Ch1 Organizing Workflows

1. Ontology for Workflow Management
2. Work
3. Business Processes
4. Allocating and Accepting Work
5. Organizational Structures
6. Managing Processes
7. Information Systems for Business Processes

1.1 Ontology for Workflow Management

- Develop a reference framework used to
  - Define the business-management context
  - model and analyze processes.
  - describe the functionality and architecture of WFMS

- Ontology: A reference framework is a system of straightforwardly defined terms that describe a particular field of knowledge.

- The ontology in which we are interested is that of processes.

1.2 Work

- People work to live
- business units
- services and products
- many people do not know what role their work plays in the overall scheme of things

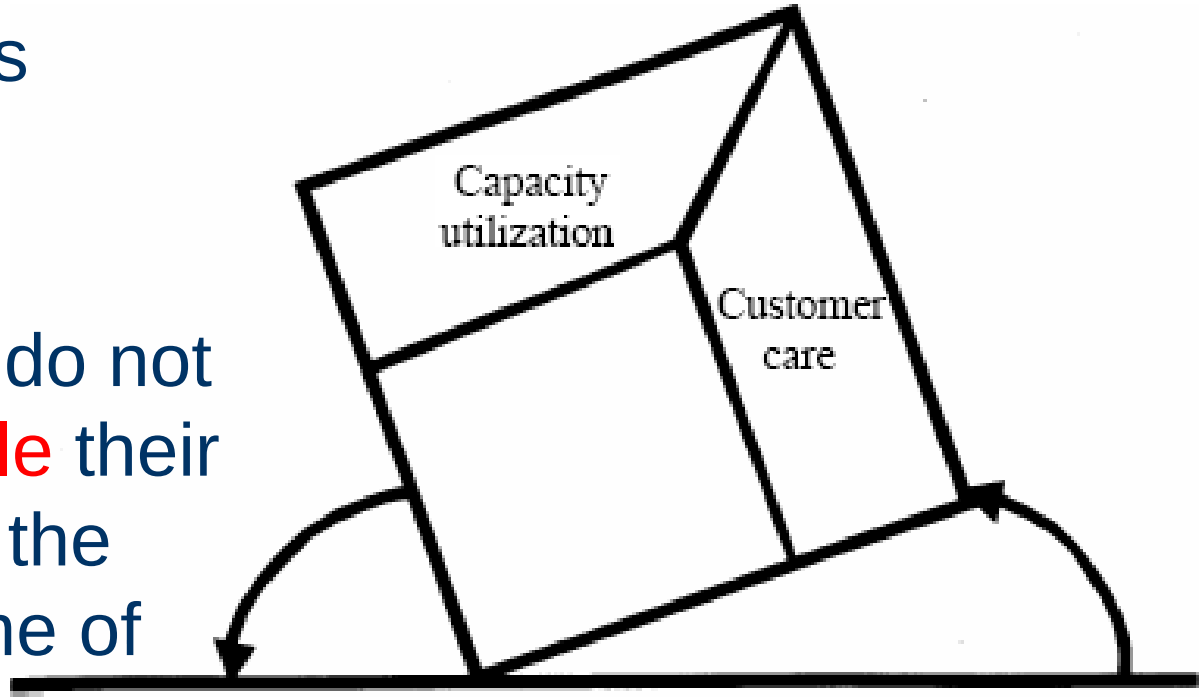


Figure 1.1
Organizational paradigm shift

1.3 Business Processes

- Case: a "thing"
  - A case does not need be a specific object; it can also be more abstract
  - Each case involves a *process* being performed.
- A process consists of a number of tasks that need to be carried out and a set of conditions that determine the order of the tasks. also called procedure.
- A task is a logical unit of work that is carried out as a single whole by one resource.
- A resource is the generic name for a person, machine or group of persons or machines that can perform specific tasks.

1.3 Business Processes

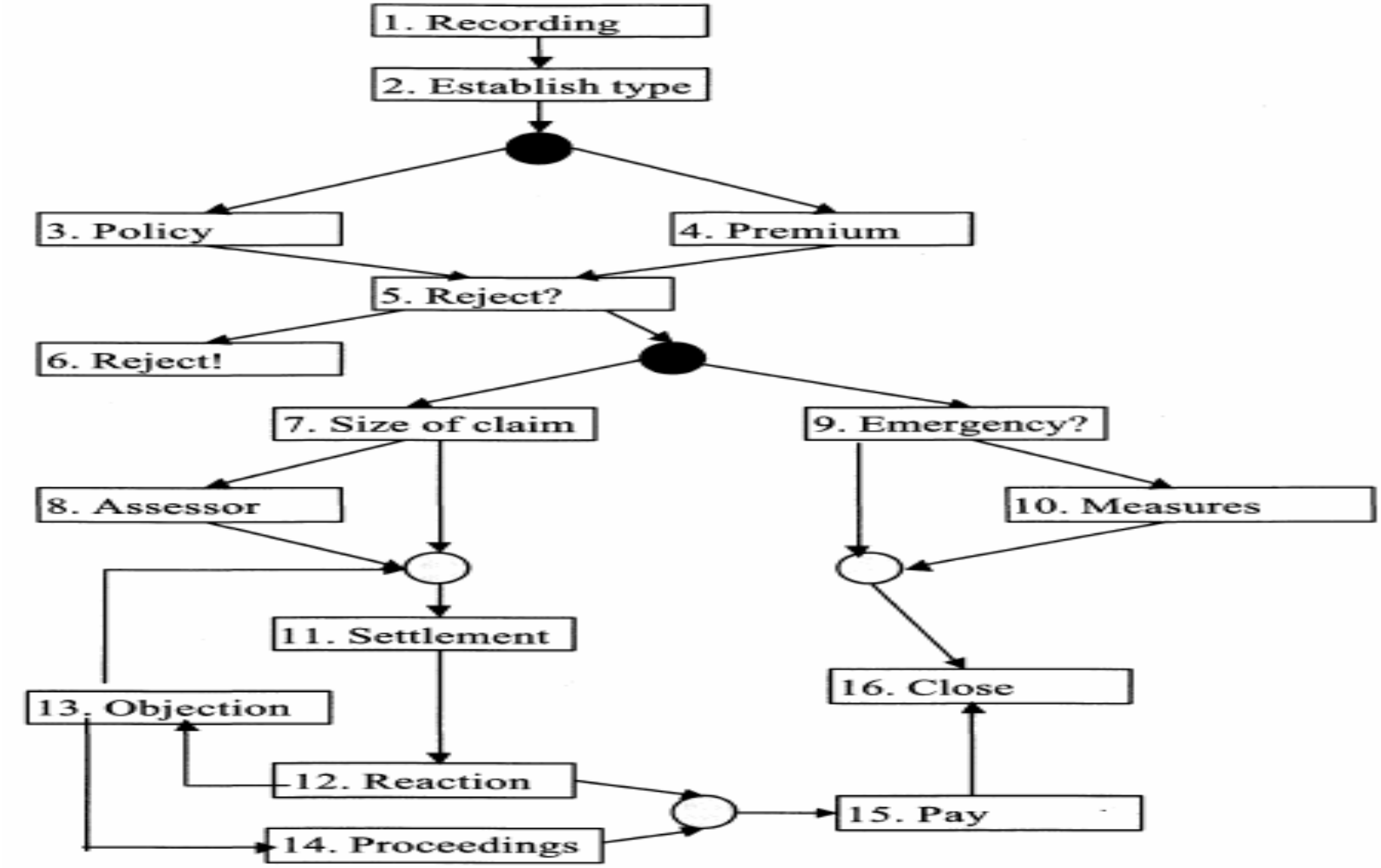


Figure 1.2
Insurance claim process

1.3 Business Processes

- four different basic mechanisms in process structures: sequence, selection, parallelization, and iteration.
- in principle all processes can be modeled using these four constructions
- Some tasks can be performed by a computer without human interference. Other tasks require human intelligence: a judgment or a decision.
- A task can also be defined as an atomic process.
- A single process is carried out on each case. We call the performance of a task by a resource an activity.

1.3 Business Processes

- It is better to have a few more, but simpler, processes than a few which are overly complex.
- many cases pertain to a single process,
- every case has its own project, or process
- subdivide processes into three categories: primary(production processes), secondary(support processes), and tertiary(managerial processes)

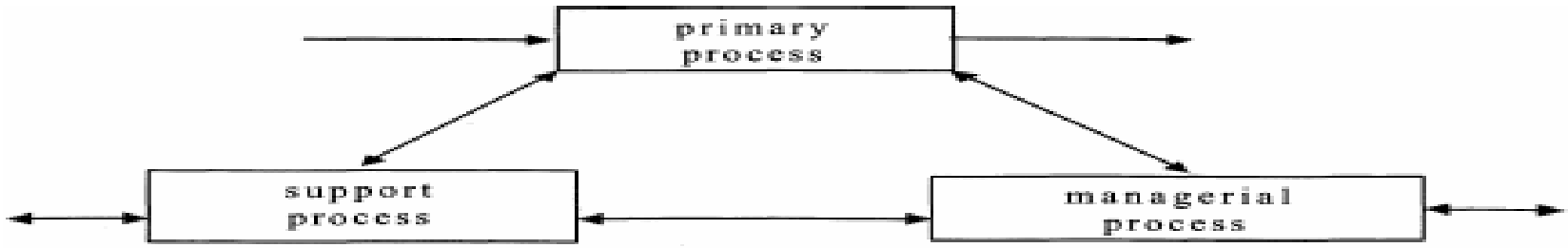


Figure 1.4
Links between the three types of processes

1.4 Allocating and Accepting Work

- most people's work is also assigned or outsourced to them by other people
- There are two forms of principals: boss and customer
- A person who is assigned a task is a contractor
- actor : describe principals and contractors in general
- contract and communications protocol

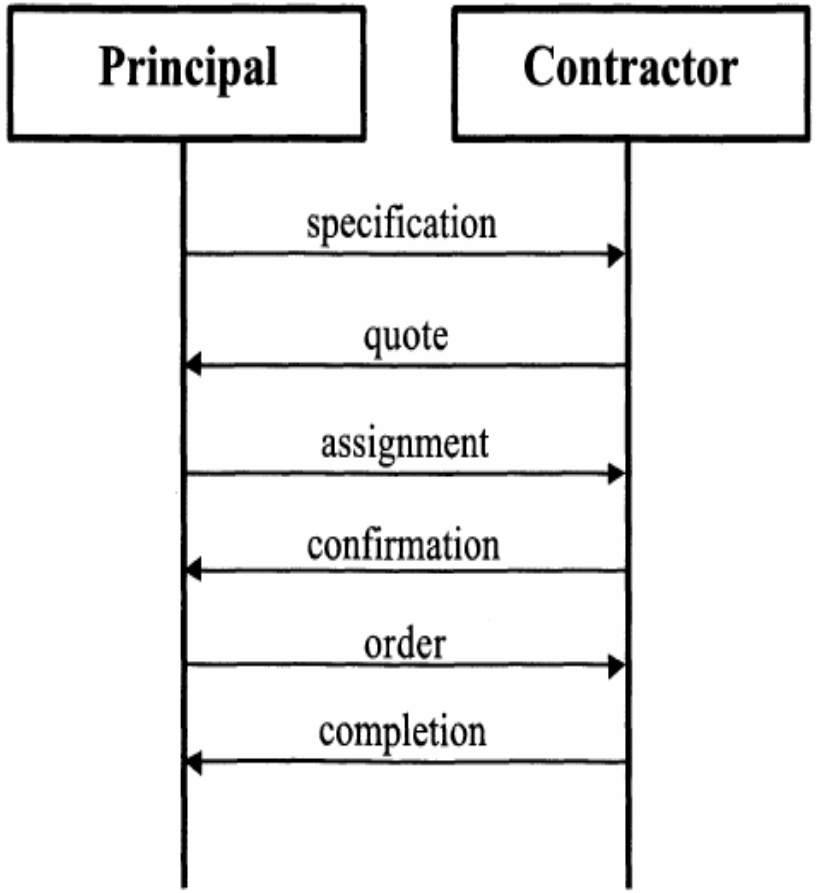


Figure 1.5
Communications protocol

1.4 Allocating and Accepting Work

- An actor responsible for a process may assign or outsource a task as a whole to a contractor or he may decompose it into a process
- Such decomposition and outsourcing processes occur frequently inside organizations but also between different organizations

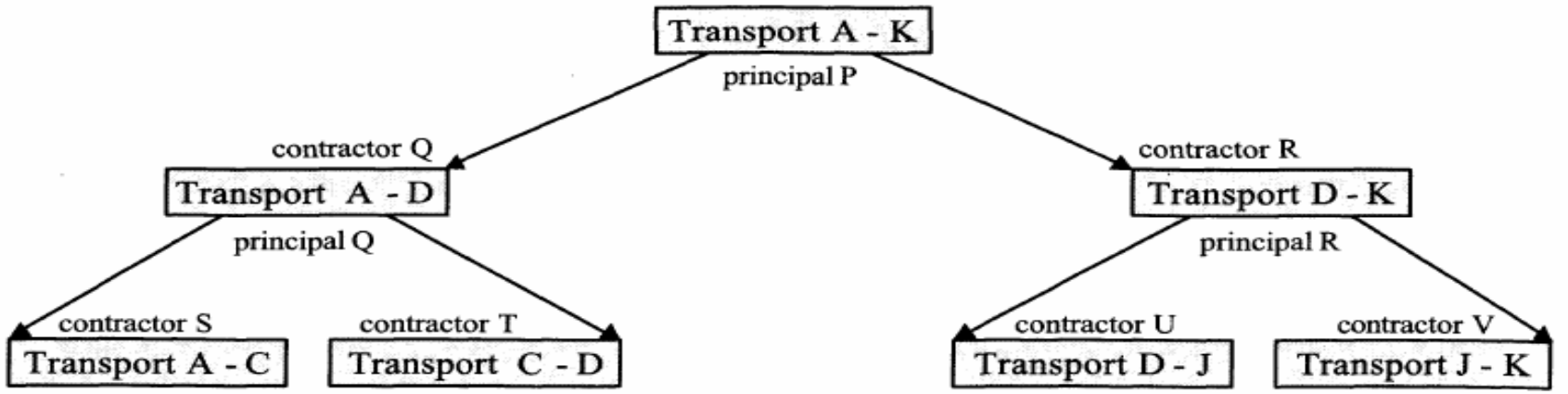


Figure 1.6
Contract tree

1.5 Organizational Structures

- An organizational structure establishes how the work carried out by the organization in question is divided up amongst its staff.
- In most cases this does not mean the people themselves, but rather the roles or functions that they fulfill.
- If an executive has specific responsibilities, then he also has to have particular authorities
- The three most important forms of organizational structure:
  - hierarchical organization
    - "tree" structure, organizational chart
  - matrix organization
  - network organization.

1.5 Organizational Structures

- organizational chart
  - each node which is not a "leaf" indicates an individual role or function. The "leaves" of the tree usually represent groups of staff or departments. The "branches" show authority relationships
  - each "leaf" shows a person and each node at a higher level represents a department. The "root" node indicates the entire company
  - communication between two nodes always passes through their closest common predecessor

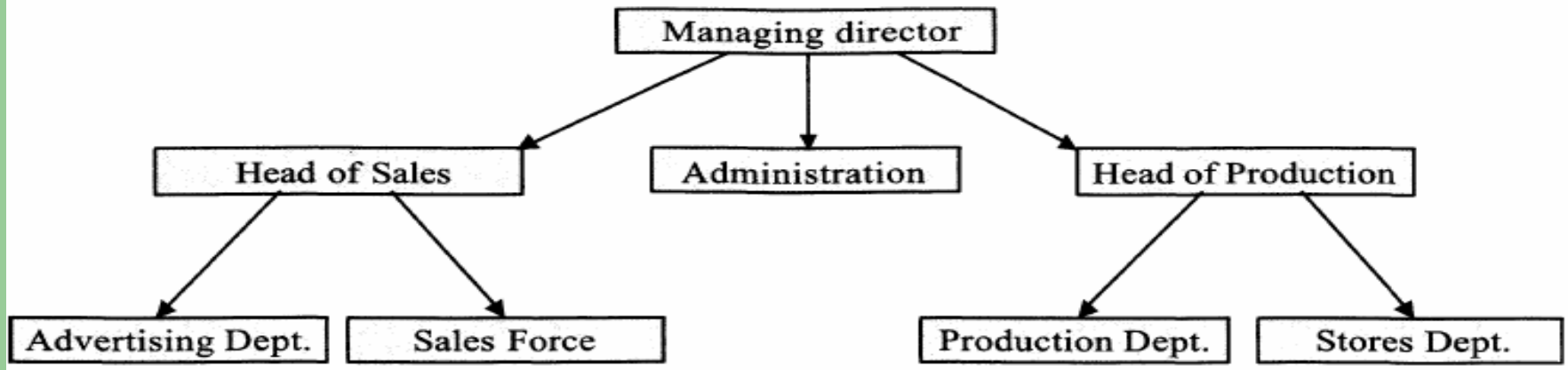


Figure 1.7
Organizational chart

1.5 Organizational Structures

- organizational chart
  - 3 principles of allocating staff into departments:
    - capacity group
    - functional department
    - Process or production departments
  - The first or second type of organization is often chosen for the secondary processes. In the primary ones, the third form begins to gain importance.
  - A manager has a maximum span of control

1.5 Organizational Structures

- matrix organization
  - structured in accordance with two dimensions:
    - Hierarchical:same as organizational chart and is usually based upon functional or capacity groups
    - Functional: based upon the tasks which have to be performed
  - Each person thus has a hierarchical boss and a functional boss(project leaders)
  - Matrix organizations are found mostly in companies that operate on a project basis

	Project-1	Project-2	Project-3
Supervisors	Louise	Anita	John
Carpenters	Pete	Karl	Geraldine
Masons	Henry	Tom	Jerry
Painters	Bert	Simone	Simone
Plasterers	Charles	Peter	Paul

Figure 1.8
Staff allocation in a matrix organization

1.5 Organizational Structures

- network organization
  - autonomous actors collaborate to supply products or services. To the customer, though, they appear to be one organization—which is why the network organization is sometimes called a virtual organization.
  - The autonomy means that there exists no formal permanent(employment) relationship

1.6 Managing Processes

- process management：management system，managed system，enactment system.
- planning and control cycle

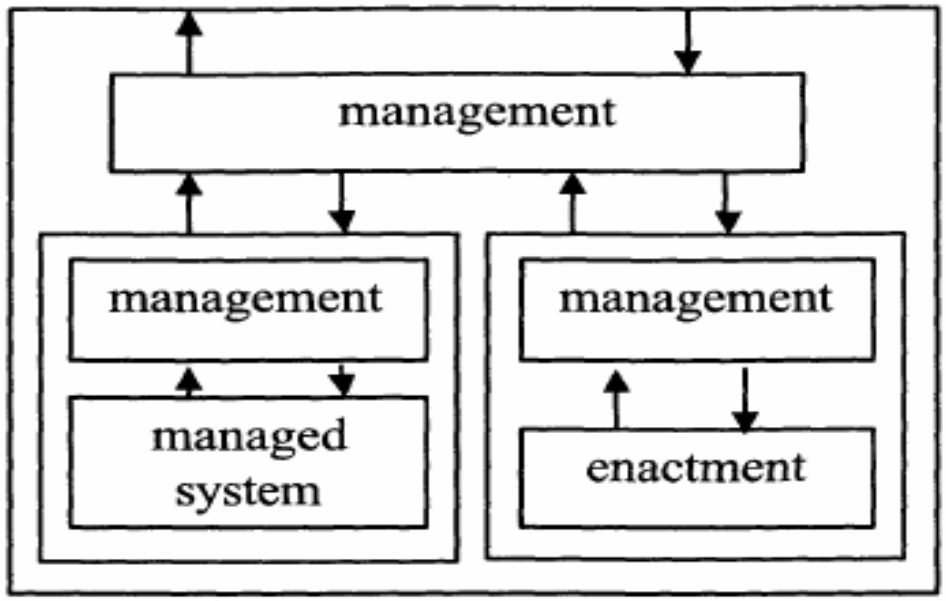


Figure 1.9
Recursive management paradigm: The whole entity is a managed system

1.6 Managing Processes

- Process management is divided into four levels

Management level	Time horizon	Financial impact	Type of decisions	Supporting methods
Real-time	Seconds-hours	Low	Equipment control	Control theory
Operational	Hours-days	Limited	Resource assignment	Combinatorial optimization (e.g., scheduling)
Tactical	Days-months	High	Resource capacity planning and budgeting	Stochastic models (e.g., queueing models)
Strategic	Months-years	Very high	Process design and resource types	Financial models, multi-criteria analysis

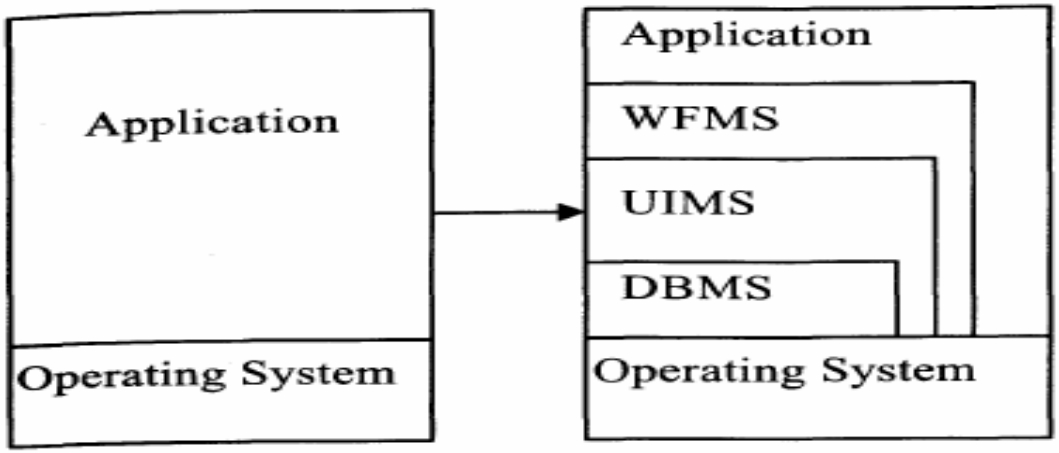
Figure 1.10
Four levels of process management

1.6 Managing Processes

- Real-time and operational management involve only dynamic aspects, not the structure of the business processes. Real-time management involves the control of machines and vehicles. Operational management mostly concerns the allocation of resources to cases and the routing of those cases.
- Tactical management concerns: capacity planning and budgeting for operational management.
- Strategic management is concerned with the structural aspects of processes and types of resources.
- In principle, computer support is available for all these tasks, particularly the second and third.

1.7 Information Systems for BPs

- Information systems have been developed that support the management of processes and their coordination.
- Kinds of information systems
- Information systems evolution



middleware platform

Figure 1.11
Decomposition of generic functionality