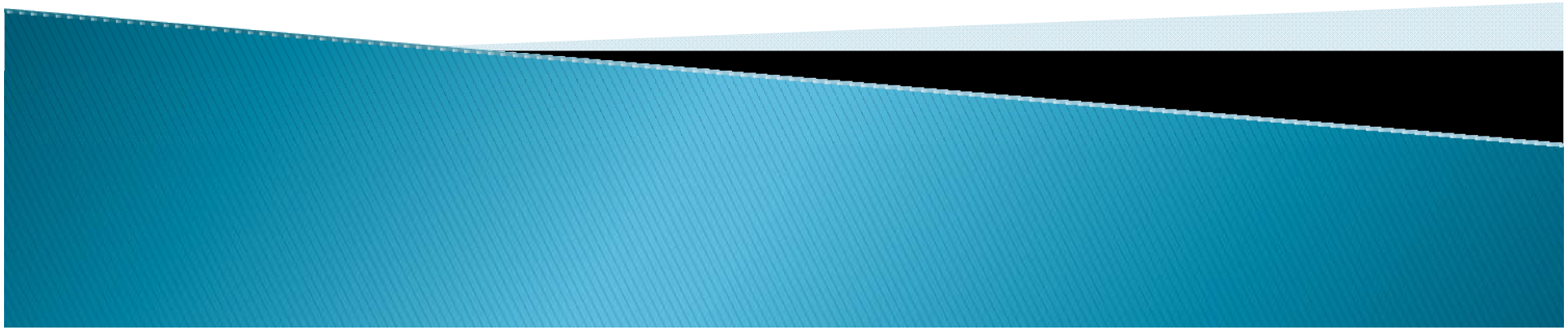
# The Project Management and IT Context



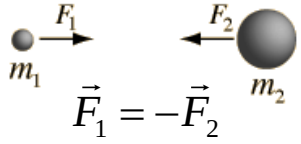
# Projects cannot be run in isolation

How much I could get done on my projects if all my bosses, CEOs and lawyers evaporated one day

- There is a strong consensus among project managers that projects would run better in isolation from the usual organizational environment…
  This may look good in dreams, but will not work in reality
- Project managers need to understand organizational realities and know how to work with them instead of struggling against them
- Project management is not possible without systems thinking where a project is considered as a system affected by many internal and external factors
- You can increase or decrease influence of those factors, but you cannot ignore them

# A Systems View of Project Management

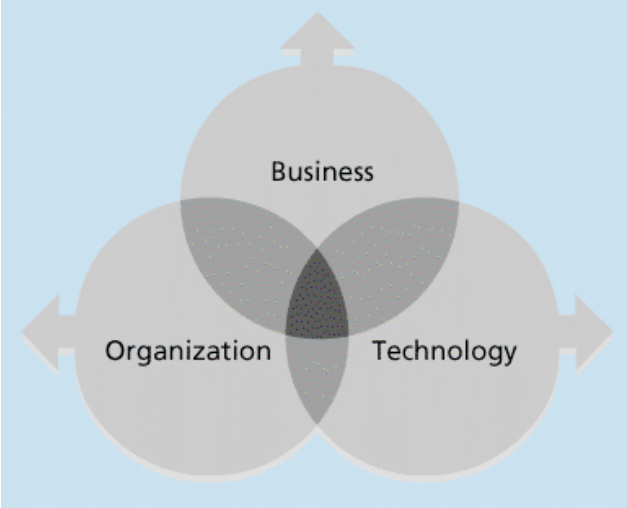
- System approach to project management relies on:
  - **Systems philosophy** that is a model for thinking – an organization is a system of interacting departments, people, equipment, finances, *etc*. Besides understanding the organizational structure, you need to understand interaction.
  - **Systems analysis**: a problem-solving approach that considers problems as forces of influence on a system which may affect the system state or its stability
  - **Systems management**: address business, technological, and organizational issues as the most critical to maintain the system in a stable state or make controllable changes
- A new project can be considered as a new force of influence introduced into the system that affects the system
- In response, the system starts affecting the project



# Systems Management: Three Sphere Model

- Is this a core or a growth project ?
- What will profitability of the project be?
- How will project costs and cash workflow affect the company?
- Will the clients be interested in long term support and maintenance?

- Will this project lead to internal competition with other departments?
- Does the company have a sufficient number of skilled professionals to work on the project?
- How, when and where should training of the clients be carried out?
- How will the product affect end users?




- Will client's computers meet the minimum hardware requirements?
- Should we purchase third-party API or develop our own?
- Can new system be integrated with other applications used by the client?
- Can the system be easily scaled up if the client needs to handle more customers in future?

**Many IT project managers make a mistake focusing only on technology**

# Organisational Reality: Lack of authority

- Project managers are usually have plenty of responsibilities but very often they are given little authority to enforce their decisions
  - Project managers cannot fire, or give promotion or pay raise to their staff
  - Project managers cannot allocate money to buy expensive equipment
  - Project managers cannot make important business decisions when they deal with clients
- Major reasons why project managers have little direct control
  - Projects are temporary so frequent restructuring is inefficient
  - Staff members perceive their project manager as a ‘temporary boss’
  - Some team members can work part time on several projects
  - Delegating authority to someone means taking it from someone else that is usually considered as an infringement of territory

# Organisational Reality: Build authority

Project managers should use understanding of the organizational structure and culture to strengthen their authority

- Project manager can ask an influential executive officer to personally introduced him to the team
- Project managers need to establish good business relations with the project sponsor
- Demonstrate high level of professionalism and leadership to get project staff take them seriously
- Plan projects in such a way that teams can see first milestone success
- Understand personal interests of each staff member and give an opportunity to combine project and their personal goals
  - learn new technologies and tools
  - lead a group
  - get a good reference for promotion
  - explore new responsibilities

# The Four Frames of Organizations

*Most challenging*


- The system approach requires that project managers view their projects in context of the larger organization
- To understand organizations better, you should look at them from different perspectives

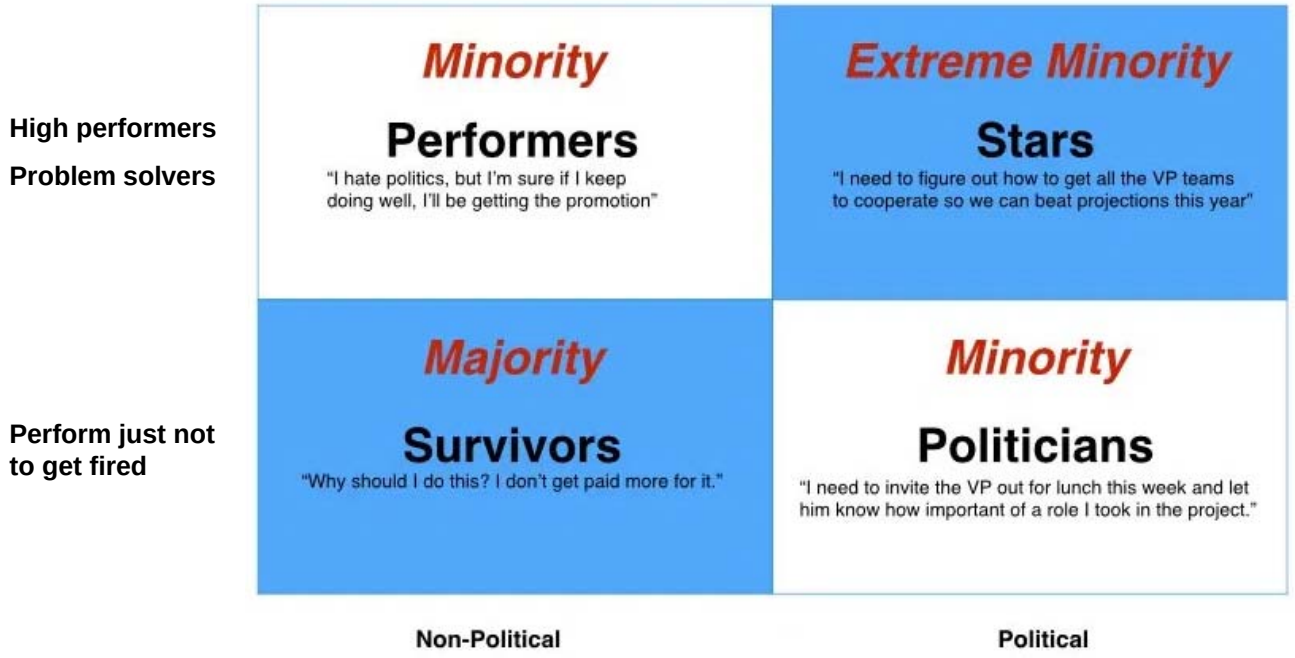
| | |
|---|---|
| **Structural frame:** Roles and responsibilities, coordination, and control. Organizational charts help describe this frame. | **Human resources frame:** Providing harmony between needs of the organization and needs of people. |
| **Political frame:** Coalitions composed of varied individuals and interest groups. Conflict and power are key issues. | **Symbolic frame:** Symbols and meanings related to events. Culture, language, traditions, and image are all parts of this frame. |



**Many projects fail not because technical problems, but because of ignoring company politics**

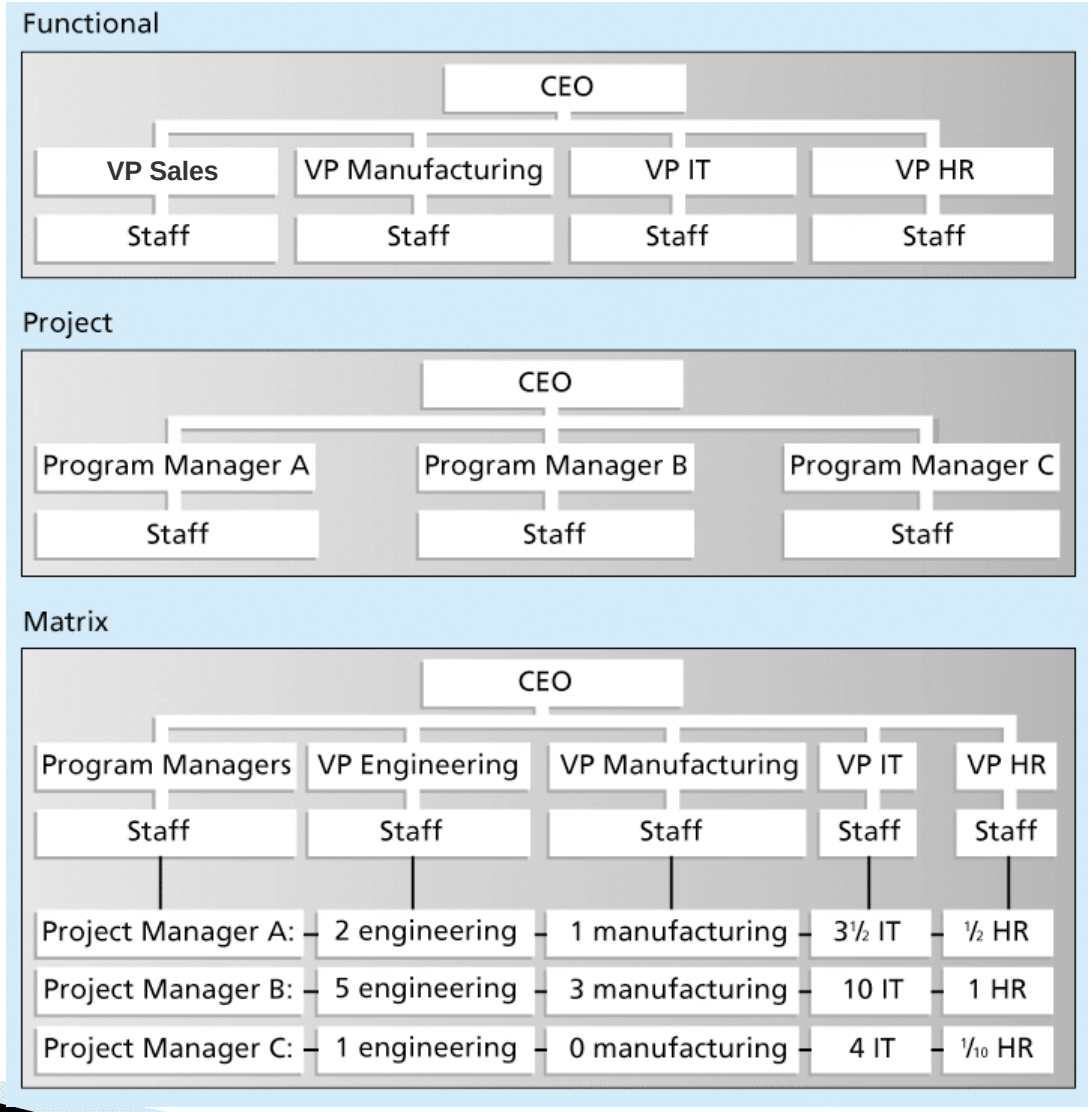
# Organizations: Types of Employees

- You are not likely to get only self motivated and skilled professional assigned to your project team




- Motivate your project team Survivors to become Performers
- Reward the Performers and provide interpersonal training

# Organizational Structures



# Table 2-1. Organizational Structure Influences on Projects

| Project Characteristics | Organizational Structure Type | | | | |
|---|---|---|---|---|---|
| | Functional | Matrix | | | Project |
| | | Weak Matrix | Balanced Matrix | Strong Matrix | |
| Project manager's authority | Little or none | Limited | Low to moderate | Moderate to high | High to almost total |
| Percent of organization's personnel assigned full-time to project work | Virtually none | 0–25% | 15–60% | 50–95% | 85–100% |
| Who controls the project budget | Functional manager | Functional manager | Mixed | Project manager | Project manager |
| Project manager's role | Part-time | Part-time | Full-time | Full-time | Full-time |
| Common title for project manager's role | Project coordinator/ project leader | Project coordinator/ project leader | Project manager/ project officer | Project manager/ program manager | Project manager/ program manager |
| Project management administrative staff | Part-time | Part-time | Part-time | Full-time | Full-time |

# Organizational Culture

A set of implicitly defined rules which you cannot find in the employee handbook, but they affect:

- Member identity*
- Group emphasis*
- People focus
- Unit integration*
- Control
- Risk tolerance*
- Reward criteria*
- Conflict tolerance*
- Means-ends orientation
- Open-systems focus*

*Project work is most successful in an organizational culture where these items are strong and other items are balanced.

- While the work may be difficult, the culture should not add to the stress of the work
- Employees value company culture as much as they value salary and benefits

# Stakeholder Management

- Project managers must take time to identify all stakeholders and analyze them to understand their actual needs and expectations
- Identification of all stakeholders is not straightforward, as some of them can be external and only indirectly involved in the project
- Using the four frames of organizations can help to identify stakeholder and estimate how they can affect the project
- Besides identifying stakeholders, understanding their needs and expectations, the project manager should establish and maintain good relationship with them

| | |
|---|---|
| **Structural frame:** Roles and responsibilities, coordination, and control. Organizational charts help describe this frame. | **Human resources frame:** Providing harmony between needs of the organization and needs of people. |
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# The Importance of Top Management Commitment

- People in top management positions are key stakeholders in projects
- A very important factor in helping project managers successfully run projects is the level of commitment and support they receive from top management
- Without top management commitment, many projects fail
- Although the role and responsibilities of the Project Sponsor are defined in PMBOK, they differ across organisations
- Some projects have a senior manager called a Project Champion who acts as a key promoter for a project. This role is informal and is not clearly defined in PMBOK guide.

# Project Sponsor and Project Manager

- According to the PMBOK, the project sponsor is a person who provides resources and support for the project for enabling project success
- Project Sponsor selects the project manager for a project and set the level of the authority, defines project success criteria
- Project Sponsor checks the project scope and the project plan prepared by the project manager to make sure the they are feasible and reflect the company's vision
- Project Sponsor has the power to approve or disapprove changes proposed by project manager in order to keep projects aligned with business strategy
- Project Sponsor helps to resolve issues that are beyond the project manager's control
- Project sponsor decides whether a project was a success or failure

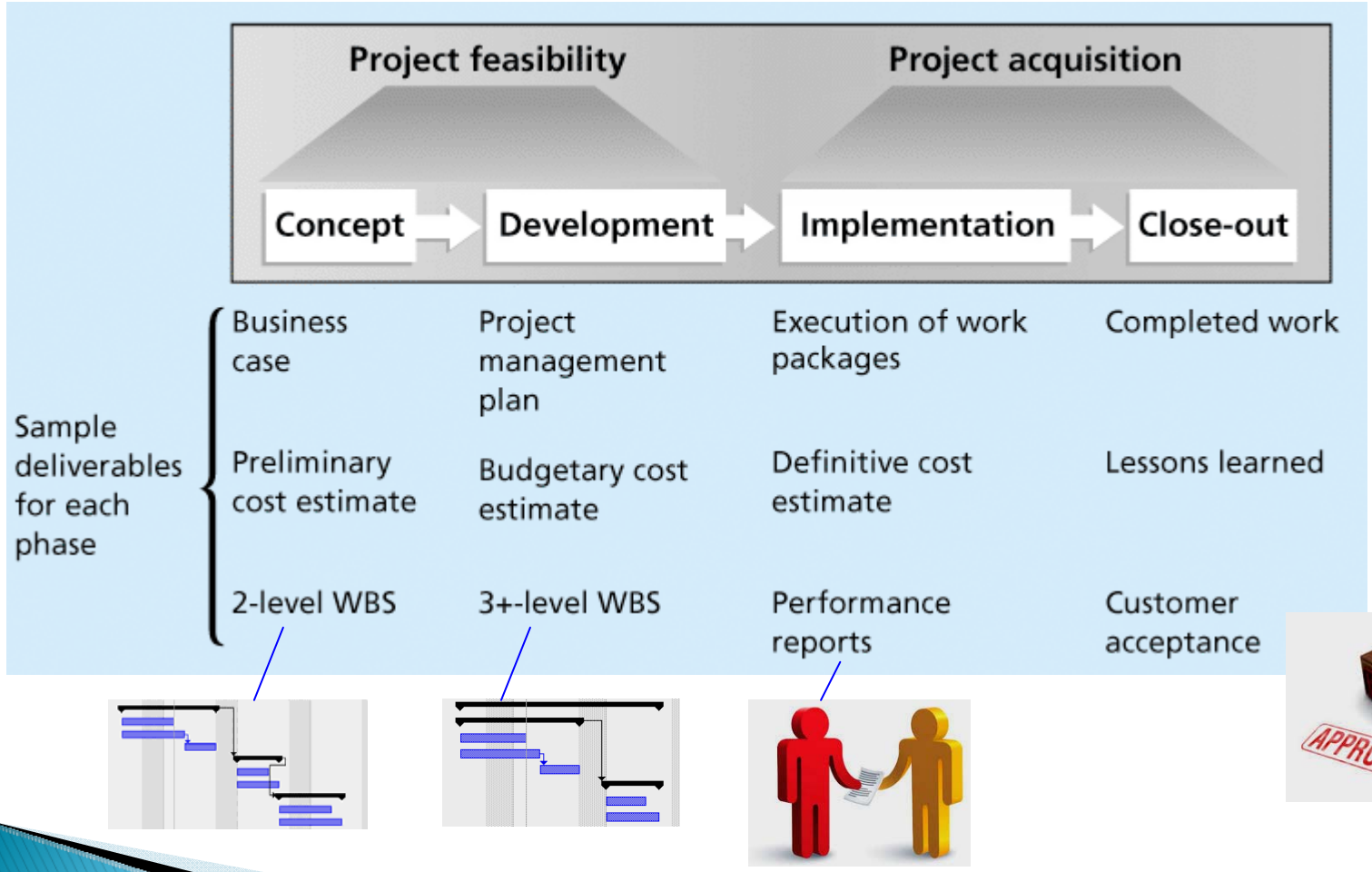
# Need for Organizational Standards

- Standards and guidelines help project managers be more effective and spend less time on routine tasks
- Senior management can encourage
  - the use of standard forms and software for project management
  - the use of guidelines and templates for writing project plans or project status reports
  - to take a project management training
  - get PMI certification

# Project Phases and the Project Life Cycle

- To make projects more manageable they are usually subdivided into several phases
- A project life cycle is a collection of project phases that defines
  - what work should be performed in each phase
  - what deliverables should be produced and when
  - who is involved in each phase
  - how management will control and approve work produced in each phase
- A deliverable is a product or service produced or provided as part of a project

# Figure 2-4. Phases of the Traditional Project Life Cycle

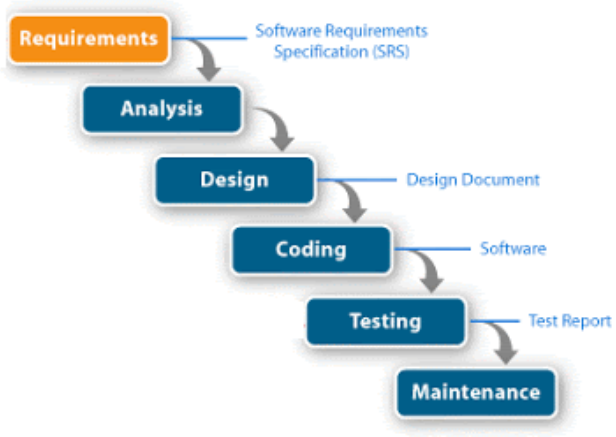


# Project Management Methodologies

- The Traditional Project Life Cycle representation is too generic for guiding various real projects
- Several project management methodologies have been developed based upon the Traditional Project Life Cycle
  - Predictive Methodology
    - The scope of a project can be clearly defined at the Feasibility Stage
    - Project cost can be predicted quite accurately
    - Project schedule will not be substantially updated
  - Agile Methodology
    - Project requirements cannot be finalized at the Feasibility Stage
    - Project is dynamically scheduled using iterative cycles - 'sprints'
    - Each new 'sprint' relies upon the results of the previous cycle
- Some companies use their own hybrids that combine both methodologies

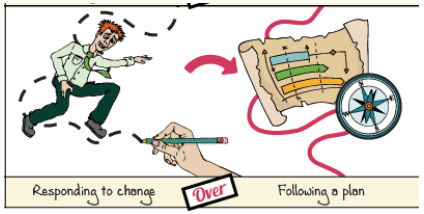
# Predictive model: Waterfall Framework

- The waterfall framework has several phases that follow in strict linear order, where a phase can't begin until the previous phase has been completed
- Originated from non-software industries such as manufacturing and construction

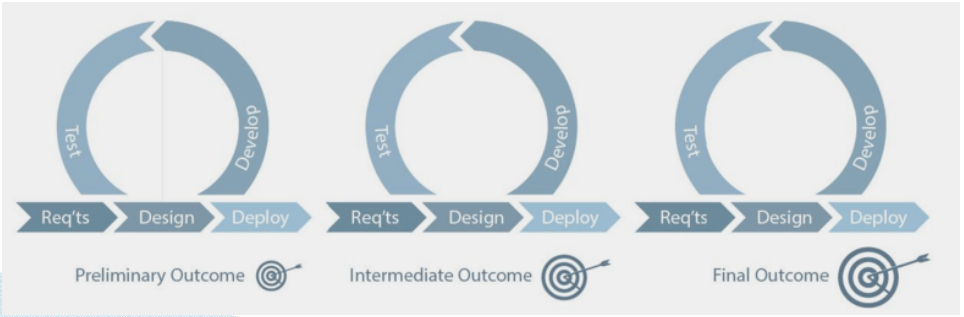



- Advantages
  - one the easiest model to manage
  - works well for smaller size projects where requirements are easy to define
  - customer involvement is not strictly required after the requirements phase
  - as design is completed early in the lifecycle, it's possible to develop software components in parallel
- Limitations
  - Hard to move back to makes changes in the previous phases
  - The testing process starts once development is over so much of the risk is postponed to the end of the project

# Agile Methodology




- Over 60% of project requirements can change during software development projects. Plans and processes need to be able to accommodate changes and feedback from customers
- Agile methodology uses iterative and incremental development, in which requirements and solutions evolve through collaboration between project staff and constant interaction with customers
- Due to the constant cooperation with the customer and continuous delivery of the software pieces, product development becomes flexible and responsive to change
- The are several IT project management frameworks developed based upon the Agile methodology: Scrum, Kanban, Extreme Programming, *etc*



# Agile Methodology: Statement of Values

- Proposed by a group of professionals called Agile Alliance in 2001

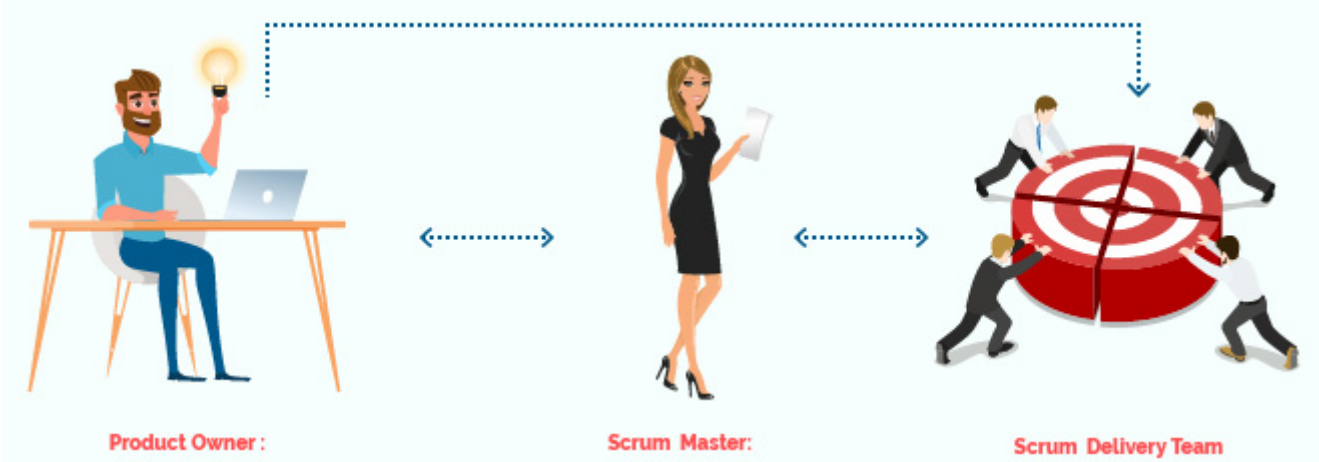
| | | |
|---|---|---|
| Individuals and interactions | over | Process and tools |
| Working software | over | Comprehensive documentation |
| Customer collaboration | over | Contract negotiation |
| Responding to change | over | Following a plan |

- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done

www.agilemanifesto.org

# Agile : Scrum Framework

- Scrum is an agile development framework for completing projects with a complex scope of work and changing requirements
- You don't plan for the whole project at beginning. Projects progress via a series of sprints no more than a month long



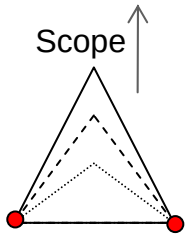

- Responsible for the success of a product
- ‘A voice’ of the customer
- Prioritizes the requirements
- Accepts or rejects work results

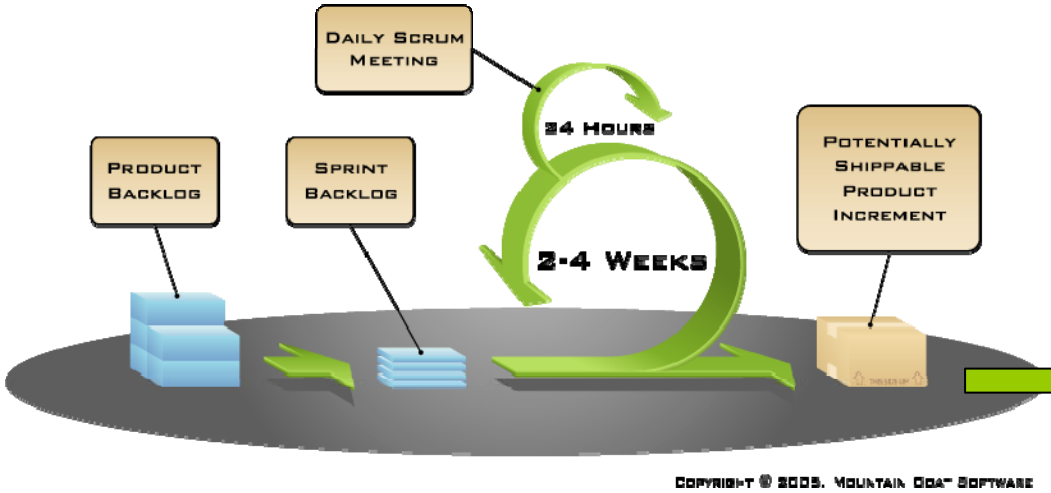
- Ensures that the scrum framework works properly
- Motivates the team
- Helps to manage risk
- Facilitates the daily Scrum meetings

- Up to 10 members
- Self-organizing
- Cross-functional, flexible
  - System designers
  - Programmers
  - Testers

knowledgehut

# Agile : Scrum Framework




The project is ended when
- the product backlog is completed, *or*
- the budget is depleted, *or*
- a deadline arrives

The most valuable work has been completed

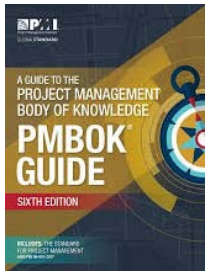
- The Product Owner creates a prioritized customer's wish list of requirements that is called Product Backlog
- The Scrum Master takes a small chunk from the top of the Product Backlog that can be completed in one sprint and plans how to implement these requirements
- The project team works on the 'sprint' tasks to implement the requirements. No change of requirements during a sprint.
- The team meets each day to assess the progress – Daily Scrum
- Each sprint ends with a sprint review and an incremented version of the product

Watch this video: *Introduction to Scrum*
https://www.youtube.com/watch?v=9TycLR0TqFA

# Scrum vs Waterfall

- Many experts in IT project management warn people not to fall for the hype associated with Agile
  - it's useless for small IT projects
  - very high degree of customer involvement
  - works well only with enthusiastic self-organizing teams
  - if a Sprint Backlog is not completed, additional sprints may be needed
- Waterfall is better in situations where you know all the requirements of the software up front
- Waterfall is an effective management framework when your customers cannot commit to a heavily-involved iterative cycle
- Waterfall is better for developing expensive highly reliable software (car engine control, navigation, communication, *etc*)

# Agile, the PMBOK® Guide, and a New Certification



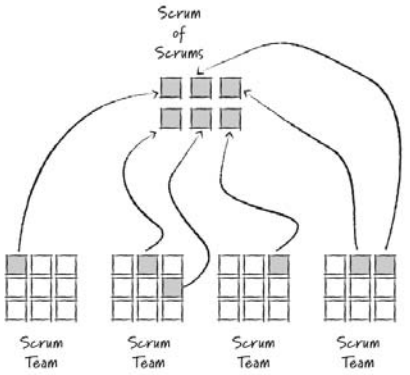

- Agile project management methodology is included into PMBOK Guide 6th Edition
- The Project Management Institute (PMI) recognized the increased interest in Agile, and introduced a new certification in 2011 called Agile Certified Practitioner (ACP)
- The Scrum Alliance provides the Certified Scram Master (CSM) training and certification. CSM holders need to renew certification every two years at an additional cost.
  - 16-hour course taught by a Certified Scrum Trainer
  - coaching from a Certified Agile Coach for a minimum of 25 hours
  - pass a 50 question test

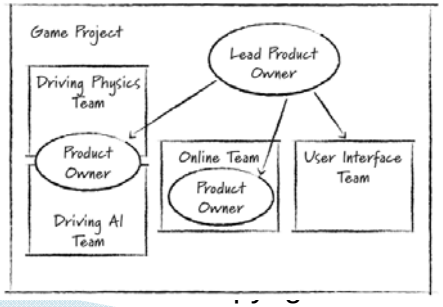
# Game Development Projects

- Complex multidiscipline projects
- Large teams with up to 100 professionals
- Long term (2-4 years on average)
- The project objective is obvious and fuzzy at the same time:
  *The game must be fun to play*
- Very frequent changes in requirements, volatile market

A Modified Scrum

- The Scrum of Scrums
- A Hierarchy of Product Owners
- Combination of independent and synchronized sprints
- Teams can exchange members



# Recent Trends Affecting IT Project Management

- Globalization
- Outsourcing: Outsourcing is when an organization acquires resources from outside. Offshoring is sometimes used to describe outsourcing from another country.
- Virtual teams: A virtual team is a group of individuals who work across time and space using communication technologies
- New project management processes

# Outsourcing

- Organizations remain competitive by using outsourcing to their advantage, such as finding ways to reduce costs
- Their next challenge is to make strategic IT investments with outsourcing by improving their enterprise architecture to ensure that IT infrastructure and business processes are integrated and standardized
- Project managers should become more familiar with negotiating contracts and other outsourcing issues

# Virtual Teams

- Increasing competiveness and responsiveness by having a team of workers available 24/7
- Lowering costs because many virtual workers do not require office space or support beyond their home offices.
- Providing more expertise and flexibility by having team members from across the globe working any time of day or night
- Increasing the work/life balance for team members by eliminating fixed office hours and the need to travel to work.

## Disadvantages

- Increasing miscommunications risks
- Reducing the ability for team members to network and transfer information informally
- Increasing the dependence on technology to accomplish work

# Chapter Summary

- Project managers need to take a systems approach when working on projects
- Organizations have four different frames: structural, human resources, political, and symbolic
- The structure and culture of an organization have strong implications for project managers
- Projects should successfully pass through each phase of the project life cycle
- Project managers need to consider several factors due to the unique context of information technology projects
- Recent trends affecting IT project management include globalization, outsourcing, virtual teams, and Agile