。

connects the system to the external world.

### III. Programming

A program is a sequence of instructions that tells the hardware of a computer what operations to perform on data. Programs can be built into the hardware itself, or they may exist independently in a form known as software. In some specialized, or “**dedicated**”, computers, the operating instructions are **embedded** in their **circuitry**; common examples are the microcomputers found in calculators, wristwatches, car engines, and microwave ovens. A general-purpose computer, on the other hand, although it contains some built-in programs (in ROM<sup>①</sup>) or instructions (in the processor chip), depends on external programs to perform useful tasks. Once a computer has been programmed, it can do only as much or as little as the software controlling it at any given moment enables it to do. Software in widespread use includes a wide range of applications programs—instructions to the computer on how to perform various tasks.

### IV. Future Developments

One continuing trend in computer development is **microminiaturization**, the effort to compress more circuit elements into smaller and smaller chip space. Researchers are also trying to speed up circuitry functions through the use of **superconductivity**, the phenomenon of decreased electrical resistance observed in certain materials at very low temperatures.

The “fifth-generation” computer effort to develop computers that can solve complex problems in ways that might eventually merit the description “creative”<sup>②</sup> is another trend in computer development, the ideal goal being true **artificial intelligence**. One path actively being explored is parallel-processing computing, which uses many chips to perform several different tasks at the same time. One important parallel-processing approach is the **neural network**, which **mimics** the architecture of the nervous system. Another ongoing trend is the increase in computer **networking**, which now employs the worldwide data communications system of satellite and cable links to connect computers globally. There is also a great deal of research into the possibility of “optical” computers—hardware that processes not pulses of electricity but much faster pulses of light.

### Words

- numeric(al)/nju: 'merɪkl/a. 数字的; 数值的  
 manipulate/mə 'nɪpjuleɪt/v. 操作; 处理  
 transaction/trænzækʃ(ə)n/n. 交易; 业务; 事务(处理)  
 automation/ɔ: tə 'meɪʃən/n. 自动化  
 enhance/m 'hɑ: ns/v. 增强  
 conjecture/kən 'dʒektʃə(r)/n. 推测, 猜想

① ROM: 只读存储器(read-only memory 的首字母缩略)。

② merit the description “creative”: 用“创造性的”这个词来形容名副其实。

- privacy/'prɪvəsi/n. 隐私;秘密
- conceptually/kən'septʃuəli/ad. 概念上
- microcomputer/'maɪkrəʊkəm্পju:tə(r)/n. 微型计算机
- desktop/'desk'tɒp/n. 桌面
- laptop/'læptɒp/n. 膝上型计算机,便携式计算机 briefcase/'bri:fkɛs/n. 公文包
- palmtop/'pɑ:m'tɒp/n. 掌上电脑,掌上机
- workstation/'wɜ:ksteɪʃn/n. 工作站
- minicomputer/'mɪnɪkəm্পju:tə(r)/n. 小型计算机
- mainframe/'meɪnfreɪm/n. 主机,大型机
- supercomputer/'su:pəkəm্পju:tə(r)/n. 超级计算机,巨型计算机
- bus/bʌs/n. 总线
- dedicated/'dedɪkətɪd/n. 专用的
- embed/ɪm'bed/v. 把...嵌入
- circuitry/'sɜ:kɪtri/n. 电路
- microminiaturization/'maɪkrəʊmɪnɪjətʃəraɪ'zeɪʃən/n. 微小型化,超小型化
- superconductivity/'su:pə,kɒndʌk'tɪvətɪ/n. 超导(电)性
- artificial intelligence 人工智能
- neural/'njuərəl/a. 神经的
- neural network 神经(元)网络
- mimic/'mɪmɪk/v. 模仿
- networking/'netwɜ:kɪŋ/n. 联网,建网

## Exercises

### I. Fill in the blanks with the information given in the text.

1. A digital computer is generally made up of five distinct elements; a central processing unit, \_\_\_\_\_ devices, memory storage devices, \_\_\_\_\_ devices and a bus.
2. According to the text, modern digital computers can be divided into four major categories on the basis of cost and performance. They are microcomputers, \_\_\_\_\_, minicomputers, and \_\_\_\_\_.
3. A program is a sequence of \_\_\_\_\_ that can be executed by a computer. It can either be built into the hardware or exist independently in the form of \_\_\_\_\_.
4. The smallest unit of information handled by a computer is bit, which is the abbreviation of binary \_\_\_\_\_. A group of \_\_\_\_\_ bits makes up a(n) \_\_\_\_\_, which is short for binary term.
5. One of the trends in computer development is \_\_\_\_\_, the effort to compress more circuit elements into smaller and smaller \_\_\_\_\_ space.

### II. Translate the following terms or phrases from English into Chinese and vice versa:

1. artificial intelligence
2. paper-tape reader
9. 数据的存储与处理
10. 操作指令

- |                              |           |
|------------------------------|-----------|
| 3. optical computer          | 11. 中央处理器 |
| 4. neural network            | 12. 个人计算机 |
| 5. instruction set           | 13. 模拟计算机 |
| 6. parallel processing       | 14. 数字计算机 |
| 7. difference engine         | 15. 通用计算机 |
| 8. versatile logical element | 16. 处理器芯片 |

**III. Fill in each of the blanks with one of the words given in the following list, making changes if necessary:**

*microcomputer computing digital base advent mode circuit significance chip appear speed transistor minicomputer combine categorization integration*

We can define a computer as a device that accepts input, processes data, stores data, and produces output. According to the \_\_\_\_\_ of processing, computers are either analog or \_\_\_\_\_. They can also be classified as mainframes, \_\_\_\_\_, workstations, or microcomputers. All else (for example, the age of the machine) being equal, this \_\_\_\_\_ provides some indication of the computer's \_\_\_\_\_, size, cost, and abilities. Ever since the \_\_\_\_\_ of computers, there have been constant changes. First-generation computers of historic \_\_\_\_\_, such as UNIVAC (通用自动计算机), introduced in the early 1950s, were \_\_\_\_\_ on vacuum tubes. Second-generation computers, \_\_\_\_\_ in the early 1960s, were those in which \_\_\_\_\_ replaced vacuum tubes. In third-generation computers, dating from the 1960s, integrated \_\_\_\_\_ replaced transistors. In fourth-generation computers such as \_\_\_\_\_, which first appeared in the mid-1970s, large-scale \_\_\_\_\_ enabled thousands of circuits to be incorporated on one \_\_\_\_\_. Fifth-generation computers are expected to \_\_\_\_\_ very-large-scale integration with sophisticated approaches to \_\_\_\_\_, including artificial intelligence and true distributed processing.

**IV. Translate the following passage from English into Chinese:**

A computer system includes a computer, *peripheral* (外围的) devices, and software. The electric, electronic, and mechanical devices used for processing data are referred to as hardware. In addition to the computer itself, the term "hardware" refers to components called peripheral devices that expand the computer's input, output, and storage capabilities. Computer hardware in and of itself does not provide a particularly useful mind tool. To be useful, a computer requires a set of instructions, called software or a computer program, which tells the computer how to perform a particular task. Computers become even more effective when connected to other computers in a network so users can share information.

**Section B: Information Revolution**

**I. Introduction**

Information Revolution refers to the fundamental changes in the production and use of information, occurring in the late 20th century. Human societies throughout history have had "information specialists" (from traditional **healers** to newspaper editors); and they have had "information technologies" (from **cave painting** to **accountancy**); but two



interrelated developments, social and technological, **underpin** the diagnosis that an information revolution is now occurring.

## II . Social and Technological Developments

First, there are social and organizational changes. Information-processing has become increasingly visible and important in economic, social, and political life. One familiar piece of evidence is the statistical growth of occupations specializing in information activities. Numerous studies have demonstrated substantial growth in information-based occupations. These occupations now take the largest share of employment in the United States, the United Kingdom, and many other industrial societies. The biggest category is information processors—mainly office workers—followed by information producers, distributors, and infrastructure workers. Second, there is technological change. The new information technology (IT) based on **microelectronics**, together with other innovations such as **optical discs** and **fibre optics**, underpins huge increases in the power, and decreases in the costs, of all sorts of information-processing. (The term “information-processing” covers the generation, storage, transmission, manipulation, and display of information, including numerical, **textual**, audio, and video data.) The information-processing aspects of all work can be reshaped through IT, so the revolution is not limited to information occupations; for example, industrial robots change the nature of factory work. Computing and telecommunications (and also such areas as broadcasting and publishing) used to be quite distinct industries, involving distinct technologies. Now they have converged around certain key activities, such as use of the Internet. Using the same underlying technologies, modern computing and telecommunication devices handle data in digital form. Such data can be shared between, and processed by, many different devices and media, and used in a vast range of information-processing activities. The pace of adoption of new IT has been very

speedy; it is **markedly** more rapid than that of earlier revolutionary technologies, such as the steam engine or electric motor. Within 25 years of the invention of the microprocessor, it had become **commonplace** in practically every workplace and many homes; present not only in computers, but also in a huge variety of other devices, from telephones and television sets to washing machines and children's toys.

### III. The Direction of the Information Revolution

The outcome of the information revolution is seen by some **commentators** as likely to be as profound as the shift from agricultural to industrial society. Others see the transformation as essentially a change from one form of industrial society to another, as has happened in earlier technological revolutions.

One major issue is how rapidly social institutions adapt to take advantage of the new ways of doing things that new IT makes possible. While some jobs and some areas of people's lives do seem to have changed rapidly, many others appear to have been affected relatively little. Historians point out that it can take a very long time for what in **retrospect** seems the obvious way to use a technology to become standard practice.<sup>①</sup> For example, electric motors were first used as if they were steam engines, with one centralized motor powering numerous devices, rather than numerous small motors, each powering its own appliance. New IT has often been introduced into well-established patterns of working and living without radically altering them. For example, the traditional office, with secretaries working at keyboards and notes being written on paper and manually exchanged, has remained remarkably stable, even if personal computers have replaced typewriters.

Often the technology that gains acceptance is that which most easily fits within traditional ways of doing things. For example, the fax machine, which could take hand-written or typed notes, and was often delegated to a secretary to use, was hugely successful in the 1980s. At the beginning of that decade, it had been predicted that fax would rapidly die out, and e-mail would take its place; but this proved to involve too much organizational change.

### IV. Trends in Employment

The tendency to fit a new technology into established structures, rather than to start **afresh** every time, has often been documented. It is one reason for the absence of the huge office job losses that were being predicted in the late 1970s and early 1980s, when word processing first began to be taken up on a large scale. However, this is no reason to assume that existing structures will endure. Industrial interest in new forms of organization, such as novel management structures, coordination of activities over large distances by means of telecommunications, **teleworking**, and other forms of distance working, indicates willingness to consider change.

The "hollow firm" is one effort to gain flexibility. The company attempts to **dispense with** the direct ownership and operation of many facilities that would traditionally have

① Historians point out that it can take a very long time for what in retrospect seems the obvious way to use a technology to become standard practice. 历史学家们指出,事后看起来觉得很明显的使用技术的方法,在当时可能要花很长时间才能成为通行的做法。在这句话中,由 that 引导的从句系宾语从句。

belonged to it, instead **outsourcing** production, distribution, and other tasks to other firms. Many computer companies, for example, buy in many or most of their components from specialist suppliers, and some firms do little more than design the computer for others to assemble.

A related idea is “**delayering**”, or “**flattening**”, in which the company tries to do away with the numerous layers of middle management and administration that have traditionally processed information, and communication flows between the senior staff and the **shop floor** or **fieldworker**. New information systems are typically used to allow rapid communication across a reduced number of organizational layers. By the late 1990s the integration of office IT is becoming apparent; material is increasingly exchanged by e-mail (which has finally established itself); many professionals use personal computers directly, often at home and while traveling, as well as in the office; and increasingly, personal computers are networked. Whether a loss of **clerical** jobs will result remains much debated. Some commentators point to job losses in office-based sectors such as financial services, which use IT intensively, as a **harbinger** of things to come. Others argue that the unemployment problems of industrial societies are related more to political and economic changes than to the use of new technology. Indeed, new information-related services are emerging, creating new jobs. While some office jobs may have gone, some other traditional clerical jobs have been upgraded to involve new functions made possible with new IT, such as desktop publishing, database management, and customer services.

A similar debate has concerned the quality of working life—whether skills have been enhanced or reduced, and whether working conditions have been improved or degraded, in the information revolution. Evidence to date indicates a mixed picture. There are certainly some areas in which conditions have worsened and skills have been lost, and many low-skill jobs have been created—for example, in cooking and serving **fast food**. Yet there is also a tendency for more jobs to be upgraded, and new technical skills and skill combinations are in demand. Large-scale **deskilling** has not taken place.

**Polarization** of the workforce in terms of quality of work and levels of wages has **ensued**; at the same time a gulf has been opening between employed and unemployed people. Whether this is a result of the information revolution, or of more or less **coincidental** economic and political factors, the threat is evident of a widening social gulf between the “information-rich” and the “information-poor”.<sup>①</sup> The former have information-processing skills, access to advanced technologies in their work, and the money to invest in IT at home for themselves and their children; the latter do not.

## V. Information Technology and the Consumer

At different rates IT is **diffusing** into the home. The implications of consumer

<sup>①</sup> Whether this is a result of the information revolution, or of more or less coincidental economic and political factors, the threat is evident of a widening social gulf between the “information-rich” and the “information-poor”. 不管这是信息革命的结果, 还是经济和政治因素的某种巧合所导致, 都存在明显的征兆, 说明“信息富有者”与“信息贫穷者”之间存在着日益加大的社会差距。在这句话中, 主句的主语 (the threat) 与其定语 (of a widening social gulf between the “information-rich” and the “information-poor”) 被谓语 (系表结构) 分隔开。这种分隔结构在英语中比较常见。



innovations can be substantial. Widespread use of cars facilitated new ways of life, with a growth of suburban living and out-of-town shopping centers, and a decline of train and bus services. The expansion of consumer IT is associated with changes in ways of working (for example, **telework**), playing (new home entertainment systems), shopping (**teleshopping**), and learning (multimedia products of various sorts).

IT can be used in monitoring body conditions (digital thermometers, pulse meters, and blood-pressure meters are available), and in providing health and lifestyle monitoring and advice (recommending exercise levels, medical check-ups, or diets). Telephone **helplines** have long offered advice, counseling, and medical services; these and many other services are beginning, sometimes in **rudimentary** form, to be provided on the Internet.

### VI. Problems of the Information Revolution

Public transport was challenged by the shift to cars, and familiar aspects of such public services as education and health could be challenged in the information revolution. Wider concerns over changing relations between private and public activities are reflected in debates about potential or already emerging problems, such as:

- Threats to privacy (unauthorized access to personal data, increasing **surveillance** of public spaces by security cameras, etc.)
- The **alleged** growth of “privatism” (a decline in shared activities as individuals pursue their own interests in isolation)
- The scope for participation. (How far can people have a say in the use of IT in ways that affect them? Do new media support the emergence of new social movements, and of new forms of interest groups, lobbying, and mobilization?)
- Questions about the ownership of knowledge. (Who has the right to charge for what kinds of information? Should large parts of the media be controlled by a few large companies? What is the scope for freedom of information to be practised by governments?)

All this is in addition to the problems of information inequalities mentioned earlier. The information revolution fundamentally involves a change in the role of information-processing in our society. It is not surprising that fundamental questions are being raised about access to, and the use of, intimate and valuable sorts of information. The outcome of the information revolution depends on social action and social choices as well as on technological developments. Just as industrial societies around the world take various forms, and there are very different ways of life within them, so it is likely that there will be a wide range of information societies. However, as new IT permits more global communication, and more firms expand into global markets, there are also strong forces at work to share elements of different cultures around the world on an unprecedented scale.

### Words

healer/'hi:lə(r)/n. 信仰疗法术士(指用祈祷或魔术等方式治病的人)

cave painting (旧石器时代的)洞穴壁画(艺术)

accountancy/'ə'kauntənsi/n. 会计学,会计工作

underpin/ˌʌndə'pɪn/v. 支持;巩固;证实

microelectronics/ˌmaɪkrəʊˌlek'trɒnɪks/n. 微电子学