

现代物流工程丛书

物流工程英语

张庆英 主编



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前 言

本书以物流工程作为主线，对先进的物流系统及相关知识进行了介绍。精心挑选的英文原版资料内容涉及物流系统及工业工程的各个方面。

本书以物流的术语定义作为起点，从物流的作用、资源计划、电子商务、供应链管理等方面对物流系统基本内容进行了介绍。

客户服务系统、信息工程以及操作系统的论述，则重点针对物流信息方面的问题。

物流工程设备部分分别介绍了物流系统常见的几类装卸设备以及部分机构的设计方法和原则。

工业工程及先进制造技术部分选择了系统集成、计算机集成制造、柔性制造系统等方面的文章并进行了详细的介绍。

港口及货运部分既有对基本概念的阐述，也有比较典型的介绍性文章并从实用的角度对包装、货物运输等进行了论述。

从实用性的角度考虑，本书还选择了合同撰写及论文写作的相关文章，给出了销售合同的样本以及一篇科技论文的范文，对合同撰写和论文的写作具有指导意义。

以上几方面内容体现在所选录的 54 篇文章中，这些文章相对独立而又相互关联。

本书共有 27 个单元，每个单元有 A、B 两篇文章。其中 A 篇为精读课文，B 篇为阅读课文，并对文中的生词、短语及部分句子加了注释。除此之外，附录中还列出了物流术语解释、物流常用词汇，以及物流常用缩略词和组合同。

本书由张庆英博士（教授）主编，李郁、袁兵、杨光祥、于蒙、赵章焰参编。其中 Unit 1, Unit 5 Passage A, Unit 13 Passage, Unit 14 Passage A, Unit 16, Unit 17 Passage A, Unit 24 Passage A 由李郁编写；Unit 8, Unit 9 Passage B, Unit 10 Passage A, Unit 22, Unit 23 由袁兵编写；Unit 6, Unit 7 Passage A, Unit 21 Passage A 由杨光祥编写；Unit 15 Passage A, Unit 17 Passage B 和 Unit 18 Passage A 由于蒙编写；Unit 12 由赵章焰编写，其余部分的编撰及全书统稿由张庆英主编负责。

本书可作为物流工程以及各相关专业本科生的专业英语教材，也可作为物流方面的研究者及工程技术人员学习英语和专业知识的参考书。

编者

2004年4月

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Unit 1

Passage A

What Is Logistics ?

—Logistics means having the right thing, at the right place, at the right time

Logistics (*business definition*) Logistics is defined as a business planning framework for the management of material, service, information and capital flows.^[1] It includes the increasingly complex information, communication and control systems required in today's business environment. (Logistics Partners Oy, Helsinki, FI, 1996)

Logistics (*military definition*) The science of planning and carrying out the movement and maintenance of forces. ... those aspects of military operations that deal with the design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of material; movement, evacuation, and hospitalization of personnel; acquisition of construction, maintenance, operation and disposition of facilities; and acquisition of furnishing of services.^[2] (JCS Pub 1-02 excerpt)

Logistics The procurement, maintenance, distribution, and replacement of personnel and materiel. (Websters Dictionary)

Logistics 1. The branch of military operations that deals with the procurement, distribution, maintenance, and replacement of materiel and personnel.
2. The management of the details of an operation.

[French *logistiques*, from *logistique*, logic (perhaps influenced by *loger*, to quarter), from Medieval Latin *logisticus*, of calculation]. (American Heritage Dictionary)

Logistics ... the process of planning, implementing, and controlling the

efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.^[3] Note that this definition includes inbound, outbound, internal, and external movements, and return of materials for environmental purposes. (Council of Logistics Management, <http://www.clml.org/mission.html>, 12 Feb 1998)

Logistics The process of planning, implementing, and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of meeting customer requirements. (Canadian Association of Logistics Management, <http://www.calm.org/calm/AboutCALM/AboutCALM.html>, 12 Feb, 1998)

Logistics The science of planning, organizing and managing activities that provide goods or services. (MDC, LogLink/LogisticsWorld, 1997)

Logistics Logistics is the science of planning and implementing the acquisition and use of the resources necessary to sustain the operation of a system. (ECRC University of Scranton/Defense Logistics Agency Included with permission from: HUM—The Government Computer Magazine “Integrated Logistics” December 1993, Walter Cooke Included with permission from: HUM—The Government Computer Magazine)

Logist To perform logistics functions or processes. The act of planning, organizing and managing activities that provide goods or services. (The verb “to logist” e.g. She logisted the last operation. I will logist the next operation. I am logisting the current operation. We logist the operations. The operations are well logisted.) (MDC, LogLink / LogisticsWorld, 1997)

Logistic Of or pertaining to logistics. (MDC, LogLink/LogisticsWorld, 1997)

Logistical Of or pertaining to logistics, logistics-like. (MDC, LogLink/LogisticsWorld, 1997)

Logistics Functions (*classical*) planning, procurement, transportation, supply, and maintenance. (United States Department of Defense, DOD)

Logistics Processes (*classical*) requirements determination, acquisition, distribution, and conservation. (United States Department of Defense, DOD)

Business Logistics The science of planning, design, and support of business operations of procurement, purchasing, inventory, warehousing, distribution, transportation, customer support, financial and human resources. (MDC, LogLink/LogisticsWorld, 1997)

Cradle-to-Grave Logistics planning, design, and support which takes in to account logistics support throughout the entire system or product life cycle. (MDC, LogLink/LogisticsWorld, 1997)

Acquisition Logistics Acquisition Logistics is everything involved in acquiring logistics support equipment and personnel for a new weapons system. The formal definition is the process of systematically identifying, defining, designing, developing, producing, acquiring, delivering, installing, and upgrading logistics support capability requirements through the acquisition process for Air Force systems, subsystems, and equipment. (Air Force Institute of Technology, Graduate School of Acquisition and Logistics)

Integrated Logistics Support (ILS) (1) ILS is a management function that provides planning, funding, and functioning controls which help to assure that the system meets performance requirements, is developed at a reasonable price, and can be supported throughout its life cycle. (Air Force Institute of Technology, Graduate School of Acquisition and Logistics)

Integrated Logistics Support (ILS) (2) Encompasses the unified management of the technical logistics elements that plan and develop the support requirements for a system. This can include hardware, software, and the provisioning of training and maintenance resources. (ECRC University of Scranton / Defense Logistics Agency Included with permission from; HUM—The Government Computer Maga-

zine “Integrated Logistics” December 1993, Walter Cooke)

Logistics Support Analysis (LSA) Simply put, LSA is the iterative process of identifying support requirements for a new system, especially in the early stages of system design. The main goals of LSA are to ensure that the system will perform as intended and to influence the design for supportability and affordability. (Air Force Institute of Technology, Graduate School of Acquisition and Logistics)

(From *Modern Materials Handling*)

New Words and Expressions

1. framework [ˈfreimwɜ:k] *n.* 构架, 结构, 组织
2. capital [ˈkæpɪtəl] *n.* 资金
3. acquisition [ækwiːzɪʃ(ə)n] *n.* 获得, 获得物
4. evacuation [ɪˈvækjuːeɪʃən] *n.* 撤退, 走开
5. disposition [dɪspəzɪʃ(ə)n] *n.* 部署
6. procurement [prəkjuːmənt] *n.* 获得, 取得
7. implement [ˈɪmplɪmənt] *vt.* 实现协议、诺言, 履行
8. inbound [ɪnbaʊnd] *adj.* 内地的, 归航的
9. outbound [ˈaʊtbaʊnd] *adj.* 开往外地的, 开往外国的
10. pertain [pə(ː)ˈteɪn] *v.* 适合, 属于
11. encompass [ɪnˈkʌmpəs] *v.* 包围, 环绕, 包含或包括某事物
12. provision [prəˈvɪʒən] *vt.* 供给食品及必需品
13. iterative [ɪˈtɪrətɪv] *adj.* 重复的, 反复的
14. supportability [səpəːtəbɪləti] *n.* 可支持, 可忍受, 可忍耐
15. affordability [əˈfɔ:dəbɪləti] *n.* 供给能力

Notes

1. Logistics is defined as a business planning framework for the management of material, service, information and capital flows. 物流的定义是: 管理物质流、服务流、信息流和资金流的商业计划构架。
2. those aspects of military operations that deal with the design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of material; movement, evacuation, and hospi-

talization of personnel; acquisition of construction, maintenance, operation and disposition of facilities; and acquisition of furnishing of services. 军事行动的方面是处理物质的设计、发展、获得、储存、运送、传播、维修、撤退和部署；人员的活动、撤退及医疗服务；设备的建筑、维修、操作和部署；以及配备服务。

3. ... the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. 按照客户的要求计划、履行、控制从开始生产到消费环节的货物、服务和相关信息的有效快捷的流动和储存。

Passage B

Definition of Terms

Material flow is the linking of all processes for the acquiring, processing, matching and distribution of material goods within defined areas.

An important aspect of the definition of the term is its limitation to material goods, therefore excluding the transport of energy or of information. However, material goods are not restricted solely to materials forming part of the production process, i. e. raw materials, semi-finished and finished products, but also other materials such as, for instance, waste, pallets and packaging.^[1]

Roughly speaking, differentiation is made in material flow between handling, conveying and transporting.

Handling Handling refers to all motion sequences used for the starting or ending of production processes and also of transporting and storage. This includes, for instance, the insertion of a workpiece in a workpiece retainer or the stacking of workpieces at a storage place. Handling therefore includes all material flow processes taking place at a workstation.

Conveying Conveying is the movement in horizontal or vertical direction via limited distances and is therefore generally restricted to in-plant processes. Examples are: The supply of screws by means of a vibratory bowl feeder and the transporting of vehicle bodies by means of overhead conveyors.

Continuous Conveyor These examples immediately highlight an important difference: in the first example, a continuous conveyor is used. Continuous conveyors operate continuously (at least over an extended time period). The second example involves an intermittent-flow conveyor. Each cabin of the overhead conveyor has its own timetable, to which it operates, with alternating travel operation, empty running and stops. Steady-flow conveyors are generally more economical to operate than intermittent-flow conveyors. Being

of identical dead weight, these have greater conveyor capacity whilst requiring less drive power.^[2] This is partly due to the continuous operating mode, thereby eliminating the continuous starting and decelerating of the drive, handling equipment and material to be conveyed.

On the other hand, intermittent-flow conveyors are frequently more flexible in application. As shown by the example, these are predominantly used for heavy individual loads.

Conveyors often have yet a secondary function resulting from the dwell-time of the material being conveyed. For example, in the case of a refrigerated conveyor, parts cool down to a point where they reach the temperature required for further processing. Conveyors are also used as buffers in order to harmonize the working cycle of several processing stations.

Transporting The term “transporting” describes the movement of goods across larger, generally horizontal distances. Transporting takes place on roads rail and more rarely on waterways. As such, transport mainly involves external, non-operational movement. Owing to its nature, transport is intermittent, since the use of vehicles is necessary for transporting.

Material to Be Conveyed Differentiation is made between material to be conveyed in so far as this has a significant effect on the method of conveying or transporting.^[3]

Bulk Materials Bulk materials constitute a load consisting of a large number of small items, e. g. screws, rivets, and also plastics granular material or sand. Bulk materials always require an enclosing container although, occasionally, it is possible to convey these in pipelines, similar to fluids.

Fluid Materials Fluid materials are generally transported in silo containers. However, to meet internal conveying requirements, pipelines are used.

Packaged Goods Packaged goods are unit loads which can be established according to the number of items e. g. machine parts. Bulk materials may also

be treated as packaged goods, if these are packed in boxes or sacks.

Analysis of Material Flow

The terms handling, conveying and transporting are contrasted in different stages of material flow. The first stage of material flow includes transport between the factory and its suppliers or customers. This stage of material flow involves locational planning, which does not form part of MPS training and is therefore not discussed here. The second stage of material flow includes movement within the factory site between the various sectors of the operation, e. g. factory building. Factory planning again takes into account material flow and evolves an appropriate building plan. Again, this stage of material flow will not be dealt with at this point. The third stage of material flow includes the movement between the individual departments of an operational area and, within the departments, the movements between the various workstations, machine groups and storage areas, etc. This stage can be dealt with as part of MPS. The fourth stage of material flow involves movement on the workstation itself. This stage deals primarily with handling equipment for the automation of material flow on the workstation. This represents a major aspect of MPS.

In order to determine the optimum layout of equipment and the respective handling equipment involved, plus the possibly required storage and buffer stores, it is necessary to establish the material flow. The first step towards this involves the structure of the material flow. When designing a project, the following questions should be answered for every product.

- What equipment is connected with others?
- In what order is the equipment started?

(From Modern Materials Handling)

New Words and Expressions

1. exclude [iks'klu:d] *vt.* 拒绝接纳, 把……排除在外, 排斥
2. solely ['səʊlli] *adv.* 独自地, 单独地, 惟一, 只有
3. raw material 原材料
4. semi-finished *adj.* 半成品的
5. vibratory ['vaibrətəri] *adj.* 振动的, 振动性的

6. intermittent [ˌɪntə(ː)ˈmɪtənt] *adj.* 间歇的, 断断续续的
7. steady [ˈstedi] *adj.* 稳固的, 稳定的, 坚定的, 扎实的, 坚定不移的
v. (使) 稳定, (使) 稳固
8. dead weight 死沉沉的重物
9. decelerate [diːˈseləreɪt] *v.* 减速
10. dwelltime *n.* 停留时间
11. buffer [ˈbʌfə] *n.* 缓冲器
12. harmonize [ˈhɑ:mənaɪz] *v.* 调和, 协调
13. differentiation [ˌdɪfərenʃiˈeɪʃən] *n.* 区别
14. rivet [ˈrɪvɪt] *n.* 铆钉
v. 固定
15. granular [ˈgrænjʊlə] *adj.* 由小粒而成的, 粒状的
16. sack [sæk] *n.* 大袋, 大袋之量, 麻布袋, 短而松的袍装, 布袋装, 洗劫
vt. 解雇, 装入袋, 洗劫, 就寝
17. optimum [ˈɒptɪməm] *n.* 最适宜
adj. 最适宜的
18. layout [ˈleɪaʊt] *n.* 规划, 设计, (书刊等) 编排, 版面, 配线, 企划, 设计图案, (工厂等的) 布局图 版面设计

Notes

1. However, material goods are not restricted solely to materials forming part of the production process, i. e. raw materials, semi-finished and finished products, but also other materials such as, for instance, waste, pallets and packaging. 不过, 物品不仅仅局限于形成生产过程的物质, 即原材料、半成品、成品, 还包括如废料、托盘及包裹之类的其他物质。
2. Being of identical dead weight, these have greater conveyor capacity whilst requiring less drive power. 在相同的载重之下, 这些输送机(恒定速度的输送机)拥有更大的输送能力而所需驱动力更小。
3. Differentiation is made between material to be conveyed in so far as this has a significant effect on the method of conveying or transporting. 对所输送材料的区分, 应根据其对输送运输方式的重要影响来进行。(材料的物理性质对其所采用的运输、传送方式有着重要影响)

Unit 2

Passage A

The Role of Material Flow System (I)

—Objectives of the Material Flow System

The objective of the industrial firm may be stated as the effective coordination of men, materials, machines and money to provide a product or service when and where needed at a price attractive to the customer, which will provide a profit to the firm and serve society.^[1] In a product (as opposed to service) enterprise the satisfaction of this objective is largely accomplished by conversion of the form or shape of materials and the relocation or movement of these materials.^[2] Men and machines are allocated to accomplish this conversion and movement. The requirements for monies result from decisions related to accomplishing the allocation of these other resources as well as the procurement and distribution of materials. Profits are directly related to the control of costs and costs, in the sense above, are to a large degree dependent upon the control of materials conversion and location. To control materials conversion requires control of material quantity at each stage of the conversion. If quantity and location are to be controlled most effectively, timely and accurate information must be available upon which to base the control decisions.^[3] It is the interrelationship between material quantities at the various stages of conversion, the location and movement of these materials, and the information necessary for decisions related to conversion and location that is referred to as the material flow system.

The effectiveness of the production enterprise in the above context is largely, if not totally, related to the organization's ability to control quantity and location of materials. In turn, the potential effectiveness of this control is to a high degree dependent upon the quality of the decision information available to the decision maker at the time a quantity or location decision must be made.^[4] A