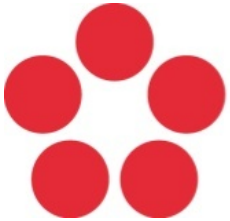

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Information system and BPM

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MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY

Definition of information

Information (Latin informatio, respectively informare= give informative information or information = give shape, shape, create)

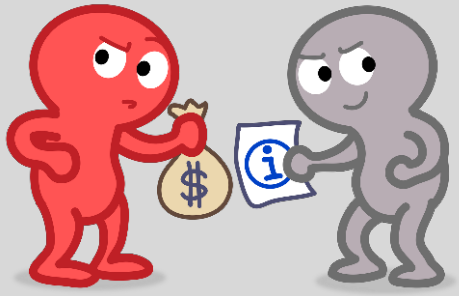
The term was first recorded in 1274 in the meaning of the ensemble acts that lead to evidence of crime and disclosure its perpetrators

Significance of message, data, communication since the 1950s

Shannon, Weiner, Bell and others: theory of information

Definition of information

"The information is a message that a certain phenomenon has occurred from a set of possible phenomena and thus with us (in the recipient) reduces (or totally eliminates) ignorance of this phenomenon. „



Different views and approaches to information:

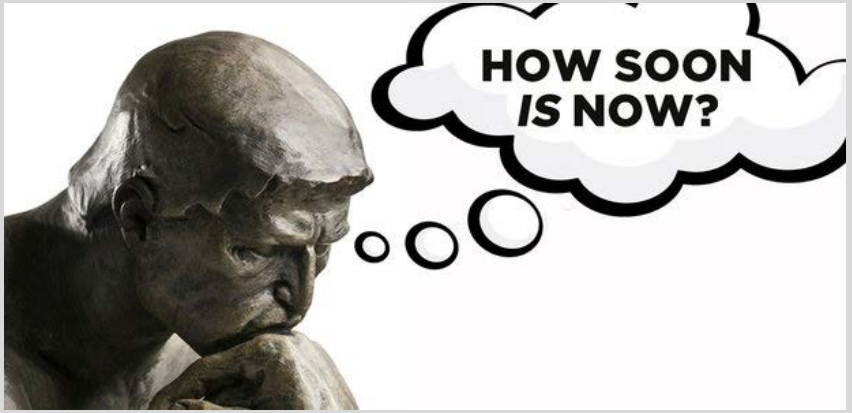
1) <u>„Layman", "everyday" look</u>

- a message, a communicable knowledge
- "Information is a property that removes the a priori ignorance of the recipient"
  (Shannon, 1949)

Definition of information

2) Philosophical concept of information

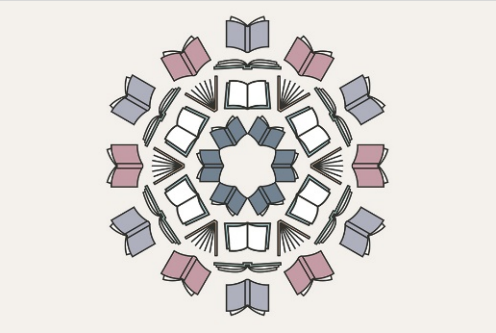
- The property of the material reality to be arranged and its ability to organize (the form of existence of matter beside space, time and movement)
- Perceptible content of a recognized or anticipated image a reality that can be used for human life
- Potentially Communicable Knowledge of Objective Reality
- The information represents the degree of arrangement of the systems as opposed to entropy, ie disorder rate

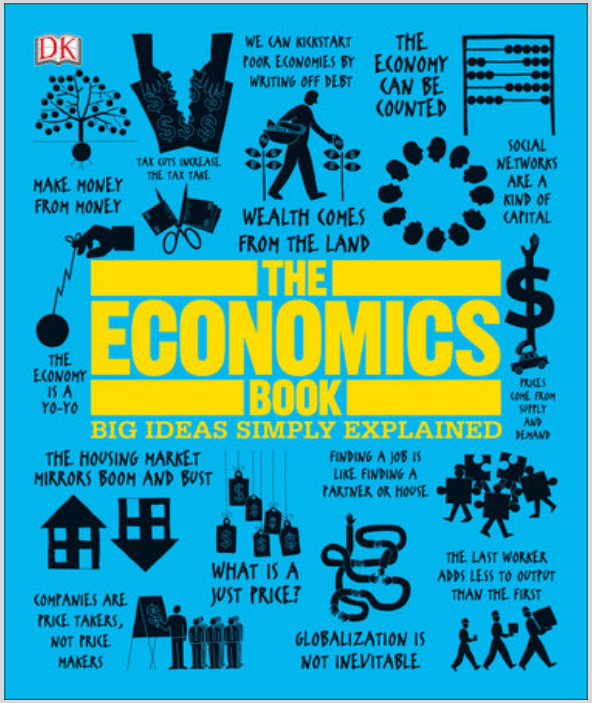


Definition of information

3) Information science, librarianship, biology and economics

- "Information is what results from careful analysis, processing and presenting data in a form that will be suitable for decision process. "(Long, 1989)
- The concept of information as a psychophysiological phenomenon and process, that is as part of human consciousness (memory, genetics)
- In economic science, information is understood to mean a message resulting in can be profit or benefit
- "Information is meaning attributed to data" (ČSN 36 9001, 1972)

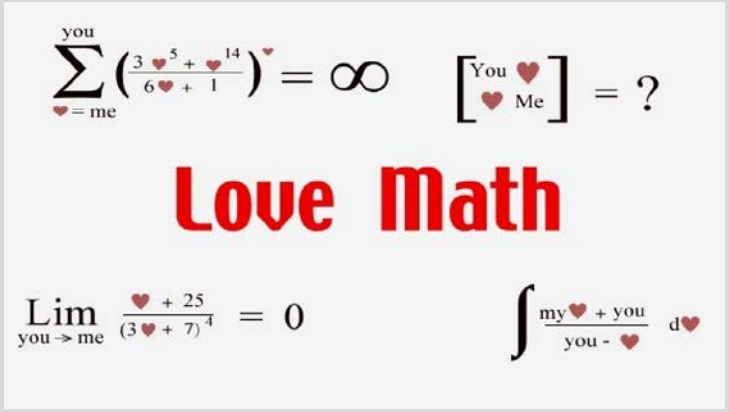




Definition of information

4) Mathematical approach to information

- An energy quantity whose value is proportional to a reduction in entropy system
- "The statistical probability of a particular signal or character that is on entry of a particular system. „ (Shannon)
- A note that restricts or removes uncertainty about
- occurrence of a certain phenomenon from a given set of possible phenomena
- Content of a message that is defined as a negative binary logarithm its probability



Definition of information

5) Cybernetic access to information

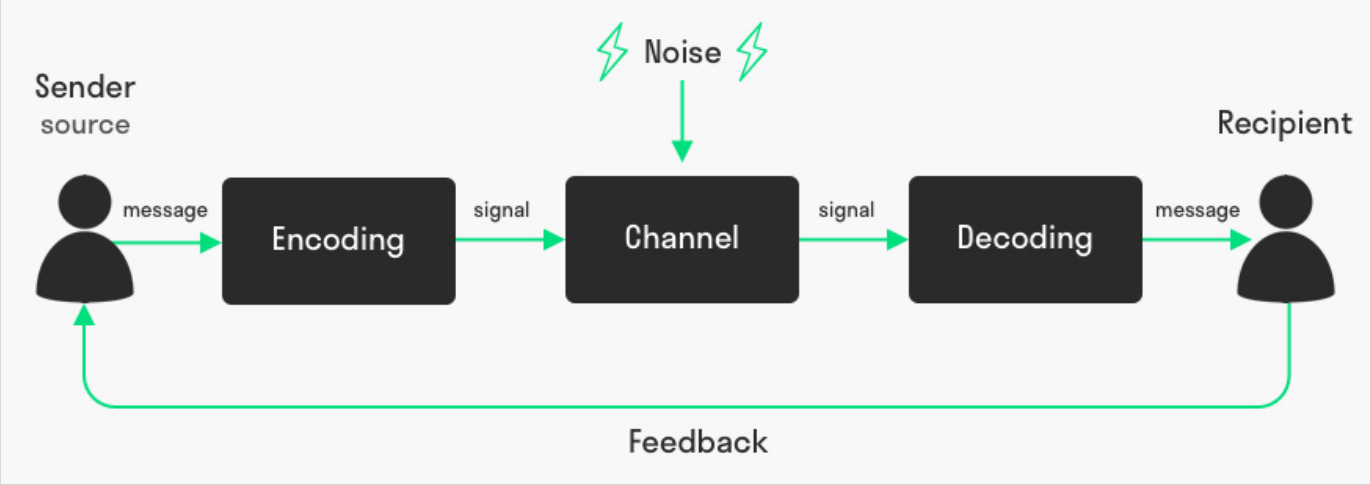
- Information is drawing news or content from the outside world, that is "The content of what will be exchanged with the outside world when you adapt and adapt to it by adapting it "(Weiner, 1954)
- The part of the knowledge used for orientation, active activity, to the management - in order to maintain the qualitative specificity of the system to improve and develop this system

Definition of information

6) **Communication conception of information**

- The content of the process of human communication, surrender and acceptance notifications, their transmission by personal contact, sound, signal and means of mass communication
- Communication model (Shannon, Weiner)

Elements of the communication process:

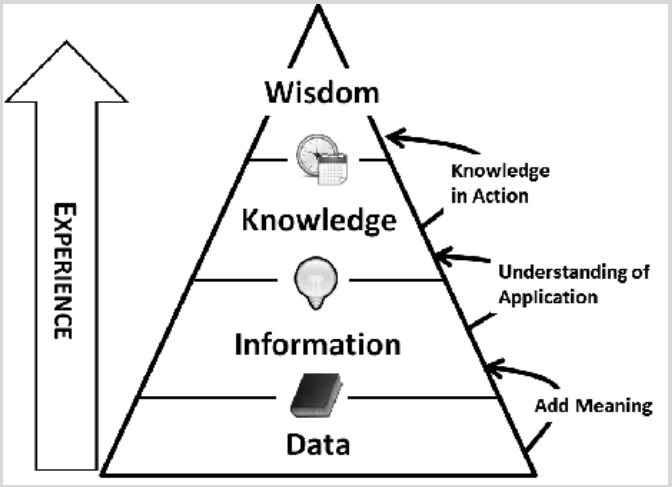


Shannon, Weiner in Kotler (2001)

Data, information and knowledge

Data are facts, events, news, and other claims that occurrecord and store. They are raw inputs from which they areproduce information.

- Data on social conditions of business (micro, macro environment, STEP)
- Market data (bid, demand, competition, alliances)
- Internal data (business, financial prediction, standards)



Information is, on the contrary, data processed in such a way, to be useful to their recipients (the addressee) (Lucey, 1995). "

Knowledge is, on the contrary, what an individual owns (knows) after acquiring the data and information and their integration into the context - what I "know".

Process-Oriented Concepts

Process-Oriented Concepts can be characterized as a partial enterprise strategy that, on the basis of IS / ICT interconnection and business processes, effectively enable the organization's strategic goals to be met.

We distinguish:

- **1) ERP Concept** = close interconnection of IS and internal processes management (owner organization), external process management (co-owned customers and suppliers) ☞implemented via an ERP system (integrated internal control applications processes)

- **2) CRM concept** = close interconnection of IS and management of external processes (co-owner customers) ☞implemented by a CRM system (integrated contact management applications, marketing, business and service processes)

- **3) SCM concept** = close interconnection of the IS and management of external processes (co-owner suppliers / customers) ☞implemented by SCM system (integrated enterprise supply chain management and its components)

1) ERP Concept

ERP system (Enterprise Resource Planning) is when a single database is utilized and contains all data for various software modules. These software modules can include:

- **Manufacturing:** Some of the functions include; engineering, capacity, workflow management, quality control, bills of material, manufacturing process, etc.
- **Financials:** Accounts payable, accounts receivable, fixed assets, general ledger and cash management, etc.
- **Human Resources:** Benefits, training, payroll, time and attendance, etc
- **Supply Chain Management:** Inventory, supply chain planning, supplier scheduling, claim processing, order entry, purchasing, etc.
- **Projects:** Costing, billing, activity management, time and expense, etc.
- **Customer relationship management (CRM)**
- **Data Warehouse**

2) CRM concept

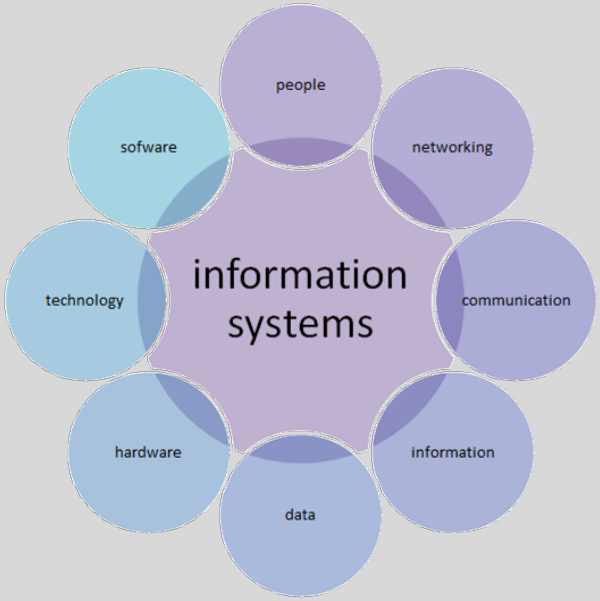
CRM is a term applied to processes implemented by a company to handle its contact with its customers. CRM software is used to support these processes, storing information on current and prospective customers. Information in the system can be accessed and entered by employees in different departments, such as sales, marketing, customer service, training, professional development, performance management, human resource development, and compensation. appropriate motivations for employees to learn, provide input, and take full advantage of the information systems.

3) SCM concept

Supply chain management (SCM) is the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the supply chain firms to develop and run supply chains in the most effective & efficient ways possible. Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities.

The Information System (IS) can be understood as ***a system of interconnected information and the processes that work with this information.*** It is a whole consisting of ***hardware*** and ***software*** in which ***people perform processes*** (activities) for the purpose of collecting, transmitting, maintenance, processing and provision of information.

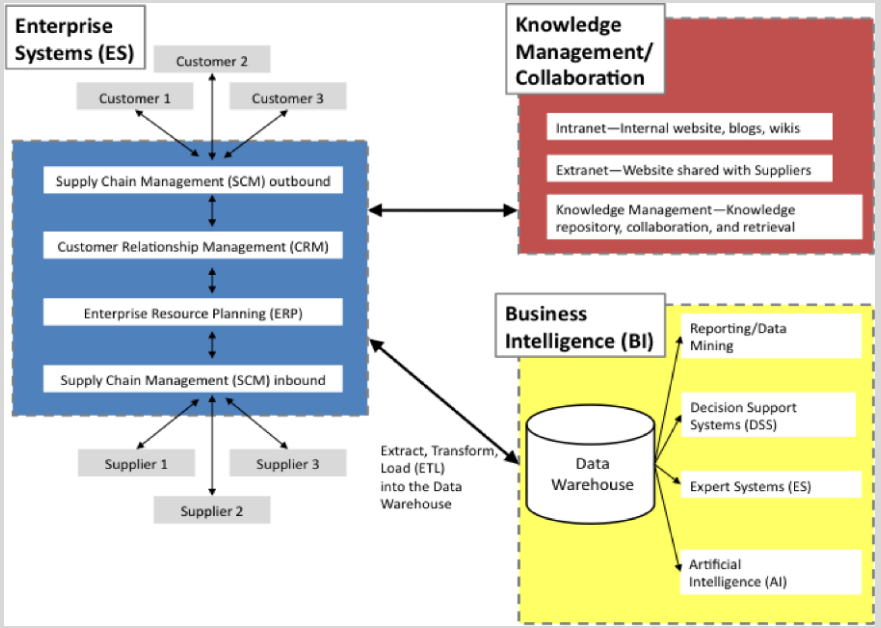
- In general, the system is a complex of elements interconnected by information links.
- The information system can provide data to help managers do it decisions and implement their managerial functions (Mallya, 2007). information system is a system that contains extensive data on all transactions occurring in an enterprise. The information
- Land (Cope, Horan, Garner, 1997) understands the information system as a social system.



Architecture of Information Systems

Architecture is the design of an information system structure, capable of capturing the necessary
part of the reality of our world and satisfying the given functional, informative, qualitative and economic demands, both now and in the foreseeable future.

- The core of IS = ERP (Enterprise Resource Planning) ... a combination of financial and logistical tasks. ERP is the integration of in-house areas (manufacturing, logistics, finance and management human resources)
- = design of a real world model to capture the most accurate information about clients, products, sales, sellers, employees ...).



Architecture of Information Systems

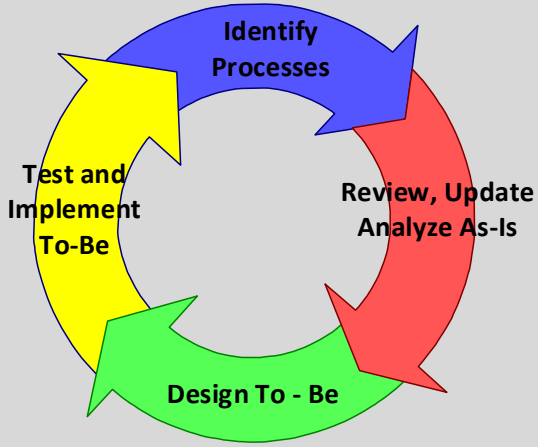
Three views of IS architecture:

- **The management perspective** addresses the question: "Which level of management is relevant layer of architecture designed? "(operational IS - TPS layer, tactical management – layer MIS, Strategic Management - EIS, other layers regardless of level management).
- **The technology view** (warehouse layer) defines the types of information used technologies and data-processing concepts for the implementation of individual layers.
- **The process view** determines the functions and processes that are the appropriate layer in the company supported and allows classification of information systems by individual layers.

BPR Information System

Reengineering of business processes within the IS includes dimensions:

- ***Business***, where each IS / ICT project is understood to be a business case, and the solution is shared by traders who prepare bids and contracts, propose prices, and advise on how financial performance is met in relation to performance.
- ***Technological***, when it comes to deploying and using tools to solve the project and to select technologies and programming the IS.
- ***Process***. It concerns the way of managing the project's progress, the implementation of appropriate techniques and procedures, and the management of its results.



Methods used in BPR

1. **Business Object Architecture (BOA) methods**. In practice, there are a number of business objects that are defined by process diagrams and UML. Business objects are based on process analysis tools.
2. **Methodology using the development lifecycle model.** The life cycle model is a formalized description of activities and activities where relationships are defined between them and a time sequence of their fulfillment is given.
3. **Methodology using Object-Oriented Analysis (OOA).** The goal of OOAD-based methods is to apply object-based approaches and solutions to all processes from analysis to design. An example of this methodology can be object-based behavioral analysis - the Object Behavior Analysis (OBA) method that can be used to create an information system.

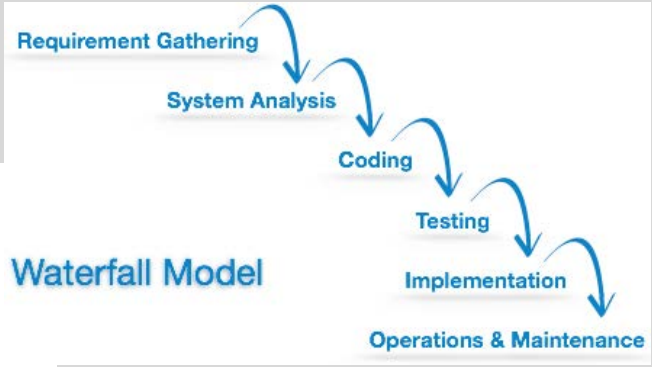
Business Object Architecture (BOA) methods

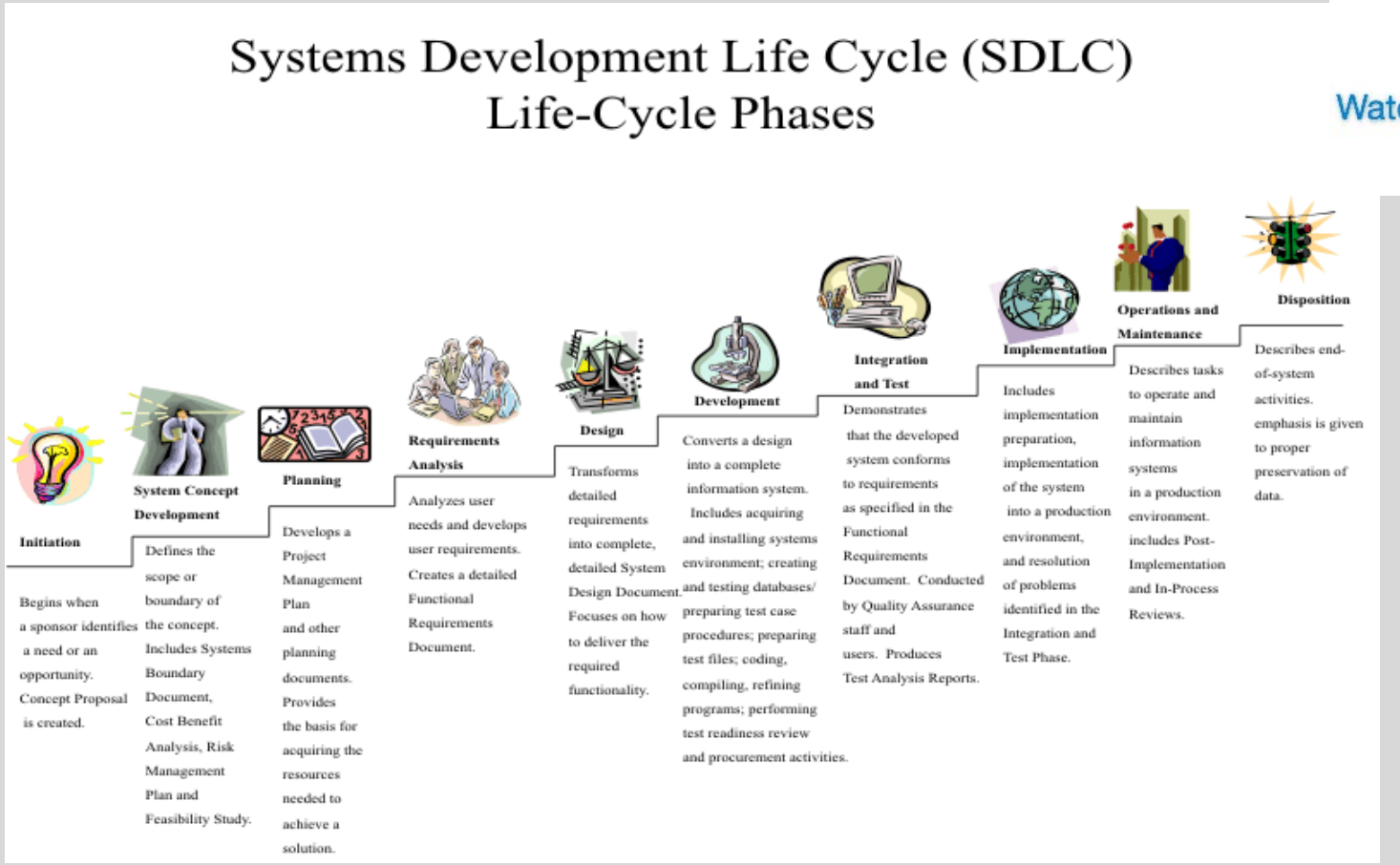
Business object is a representation of a thing active in the business domain, including at least its business name and definition, attributes, behavior, relationships, rules, policies and constraints. A business object may represent, for example, a person, place, event, business process, or concept. Typical examples of business objects are: employee, product, invoice and payment.

The business-object abstraction, which models the real world, is represented by an object in the information system. Each such object in the information system is a component of that information system and must be supported by a technology infrastructure. [Burt 95]

Methodology using the development lifecycle model

The life cycle defines the basic stages and their content, ie the overall view of the process of creation and the existence of the information system.





Methodology using Object-Oriented Analysis

OOA is an iterative stage of analysis, which takes place during the software development life cycle, that aims to model the functional requirements of the software while remaining completely independent of any potential implementation requirements.

OOA phase consists of five stages:

- Find and define the objects.
- Organize the objects.
- Describe how the objects interact with one another.
- Define the external behavior of the objects.
- Define the internal behavior of the objects.

Methodology using Object-Oriented Analysis