THE LIFE CYCLE OF AN INFORMATION SYSTEM

The life cycle of a company information system (SIA) is represented by its development plan, divided into different phases. It is a complex procedure that can last several years, divided into a succession of phases starting from the feasibility study (or planning). Below we indicate for each of the phases the IT professional figure who is responsible for it.

1) Feasibility study
2) Executive project
3) Implementation
4) Test
5) Start-up
6) Operation

1) Feasibility study

The feasibility study has the task of defining the costs of the different possible alternatives and establishing the priorities for the implementation of the various components of the system. This phase is carried out by the IT development group coordinated by the project manager (or project manager) in close collaboration with the customer. It is necessary to be very clear about:

- what needs to be done;
- what the customer expects;
- how many and which people will be involved;
- how many and which processes will be involved.

Therefore, starting from the existing situation, different solution strategies are proposed with different costs, times and development methods; the risks are assessed and the development contract with the customer begins to be defined. There are numerous management software:
one of the best known is Microsoft Project.

2) Executive project

Traditionally, it is said that the feasibility study establishes “what” the SIA must do, while the executive design establishes “how”.
The latter can be divided into two components:

- data design: definition of their structure and organization;
- application design: definition of the characteristics of the application programs. A project specification document is drawn up which contains the formal descriptions of the system and software architecture; then the databases are designed with reference to specific models (schemes). The IT professional responsible for this phase is the designer

3) Realization

It consists in the actual realization of the SIA project in the various components through the acquisition of the hardware and communication platforms and the development and installation of the software applications. Of fundamental importance are the design, creation and population of the database that will be the essential part (core) of the IT system. The IT professional figure of reference for this phase is the programmer or developer.

4) Test

Before being put into operation, it is necessary to carry out all the checks regarding the correct functioning and quality of the information system. The system test or testing is carried out by the testing managers who, through a set of operations already planned (use case test plans), verify the correct functioning of the system in all its components: as far as possible, it is necessary to test all the operating conditions and foresee every situation to guarantee the reliability of the system.

5) Start-up

Finally, the information system becomes operational: this phase includes all the activities necessary to make the functioning of the SIA operational and continuous. After training the staff and migrating the IT procedures, it is necessary to guarantee the continuity, reliability and integrity of the data in the system. Procedures are defined and implemented to ensure data security (backup plans, disaster recovery, etc.) and data protection with regard to privacy protection (Legislative Decree 196/03 and subsequent amendments).

6) Operation

The information system, or one of its components, responds to the purposes for which it was designed, created and launched. However, during the operation phase, constant maintenance is required, which includes all activities to ensure the adequacy of the SIA in operation. The software will need to be modified over time for

various reasons:
• correct any errors not found during the implementation phase (corrective maintenance);
• take into account changes in the needs of end users and in the legislation (evolutionary maintenance);
• adapt to technological innovations (adaptive maintenance).
Maintenance may sometimes also require the complete rewriting of parts of the system, especially in the case of integration of an information system with other systems or software components of new, technologically more advanced conception. All IT figures can therefore be involved in maintenance, from the analyst to the designer, from the programmer to the installer.
We conclude this brief discussion of information systems with some examples of organizations of varying complexity, highlighting for each of them the purposes of information processing.

Company	Information	Purpose
Medical Practice	- Patients - Visits performed	- Fees requested - Tax reasons - Medical records
Library	- Collected materials - Loans - People who borrow materials	– activities aimed at collecting documents: management of new accessions, management of periodicals, description of documents, organization of catalogs and inventory – activities aimed at preserving and consulting documents: – management of subjects, production of catalogs, retrieval of bibliographic information, distribution of documents to users with lending and consultation
Manufacturing Industry	-Products -Customers -Suppliers	– management of orders and payments of product sellers – management of orders and payments to suppliers of production materials – warehouse management – production planning – personnel management (salary, holidays, contributions, etc.) – economic management and relationship with credit institutions and the tax authorities – management control

These examples concern very different situations, yet, if we think about the types of information managed, it is not difficult to recognize that in each of them we can identify a set of common operations on the data:
collection: consists in selecting, among all the data, the useful ones that will then be processed; classification: the data must be grouped and classified;
storage: the data must be identified by the methods of archiving on mass storage devices; retrieval: search for a particular piece of data;
display: the data are proposed in the appropriate format to those who request them for consultation;
modification: it may be necessary to correct the value of some data;
deletion: data that are no longer necessary are eliminated from the archive.