

1. Software project management is the art and science of planning and leading software projects. It is a sub-discipline of project management in which software projects are planned, implemented, monitored and controlled.

2. Software quality metrics are subset of software metrics that focus on the quality aspects of the product process and project. In general software quality metrics are closely associated with process and product metrics than project metrics.

3. Scrum is an efficient framework within which you can develop software with teamwork. It is based on agile principles. Scrum supports continuous collaboration among the customer, team members, and relevant stakeholders.

4. Answering the question

"What do we have to do to have a success?"

Need for a project authority

\*Sets the project scope

**Objectives** Informally, the objective of a project can be defined by completing the statement: The project will be regarded as a success if ... Rather like post-conditions for the project focus on what will be put in place, rather than how activities will be carried out.

5. Monitoring is the systematic process of collecting, analyzing and using information to track a programme's progress toward reaching its objectives and to guide management decisions. Monitoring usually focuses on processes, such as when and where activities occur, who delivers them and how many people or entities they reach.

6. The Monte Carlo method is a numerical method for statistical simulation which utilizes sequences of random numbers to perform the simulation.

7. Once data has been collected about project progress, a manager needs some way of presenting that data to greatest

effect. Some of these methods such as Gantt charts provide a static picture, a single snapshot, whereas others such as time line charts try to show how the project has progressed and changed over time.

8. Earned Value Analysis (EVA) is an industry standard method of measuring a project's progress at any given point in time.

and budget as the project proceeds.

9. A virtual team (also known as a geographically dispersed team, distributed team, or remote team) is a group of individuals who work across time, space links strengthened by webs of communication technology

10. Project software management is a collection of techniques used to develop and deliver various

Types of software products

\*It's important to the company's success to invest time into the project

11. a. The dictionary definitions put a clear emphasis on the project being a planned activity. The other definitions include

- A specific plan or design - A planned undertaking - A large undertaking

The project has a predetermined time span

- Work is carried out for someone other than yourself - Work involves several specialism

- People are formed into temporary work group

- Work is carried out in several phases

- Resources available are constrained

- The project is large and complex.

12. b. Resource allocation in software development is important and many

methods have been proposed. Related empirical research is yet scarce and

evidence is required to validate the theoretical methods.

the staffing pattern has significant effect on software quality (post-release defect

density the effort invested on test, document or code inspection possibly explains the effect of staffing pattern on software quality; the effort consumed by rework perhaps counteracts the effect of other potential factors on productivity. Preliminary heuristics are suggested to resource allocation practices. We name these as staffing patterns as follows: (1) Rapid-team-buildup pattern (abbreviated Rapid for later reference). The staffing levels peak in requirement phase, and decrease in later phases. This might mean the culture of excessive documentation or design, leading to low ability to respond rapidly for requirement change. Another possible reason would be to outsource part of the system to other organization for design and development. In both situations, we suppose the

software quality and productivity are low. (2) Fix-staff pattern (abbreviated

Fix). The team size is fixed or stable across project lifecycle. It is likely that the same team has done all work. Due to sufficient learning time and

communication within the team, we assumed that high software quality will be yielded as a result. It is hard to assess its productivity: perhaps peoples work efficiently due to effective communication, perhaps this effect cannot counteract against the excessive human resources investment in a prolonged duration. (3)

Design-construction-centric pattern (abbreviated Design).

The staffing levels are high in design and construction phases, and low in other phases. The reason for low staffing level in requirement and test phases may be indifference to them, or

mature/simple product. The software quality and productivity might be low for the former possibility, and high for the latter. (4)

Implementation-centric pattern

(abbreviated Implement). The staffing levels are high in construction and test

phases, and low in other phases. The reason for low staffing level in requirement

early phases, but increase in test and transition phases. The increasing level in

test phase may be the result of intensive testing by a special team (in-house or

outsourcing), or fire-fighting for too many bugs. The software quality may be high,

because the staffing level in early phases is also stable and the situation is the

same as Fix-staff pattern. Moreover, it is possible that high.

13. b. Formulating a network model

The first stage in creating a network model is to represent the activities

and their relationships as a graph. In activity-on-node

Constructing precedence networks

A project network should have only one start node. A project network

should have only one end node. A node has duration.

Links normally have no duration.

Precedents are the immediate preceding activities.

Times moves from left to right

A network may not contain loops

Representing lagged activities We might come across situations where we

wished to undertake two activities in parallel so long as there is a lag

between the two. We might wish to document amendments to a program as

it was being tested - particularly if evaluating a prototype.

Where

activities can occur in parallel with a time lag between them we represent

the lag with duration on the linking arrow as shown in

term for a grouping of tasks that "hang"

between two end dates it is tied to. A hammock



activity can group tasks which are not related in the hierarchical sense of a Work Breakdown Structure, or are not related in a logical sense of a task dependency where one task must wait for another.

14. a. A project manager is a person who is responsible for leading the project. In other words, project managers are the spearheads of a project.

They ensure that the project is completed within the specified deadline and gets delivered to the client without any flaws.

Here are three simple steps to help you start monitoring your schedule.

Create a baseline for your project. Click the Project tab, and then click Set Baseline.

Communicate, communicate, communicate. It is not easy for people to send you work status.

Use Team Planner.

15. b. Ethics relates to the moral obligation to respect the rights and interests of others - goes beyond strictly legal responsibilities

Three groups of responsibilities:

There are some who argue that ethical organizational ethics are limited:

\* Stockholder theory (e.g. Milton Friedman). An employee's duty is to the owners of the business (which often means the stakeholders) above all

others - although legal requirements must be met.

\* Competitive relationships between businesses.

Uniform Treatment

One example of organizational ethics is the uniform treatment of all

Some companies hold one-day seminars on various discrimination issues. They then invite outside experts in to discuss these topics. Similarly, small company

managers must also avoid favoring one employee over others. This practice may also lead to lawsuits from disgruntled employees. There are state and federal laws that protect people from unethical environmental practices. Business owners who violate these laws may face stiff penalties. They may also be shut down.

### Financial Ethics

Business owners must run clean operations with respect to finances, investing and expanding their companies. For example, organizations must not bribe state legislators for tax credits or special privileges.

Insider trading is also prohibited. Insider trading is when managers or executives illegally apprise investors or outside parties of privileged information affecting publicly traded stocks, according to the Securities

and Exchange Commission. The information helps some investors achieve greater returns on their investments at the expense of others.

### Executives

in small companies must strive to help all shareholders earn better returns

on their money. They must also avoid collusive arrangements with other companies to deliberately harm other competitors.

### Considerations

A small company's organizational ethics can also include taking care of employees with mental illnesses or substance abuse problems, such as drug and alcohol dependency. Ethical business owners help their employees overcome these types of problems when possible. They often put them through employee advisor programs, which involves getting them the

treatment they need. Employees may have issues that lead to these types of problems. Therefore, they deserve a chance to explain their situations and get the help they need

### Professional ethics

Professionals have knowledge about the technical domain that the general public does not. Ethical duty of the expert to warn lay people of the risks involved in a particular course of action. Many professions, or would be professions, have codes of conduct for their members.

16. a. It's a well-known fact that an organization (company, business or non-profit) is a complex system which is primarily designed to add value to all stakeholders: employers, legal owners, staff, customers, business partners, authorities, etc.

Any organization uses a management system to determine the needs of each stakeholder, to transform these needs into internal requirements, to provide the resources needed to meet all the requirements and to review the performances.

See picture below

There are many definitions for the Management System of an organization. Here are two examples:

"A management system is the framework of processes and procedures used to ensure that an organization can fulfill all tasks required to achieve its objectives." / [wikipedia.org](https://en.wikipedia.org/wiki/Management_system)