

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

- * Allocates/approves costs
- * Could be one person - or a group
- * Project Board
- * Project Management Board
- * Steering committee.

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, forecasting its completion date and final cost, and analyzing variances in the schedule 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 and

organizational boundaries with 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

*Project management is all about getting things done in the most efficient manner possible.)

*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

Characteristics:

_ Non-routine tasks are involved _ Planning is required
_ Specific objectives are to be met

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. This paper introduces the staffing pattern as a metric of resource distribution among

project phases, and verifies its effect on software quality and productivity using real project data.

The main findings are: (1) there exist different staffing patterns in reality; (2)

the staffing pattern has significant effect on software quality (post-release defect density); (3) the staffing pattern has no significant effect on productivity; (4) the effort invested on test, document or code inspection possibly explains the effect of staffing pattern on software quality; (5) 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 and design phases may be indifference to them, or merely providing coding and testing services in IT outsourcing market. The software quality and productivity would be low for the former possibility, and high for the latter. (5)

Test-centric pattern (abbreviated Test). The staffing levels are relatively low in

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 staffing level in test or transition phase detects and removes more defects before delivery. Similar to Fix-staff pattern, its productivity is hard to be determined.

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 we do this by representing activities as nodes in the graph-the lines between nodes

represent dependencies.

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.

Time 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 Figure 6.13. This indicates that documenting amendments can start one day after the start of prototype testing and will be completed two days after prototype testing is completed. Hammock activities A hammock activity (also hammock task) is a schedule or project planning 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.

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:

- * Responsibilities that everyone has
- * Responsibilities that people in organizations have
- * Responsibilities relating to your profession or calling

Organizational

ethics

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.

qual chances for promotions. One way to promote uniform
treatment in organizations is through sensitivity training.

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.

The owner must also maintain certain safety standards for
protecting nearby residents from leaks that affect the water
or air quality.

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.

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

Insider trading is when managers or 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:

Therefore, to have a management system, each organization should clearly define its own activities and internal processes, and these internal processes must be continuously improved, based on the analysis of the results.

We can define the term "quality" in many ways, but the ISO family of standards gives a very concise definition: "quality - the degree to which a set of inherent characteristics fulfils

Note: At this time, the ISO 9000 and ISO 9001 standards are under revision.

This definition gives a general sense of "quality", but we can watch at The Chartered Quality Institute (thecqi.org) which gives the following definition: "an outcome - a characteristic of a product or service provided to a customer, and the

hallmark of an organization which has satisfied all of its stakeholders."

So, we must consider the customer and the degree to which the product or service meets the needs of all stakeholders. We can say about the quality of a product or service that this is "poor", or "good" or "excellent", but this must be in accordance with something, we must have a reference to give such a description.

Nowadays, all organizations have to face some challenges in their business environment: the economic crisis, globalization, as well as the competition in its market. Moreover, the increase in technology and especially in IT, requires new actions. For example, it is well known that the e-commerce has opened new doors in business, which means an increased competitive environment. And if we consider the area of social

media, we realize that organizations that do not meet the "quality" of products or services have no chance to stay on the market. The conclusion is that "Quality" is very important for every business!

What might or could a company do to provide quality products or services?

This is such a great subject! We could talk days and days about it! But in this article I will touch only a part of it, namely the one that relates to the Quality Management System.

What is a Quality Management System?

Returning to ISO 9000:2005, we can find this definition: "management system to direct and control an organization with regard to quality".

In other words, a Quality Management System is "a set of interrelated or interacting processes used to guide and lead

an organization so that its products or services meet the established requirements".

Specifically, the Quality Management System focuses on the processes of the organization, customer and continuous improvement.

Any Management System (whether it is quality, environment, energy, etc.) is developed based on PDCA cycle model, which is known as "process-based model system". So, if an organization wants to fulfill the requirements for a quality management system, it must develop its management system on a process approach. This is a very important principle of quality management, and the new revision of the standard (expected in September 2015) makes an emphasis on "the process approach". From this point of view, we can say that the internal processes of an organization are very important for delivering quality products or services. But it is not the

single one ... there are actually, eight quality management principles and any organization must take these into account:

Customer focus

Leadership

Involvement of people

Process approach

System approach to management

Continual improvement

Factual approach to decision making

Mutually beneficial supplier relationships

Every principle from the above list has its own importance.

But, in this article I will focus on only the first of them.

The first principle "customer focus" is very important.

Everyone will agree that an organization depends on its

customers, and that the organization cannot exist unless there are clients who buy its products and services. For this reason, the organization must understand the requirements of its customers and should focus to exceed those expectations and understand their requirements even further.