



SPM Generalities and People Management

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Intuition

Project Management

Managing and arranging people and activities to achieve some stated goals using **limited** resources, budget, and time

SPM concern project management when the goal is to build a software system

SPM

Develop and maintain a software product by applying project management principles as well as **software engineering principles** so that the software project is delivered at minimum costs, within minimum time, and with good product quality.

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Peculiarities

SPM has some peculiarities making it particularly difficult:

- The product is intangible
- No standard software processes
- Large software projects are one-off projects
- All activities are strongly dependent on people qualities

The 4 “P”s on which SPM is based are: **People, Product, Process, Project**
Roger Pressman

Bad PM is the main cause of failure for software projects

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Management Activities

Even if each project is different from each other typical are activities commonly needed:

- **Proposal writing**: includes objectives, cost and schedule estimation and motivation for project assignment
- **Project planning and scheduling**: activities, milestones and deliverables
- **Project cost**: estimation of resources to accomplish the plan
- **Project monitoring and reviews**: observing and comparing
- **Personnel selection and evaluation**: creating the team
- **Report writing and presentations**: periodic reporting to management

People

People working in a software organization are its **greatest assets**.

Project Managers are then responsible for getting returns from this asset. A PM uses people to solve technical and nontechnical problems, and they have to **motivate** people in their team, **plan** and **organize** their work, **ensure** the work is done properly.

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PM qualities

A PM is a person able to:

- motivate people
- organize work
- conceive new idea and bring innovation
- have managerial skills
- “perceive people”

Critical Factors

A PM has to act respecting some basic principles:

- **Consistency**: all fairly treated
- **Respect**: people are different
- **Inclusion**: everyone can have brilliant ideas
- **Honesty and being humble**: Superman is just a comic book!

Aim is not to be a good person but a good PM

Selecting staff

PM that have to **establish a team have limited resources**

Three different information sources are generally used

- CV
- Interviews
- Recommendations

The World Wide Web (Social, Code Repositories ...)

General considerations:

- Constrained and limited availability of internal staff
- Some skills are not highly common
- Junior team members are normally more enthusiastic in learning new things
- The most technically proficient person is not always the right choice

Defining different paths for “techies” and managers

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Selection process relevant factors

In staffing a team some factors have to be generally considered:

- Application domain experience
- Platform experience
- Programming language experience
- Problem solving ability
- Educational background
- Communication ability
- Adaptability
- Attitude
- Personality

Qualities, metrics and measures – intuition

A **quality** highlight a particular aspect of a system.

Qualitative aspects are important but **quantitative consideration** are needed in an engineering activity

Metrics and measurement techniques need to be defined in SE activities

To assess people qualities psychometric tests are generally used

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Motivating people

People are motivated by satisfying their needs

Maslow's hierarchy provide a structured organization of typical human individual needs:

- **Physiological needs:** not a PM task
- **Safety needs:** not a PM task
- **Social needs:** give time and space to meet each other or organize events (in particular with distributed teams)
- **Esteem needs:** recognize achievements
- **Self-realisation needs:** assign challenging but possible tasks, and define a personal development plan

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People attitude

Bass and Duntenam classified professionals motivations in three categories:

- **Task-oriented**: motivated by the work itself
- **Self-oriented**: motivated by personal success and recognition
- **Interaction-oriented**: motivated by pleasure of working with other people

If you want to be a bit better then the others, then **compete**. if you want to be better by far then **cooperate**

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Forming groups

Group composition

you should create mixed groups (task, self, interaction) and appoint a **group leader** for each of them that somehow **monitor** and **report** progress made by the group to the general PM. **Leaders** have to be accepted by the team.

- Is election by the team a good idea??

Other important aspects to consider:

- problem complexity
- dimension of the resulting software
- duration of the team
- modularity
- required reliability
- constrained and relevance of deadlines

Communications and Organizations

- **Group communications:** good communication is essential between members. Some factors make it more complex:
 - size
 - structure
 - composition
 - physical work environment
- **Group organization:** people should be allocated so that their competences are favored. Old style organizational strategies does not seem to be much effective – **chief programmer**

Cohesiveness

Group cohesiveness

Members should feel that the group is more important than the individual. Team members trust each other and no individualist

- *group quality standard can be established easily*
- *members work closely together - learn together*
- *members can get to know each other's work*
- *Egoless programming can be practised*

Favor cohesiveness through: **naming, social activities, and gaming**. Do not hide information to group members

Working environments

Studies have identified some important psychological aspects to take into account organizing the working space of programmers:

- Privacy
- Outside awareness
- Personalizations

Areas with different destinations should be available

P-CMM


People Capability Maturity Model

Framework to assess and improve the way in which an organization manages its human assets

- it introduces 5 levels to classify people management practices within an organization

Resources

Study material can be found here (*also previous editions of the following books*):

 **Roger Pressman and Bruce Maxim**
Software Engineering a Practioner's Approach 8th Ed.
McGraw-Hill 2015.

- Chapter 31 - Project Management Concepts

 **Ian Sommerville**
Software Engineering 10th Ed.
Addison Wesley 2016.

- Chapter 22 - Managing People