



ELOOGGE

PART 1

2022

System Integration





- The constant evolution of information technology means that organizations have systems of ever-increasing complexity to support their business processes.
- This chapter presents an overview of the essential business functions in any business organization.
- These functions must be connected with each other in order to support business processes that traverse the whole organization.
- If each function is supported by a particular system, then connecting these functions becomes a problem of integrating their respective systems.
- The evolution of enterprise systems attempt to support a given business function, a new problem appeared in the connection of that function to other business functions in the organization.
- A new generation of enterprise systems, known as Enterprise Resource Planning (ERP)

- (ERP) attempt to provide a single system to support a wide range of business functions, but even such approach did not eliminate the need for more specialized packages to support certain functions.
- ERP became one more system to be integrated alongside with other systems in the organization.



System integration :

This area deals with the problem of

- connecting all systems
- providing asynchronous message exchange between them
- coordinating the execution of business processes on top of an infrastructure comprised of heterogeneous applications.

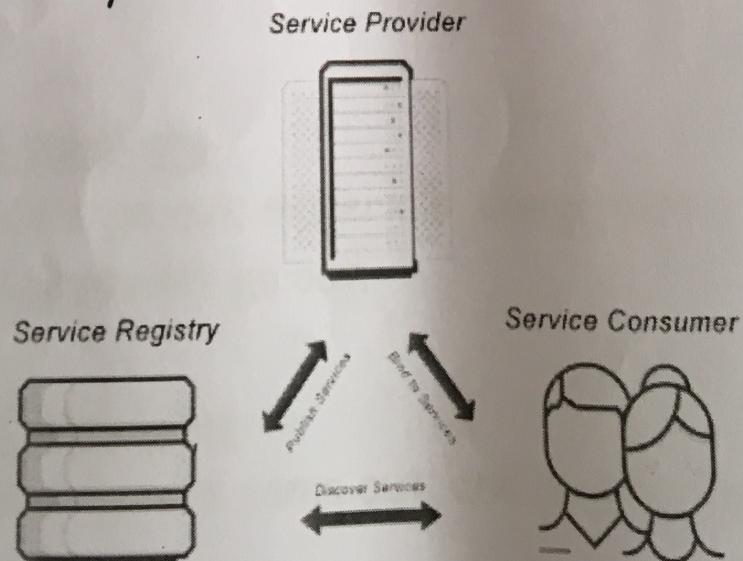
the past :

- the main concern was the specific functionality of each system,

the present

- the focus is on the integration side, on connecting different systems, and in particular on developing each system as a set of services in order to make them more flexible, reusable, and easier to integrate with each other.

this service-oriented approach plays a prominent role in the landscape of enterprise systems, and it shapes the way enterprise systems are built today.



1.1 Essential Systems of a Business Organization

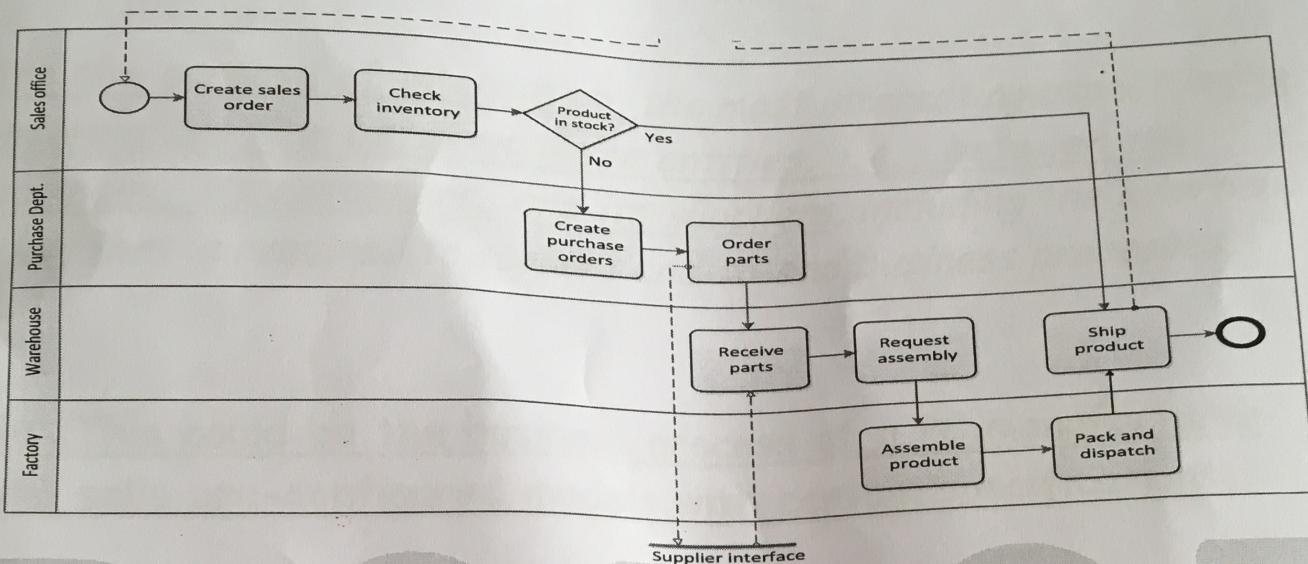


Fig. 1.1 Example of a simple business process

Essentially, every business organization has to deal with at least three interfaces:

the interface to customers :

- sales orders come in; products or services go out; and payments come in.

the interface to suppliers

- purchase orders go out; materials, components, or services come in; and payments go out.

the interface to employees

- tasks go in and results come out; and payments, in the form of salaries, go out.

For the purpose of integration, the most interesting aspect is the information flow between these entities, i.e., between the company, its customers, and its suppliers, including the internal flow that is required to support end-to-end business processes.

Ex : This could be the business process of a PC manufacturer who sells pre-configured models with certain specifications.

- When the customer orders the PC
- the sales office checks if the product is available in stock.
- If so, it is immediately shipped from the warehouse.
- Otherwise, the parts must be ordered from suppliers and assembled at the factory
- finally the product is shipped.

the following functions and systems can be recognized in any business organization

1-Sales order processing

- facing functions and sub-systems such as :
 - order entry
 - shipping
 - invoicing. فواتير
- Automating the sales order processing also provides more efficiency and allows the company to handle much larger volumes of customer orders.
- includes all the interactions with the end customer

2-Purchase order processing

- purchase order processing includes ordering, receiving, and paying for components or raw materials that are required to build the product to be delivered to the end customer.
- this has to do with the acquisition of goods or services from suppliers.

3-systems to exchange documents:

- such as quotes, invoices, or payment records— in a standard format and in the correct sequence.

4- Accounting

- this is the backbone of any business organization

An accounting system is usually divided into three subsystems:

- **The accounts receivable**
 - concerns the amounts that customers owe to the organization.
- **The accounts payable:**
 - concerns the amounts that the company owes to suppliers.
- **The general ledger:**
 - handles data from accounts receivable, accounts payable, and payroll information to determine the overall income and expenditure of the organization.



SYSTEM INTEGRATION

5-there are other common business functions that are often in place, such as:

- Production
 - especially actual manufacturing of goods, from raw materials, parts, or components, to the finished product.
- Inventory
 - by storing finished products that will be sold to customers as well as raw materials, parts or components
- customer-side logistics, supplier-side logistics as well:
 - concerned with shipping finished products to customer locations or shipping martial from suppliers

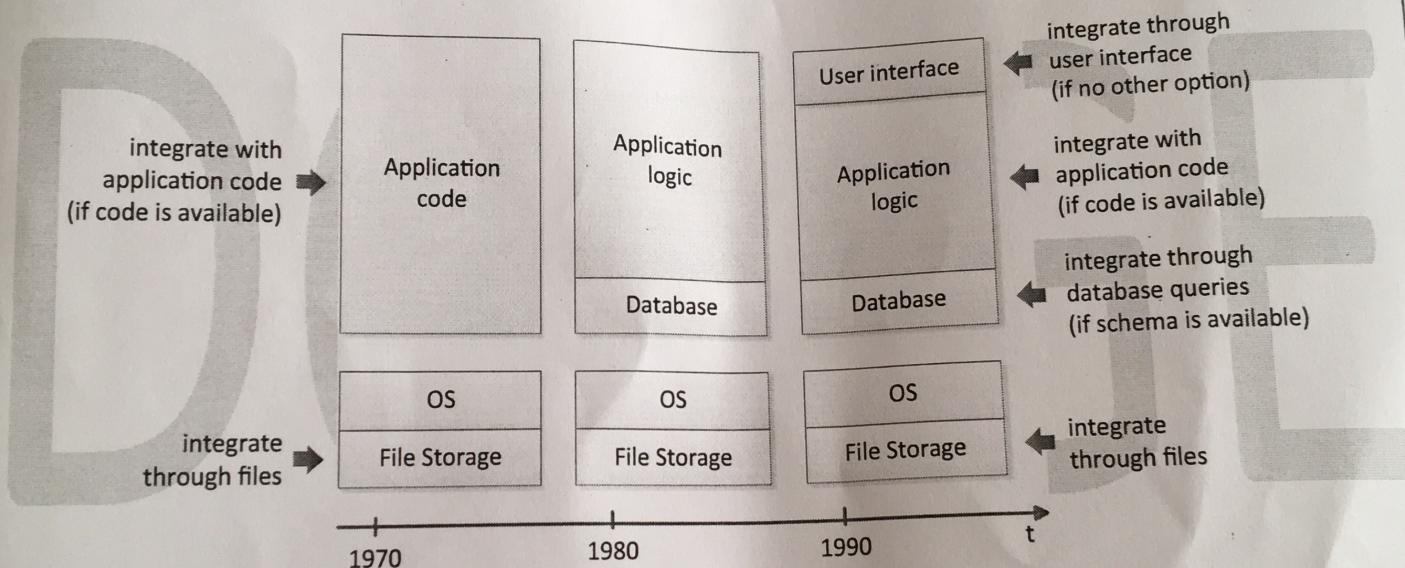
1.2 Evolution of System Architectures

- By the 1990s, it was commonly accepted that every system architecture should comprise three layers:
 - the data layer
 - the application layer
 - the user interface layer
- The rise of the Internet had a great impact in this conceptual arrangement, since the World Wide Web facilitated the

development of applications where these layers were distributed across the network

- The need for distributed applications led, in turn, to the development and widespread use of distributed object technologies such as CORBA and Java RMI

1 Evolution of Enterprise Systems



Integration type :

flat files,

- i.e., text files with a format that is compatible with the target system
- database schema is available, then it may become easier to interact with the system database directly, and in this case to both read and write data to the application in the form of SQL queries



SYSTEM INTEGRATION

ERP supports _____ currency value.

- A. multiple.
- B. single.
- C. three.
- D. five.

ERP package will handle _____ business functionalities.

- A. one.
- B. two.
- C. three.
- D. all.