

CATEGORIZATION OF SOFTWARE PROJECTS

The Categories are

- Compulsory versus voluntary users
- Information System versus Embedded Systems
- Outsources Projects
- Objective-driven development

Information system interfaces with the organization whereas an embedded system interfaces with a machine. Typical example for an information system can be inventory system maintained by an organization. An embedded system or an industrial system can be a process control system such as maintaining air conditioning equipment in a company.

Projects are also defined by producing a product or meeting the objectives. A project that produces the product must meet all kinds of client requirements. The produced product must be justified by the client. The project is also required to satisfy certain objectives. The objectives can guide and motivate individual or groups to perform well in their assigned tasks.

In general, software projects have an objective-driven stage that recommends the new system to meet identified requirements and a project-driven stage to actually develop the product.

SETTING OBJECTIVES

To develop a successful project, the project manager and the team members must be aware of the factors that lead them to success. There must be well-defined objectives accepted by all the people involved in the development process. A project authority must be identified to have an overall authority over the project. This authority is governed by a project steering committee also called as a project management board. Day-to-day activities must be reported to the steering committee by the project manager at regular intervals. Any changes to the defined objectives can be done only by the steering committee.

An effective objective's scope for an individual must be within the individual's control. Objectives can be broken down into goals or sub-objectives in order to achieve them. **SMART** technique is used for a well-defined objective.

- **Specific** ; Concrete and well-defined; Up to the point.
- **Measurable** : measures of effectiveness.
- **Achievable** ; power within the individual or the group.
- **Relevant** : satisfy the purpose of the project.
- **Time-oriented** : time limit for successful achievement of the project.

The objectives are met only when the system becomes operational. Performance measures deals the reliability of the operational system and predictive measures are done during the development of the project by measuring the effectiveness of the developing system.

MANAGEMENT PRINCIPLES

Division of Work - According to this principle the whole work is divided into small tasks. The specialization of the workforce according to the skills of a person , creating specific personal and professional development within the labor force and therefore increasing productivity; leads to specialization which increases the efficiency of labor.

- **Authority and Responsibility** - This is the issue of commands followed by responsibility for their consequences. Authority means the right of a superior to give enhance order to his subordinates; responsibility means obligation for performance.
- **Discipline** - It is obedience, proper conduct in relation to others, respect of authority, etc. It is essential for the smooth functioning of all organizations.
- **Unity of Command** - This principle states that each subordinate should receive orders and be accountable to one and only one superior. If an employee receives orders from more than one superior, it is likely to create confusion and conflict.
- **Unity of Direction** - All related activities should be put under one group, there should be one plan of action for them, and they should be under the control of one manager.
- **Subordination of Individual Interest to Mutual Interest** - The management must put aside personal considerations and put company objectives firstly. Therefore the interests of goals of the organization must prevail over the personal interests of individuals.
- **Remuneration** - Workers must be paid sufficiently as this is a chief motivation of employees and therefore greatly influences productivity. The quantum and methods of

remuneration payable should be fair, reasonable and rewarding of effort.

- **The Degree of Centralization** - The amount of power wielded with the central management depends on company size. Centralization implies the concentration of decision making authority at the top management.

- **Line of Authority/Scalar Chain** - This refers to the chain of superiors ranging from top management to the lowest rank. The principle suggests that there should be a clear line of authority from top to bottom linking all managers at all levels.

Order - Social order ensures the fluid operation of a company through authoritative procedure. Material order ensures safety and efficiency in the workplace. Orders should be acceptable and under the rules of the company.

- **Equity** - Employees must be treated kindly, and justice must be enacted to ensure a just workplace. Managers should be fair and impartial when dealing with employees, giving equal attention towards all employees.

- **Stability of Tenure of Personnel** - Stability of tenure of personnel is a principle stating that in order for an organization to run smoothly, personnel (especially managerial personnel) must not frequently enter and exit the organization.

- **Initiative** - Using the initiative of employees can add strength and new ideas to an organization. Initiative on the part of employees is a source of strength for organization because it provides new and better ideas. Employees are likely to take greater interest in the functioning of the organization.

Esprit de Corps/Team Spirit - This refers to the need of managers to ensure and develop morale in the workplace; individually and communally. Team spirit helps develop an atmosphere of mutual trust and understanding. Team spirit helps to finish the task on time

MANAGEMENT CONTROL

The following are common types of management control.

- Structures. Organizational structures such as authority, roles, accountability, responsibility and separation of concerns.
- Objectives
- Performance Management.

- Task Assignment
- Setting Expectations
- Supervision.
- Measurements
- Monitoring

