which those responsible for managing the organisation conceive its *boundaries*. It is to do with what they want the organisation to be like and to be about.

4. Strategy is to do with the *matching of the activities of an organisation to the environment* in which it operates.

5. Strategy can also be seen as *'stretching' an organisation's resources and competences to create opportunities or capitalise on them*. It is not just about countering environmental threats and taking advantage of environmental opportunities; it is also about matching organisational resources to these threats and opportunities. There would be little point in trying to take advantage of some new opportunity if the resources needed were not available or could not be made available, or if the strategy was rooted in an inadequate resource-base.

6. Strategic decisions therefore often have *major resource implications* for an organisation. In the 1980s a number of UK retail firms had attempted to develop overseas with little success and one of the major reasons was that they had underestimated the extent to which their resource commitments would rise and how the need to control them would take on quite different proportions. Strategies, thus, need to be considered not only in terms of the extent to which the existing resource base of the organisation is suited to the environmental opportunities but also in terms of the extent to which resources can be obtained and controlled to develop a strategy for the future.

7. Strategic decisions are therefore likely to *affect operational decisions*, to 'set off waves of lesser decisions'.

8. The strategy of an organisation will be affected not only by environmental forces and resource availability, but also by the *values and expectations* of those who have *power* in and around the organisation. In some respects, strategy can be thought of as a reflection of the attitudes and beliefs of those who have the most influence on the organisation. Whether a company is expansionist or more concerned with consolidation, and where the boundaries are drawn for a company's activities, may say much about the values and attitudes of those who influence strategy -- the *stakeholders* of the organisation. The beliefs and values of these stakeholders will

5. Operational Decisions. These are short-term decisions (also called administrative decisions) about how to implement the tactics e.g. which firm to use to make deliveries.

LEVELS OF DECISION MAKING PROCESS

Identifying Problems

Before making any decision, the organization has to identify exactly what the problem is. Not identifying the problem could lead to an erroneous decision. The leader of an organization should evaluate the issue with all employees so everyone knows about it, and then make a decision that taps into what's worked before if that decision process is right for solving the issue. This form of decision-making can be made into a computer program with a set pattern of rules to follow in amending a problem.

Multiple Perspective Analysis

Sometimes using multiple perspective analysis to make a decision is best so a CEO or manager can force herself out of her usual method of thinking. Professor HosseinArsham, in an article titled "Leadership Decision Making" at the University of Baltimore site, notes this method and its steps. By wearing six different hats," you can make a decision using different thinking approaches. For instance, a red hat uses reaction and emotion, or being aware of how other people will react when the decision is made. A green hat will use freewheeling creativity in making a decision. The article also notes that a decision can be made using differing points of view from customers or those in different professions.

Short-Term Decisions Method

Another decision method is the short-term method, or operational decisions. These decisions usually solve a problem in the immediate term through the action of employees. The method to this involves practical steps for a quicker outcome. For example, it could be choosing a particular delivery service to deliver products to the organization's customers.

availability is a telephone directory, as every home has one for its local area. It is probably the first place you look for a local number. But nobody keeps the whole country's telephone books so for numbers further afield you probably phone a directory enquiry number. For business premises, say for a hotel in London, you would probably use the Internet.

- Businesses used to keep customer details on a card-index system at the customer's branch. If the customer visited a different branch a telephone call would be needed to check details. Now, with centralized computer systems, businesses like banks and building societies can access any customer's data from any branch.

Accuracy

- Information needs to be accurate enough for the use to which it is going to be put. To obtain information that is 100% accurate is usually unrealistic as it is likely to be too expensive to produce on time. The degree of accuracy depends upon the circumstances. At operational levels information may need to be accurate to the nearest penny – on a supermarket till receipt for example. At tactical level department heads may see weekly summaries rounded to the nearest £100, whereas at strategic level directors may look at comparing stores' performances over several months to the nearest £100,000 per month.
- Accuracy is important. As an example, if government statistics based on the last census wrongly show an increase in births within an area, plans may be made to build schools and construction companies may invest in new housing developments. In these cases any investment may not be recouped.

Reliability or objectivity

- Reliability deals with the truth of information or the objectivity with which it is presented. You can only really use information confidently if you are sure of its reliability and objectivity. When researching for an essay in any subject, we might make straight for the library to find a suitable book. We are reasonably confident that the information found in a book, especially one that the library has purchased, is reliable and (in the case of factual information) objective. The book has been written and the author's

2. Transaction Processing Systems

A **transaction processing system (TPS)** is an information system that captures and processes data generated during an organization's day-to-day transactions. A transaction is a business activity such as a deposit, payment, order or reservation.

Clerical staff typically performs the activities associated with transaction processing, which include the following:

1. Recording a business activity such as a student's registration, a customer's order, an employee's timecard or a client's payment.

2. Confirming an action or triggering a response, such as printing a student's schedule, sending a thank-you note to a customer, generating an employee's paycheck or issuing a receipt to a client.

3. Maintaining data, which involves adding new data, changing existing data, or removing unwanted data.

Transaction processing systems were among the first computerized systems developed to process business data – a function originally called **data processing**. Usually, the TPS computerized an existing manual system to allow for faster processing, reduced clerical costs and improved customer service.

The first transaction processing systems usually used batch processing. With batch processing, transaction data is collected over a period of time and all transactions are processed later, as a group. As computers became more powerful, system developers built online transaction processing systems. With **online transaction processing (OLTP)** the computer processes transactions as they are entered. When you register for classes, your school probably uses OLTP. The registration administrative assistant enters your desired schedule and the computer immediately prints your statement of classes.

population trends, and costs of new housing construction or raw material pricing. Users of a DSS, often managers, can manipulate the data used in the DSS to help with decisions.

Some decision support systems include query language, statistical analysis capabilities, spreadsheets and graphics that help you extract data and evaluate the results. Some decision support systems also include capabilities that allow you to create a model of the factors affecting a decision. A simple model for determining the best product price, for example, would include factors for the expected sales volume at each price level. With the model, you can ask what-if questions by changing one or more of the factors and viewing the projected results. Many people use application software packages to perform DSS functions. Using spreadsheet software, for example, you can complete simple modeling tasks or what-if scenarios.

A special type of DSS, called an **executive information system (EIS)**, is designed to support the information needs of executive management. Information in an EIS is presented in charts and tables that show trends, ratios, and other managerial statistics. Because executives usually focus on strategic issues, EISs rely on external data sources such as the Dow Jones News/Retrieval service or the Internet. These external data sources can provide current information on interest rates, commodity prices, and other leading economic indicators.

To store all the necessary decision-making data, DSSs or EISs often use extremely large databases, called data warehouses. A **data warehouse** stores and manages the data required to analyze historical and current business circumstances.

5. Expert Systems

An **expert system**is an information system that captures and stores the knowledge of human experts and then imitates human reasoning and decision-making processes for those who have less expertise. Expert systems are composed of two main components: a

A **learning organization** is the term given to a company that facilitates the learning of its members and continuously transforms itself. Learning organizations develop as a result of the pressures facing modern organizations and enables them to remain competitive in the business environment. A learning organization has five main features; systems thinking, personal mastery, mental models, shared vision and team learning. The **Learning organization** concept was coined through the work and research of Peter Senge and his colleagues (Senge, 1994). It encourages organizations to shift to a more interconnected way of thinking. Organizations should become more like communities that employees can feel a commitment to. They will work harder for an organization they are committed to.

Development

Organizations do not organically develop into learning organizations; there are factors prompting their change. As organizations grow, they lose their capacity to learn as company structures and individual thinking becomes rigid. When problems arise, the proposed solutions often turn out to be only short term (single loop learning) and re-emerge in the future. To remain competitive, many organizations have restructured, with fewer people in the company. This means those who remain need to work more effectively. To create a competitive advantage, companies need to learn faster than their competitors and to develop a customer responsive culture. Argyris identified that organizations need to maintain knowledge about new products and processes, understand what is happening in the outside environment and produce creative solutions using the knowledge and skills of all within the organization. This requires co-operation between individuals and groups, free and reliable communication, and a culture of trust.

Characteristics

There is a multitude of definitions of a learning organization as well as their typologies. According to Peter Senge, a learning organization exhibits five main characteristics: systems thinking, personal mastery, mental models, a shared vision, and team learning.

Systems thinking. The idea of the learning organization developed from a body of work called systems thinking. This is a conceptual framework that allows people to study businesses as bounded objects. Learning organizations use this method of thinking when assessing their company and have information systems that measure the performance of the organization as a whole and of its various components. Systems thinking state that all the characteristics must be apparent at once in an organization for it to be a learning organization. If some of these characteristics are missing then the organization will fall short of its goal. However O'Keeffe believes that the characteristics of a learning organization are factors that are gradually acquired, rather than developed simultaneously.

structures, allowing creation, acquisition, dissemination, and implementation of this knowledge in the organization.

Benefits

The main benefits are;

- Maintaining levels of innovation and remaining competitive
- Being better placed to respond to external pressures
- Having the knowledge to better link resources to customer needs
- Improving quality of outputs at all levels
- Improving Corporate image by becoming more people oriented
- Increasing the pace of change within the organization

What is Decision Support System?

A decision support system (DSS) is an interactive computer-based information system that, like MIS also serves at the management level of an organization. However, in contrast to MIS (that processes data), it processes information to support the decision making process of managers. It provides middle managers with the information that enables them to make intelligent decisions. A DSS in bank, for example, can enable a manager to analyze the changing trends in deposits and loans in order to ascertain the yearly targets.

DSS's are designed for every manager to execute a specific managerial task or problem. Generally, they help managers to make semi-structured decisions, the solution to which can be arrived at logically. However, sometimes, they can also help in taking complex decisions.

A decision support system is an interactive computer based system that serves decision making needs of managers. It provides managers with the information that enables them to make both semi-structured and unstructured decisions. A DSS employs various analytical models to perform low-level analysis of data and produce information.

A manager can apply his knowledge to the system generated information and get a more clear view of the problem. The use of decision support systems usually increases the manager's ability to make correct and balanced decisions.

A Decision support system possesses an interactive interface which makes it easier to use and provides real-time response to user queries. The use of various DSS tools helps in each stage of the decision making process that includes viewing a complex problem, designing the model to analyze the problem, developing alternatives to get a solution, and choosing a solution from the

The Nominal Technique is very similar to Brainstorming but is considered to be more effective. This may be due to highly structured procedures employed for generating and analyzing various ideas and alternatives. It may be physically domination is avoided.

The process is similar to a traditional committee meeting expect that the members operate independently, generating ideas for solving the problem in silence and in writing. The group leader or the coordinator either collects these written ideas or writes them on a large blackboard as he received it. These are then discussed one by one, in turn, and each participant is encouraged to comment on these ideas for the purpose of clarification.

After all ideas are discussed and clarified, they are evaluated for their merits and drawbacks and each participating member is required to vote on each idea and assign it a rank on the basis of priority of each alternative solution. The idea with the highest aggregate ranking creates an atmosphere of creativity because participants often work hard to generate ideas in the presence of others.

Fish-bowling

Fish-bowling is another variation of the brainstorming but is more structured and is to the point. In this technique, the decision-making group of experts is seated around a circle with a single chair in the center of the circle. One member of the group or the group leader is invited to sit in the center chair and give his view about the problem and his proposition of a solution.

The other group members can ask him questions but there is no irrelevant discussion or cross talk. Once the member in the center chair has finished talking and his viewpoint is fully understood, he leaves the center and joins the group in the circle. Then the second member is called upon to sit in the center chair and give his views in the light of the views expressed earlier.

The members can ask questions to the center based upon the new ideas presented by the member. In the center as well as the ideas discussed by previous center members continuous until the chair is vacated. All exchanges must be between the center and the group and no two group members are allowed to talk directly.

This technique results in each member favoring a particular course of action, since all members are acting upon the database and also since each idea offered by the central members has been thoroughly questioned and examined. After all experts have expressed their views, the entire groups discuss the various alternatives suggested and pick the one with consensus.

Didactic Interaction

Didactic interaction is applicable only in certain situations, but is an excellent method when such a situation. For example, the decision may be to buy or not to buy, to situation requires an

In statistics there can be models of mental events as well as models of physical events. For example, a statistical model of customer behavior is a model that is conceptual, (because behavior is physical) but a statistical model of customer satisfaction is a model of a concept (because satisfaction is a mental not a physical event).

Social and political models

Economic models

In economics, a model is a theoretical construct that represents economic processes by a set of variables and a set of logical and/or quantitative relationships between them. The economic model is a simplified framework designed to illustrate complex processes, often but not always using mathematical techniques. Frequently, economic models use structural parameters. Structural parameters are underlying parameters in a model or class of models. A model may have various parameters and those parameters may change to create various properties.

Models in systems architecture

A system model is the conceptual model that describes and represents the structure, behavior, and more views of a system. A system model can represent multiple views of a system by using two different approaches. The first one is the non-architectural approach and the second one is the architectural approach. The non-architectural approach respectively picks a model for each view. The architectural approach, also known as system architecture, instead of picking many heterogeneous and unrelated models, will use only one integrated architectural model.

Models in information system design

Conceptual models of human activity systems

Conceptual models of human activity systems are used in Soft systems methodology (SSM) which is a method of systems analysis concerned with the structuring of problems in management. These models are models of concepts; the authors specifically state that they are not intended to represent a state of affairs in the physical world. They are also used in Information Requirements Analysis (IRA) which is a variant of SSM developed for information system design and software engineering.

Logico-linguistic models

Logico-linguistic modeling is another variant of SSM that uses conceptual models. However, this method combines models of concepts with models of putative real world objects and events. It is a graphical representation of modal logic in which modal operators are used to distinguish statement about concepts from statements about real world objects and events.

Data models

Entity-relationship model

In software engineering, an entity-relationship model (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion. Diagrams created by this process are called entity-relationship diagrams, ER diagrams, or ERDs.

Entity-relationship models have had wide application in the building of information systems intended to support activities involving objects and events in the real world. In these cases they are models that are conceptual. However, this modeling method can be used to build computer games or a family tree of the Greek Gods, in these cases it would be used to model concepts.

Domain model

A domain model is a type of conceptual model used to depict the structural elements and their conceptual constraints within a domain of interest (sometimes called the problem domain). A domain model includes the various entities, their attributes and relationships, plus the constraints governing the conceptual integrity of the structural model elements comprising that problem domain. A domain model may also include a number of conceptual views, where each view is pertinent to a particular subject area of the domain or to a particular subset of the domain model which is of interest to a stakeholder of the domain model.

The **user interface**, in the industrial design field of human–machine interaction, is the space where interaction between humans and machines occurs. The goal of this interaction is effective operation and control of the machine on the user's end, and feedback from the machine, which aids the operator in making operational decisions. Examples of this broad concept of user interfaces include the interactive aspects of computer operating systems, hand tools, heavy machinery operator controls, and process controls. The design considerations applicable when creating user interfaces are related to or involve such disciplines as ergonomics and psychology.

A user interface is the system by which people (users) interact with a machine. The user interface includes hardware (physical) and software (logical) components. User interfaces exist for various systems, and provide a means of:

- Input, allowing the users to manipulate a system
- Output, allowing the system to indicate the effects of the users' manipulation

Generally, the goal of human-machine interaction engineering is to produce a user interface which makes it easy (self exploratory), efficient, and enjoyable (user friendly) to operate a

machine in the way which produces the desired result. This generally means that the operator needs to provide minimal input to achieve the desired output, and also that the machine minimizes undesired outputs to the human.

With the increased use of personal computers and the relative decline in societal awareness of heavy machinery, the term user interface is generally assumed to mean the graphical user interface, while industrial control panel and machinery control design discussions more commonly refer to human-machine interfaces.

Other terms for user interface include **human–computer interface** (**HCI**) and **man–machine interface** (**MMI**).