

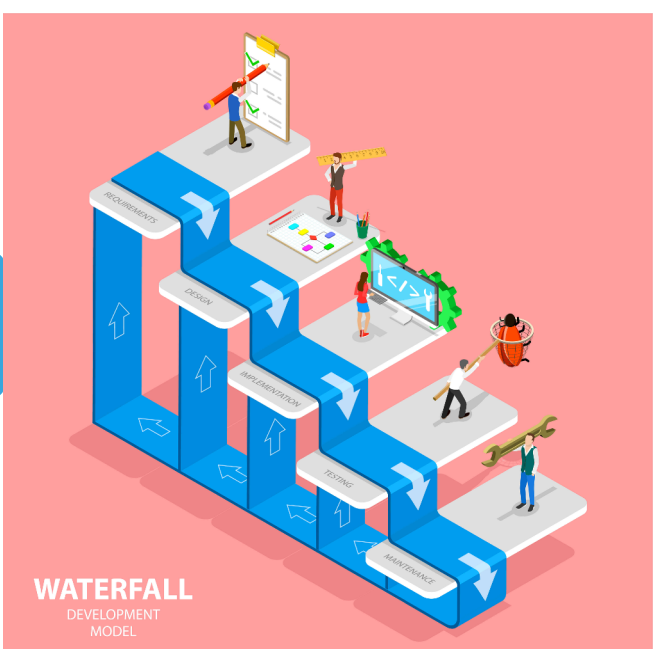
Software / Project management methodologies

What is a project methodology?

- A project management methodology is essentially a **set of principles and rules** to processes for managing a project.
- All the project management methodologies describe the activities performed at each stage of a SDLC.
- It has strict rule to manage, plan, and control the procedures of develop a software.
- There are many project methodologies to choose for IT companies:
 - waterfall
 - Agile
 - V-model
 - etc

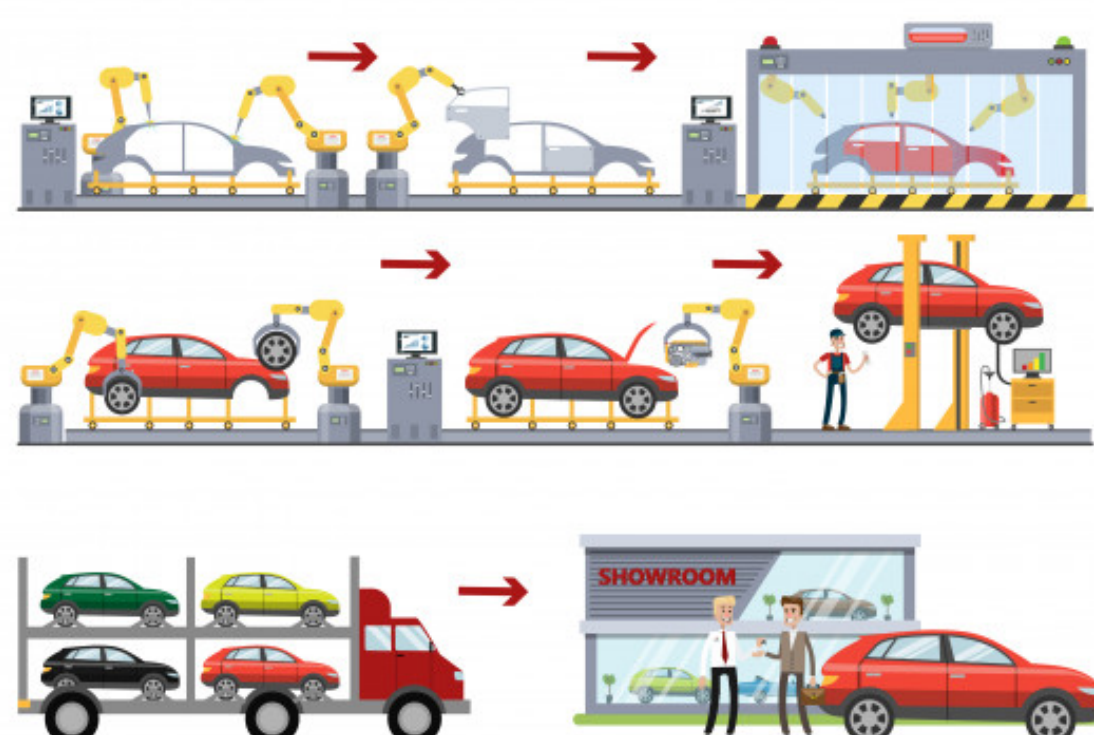


Waterfall methodology



Waterfall methodology definition:

- **Traditional** approach to manage a project
- Developed based on step by step manufacturing industry in World War 2
- Waterfall is a **step-by-step approach**
- **Each step** must be **completed** before next step starts
- Emphasize planning before action
- Each step depends on the **documents** of the previous stages to precede
- Waterfall guarantees the success when the **projects are small** with **clear requirements** and a **fewer number of unknowns**.



Manufacturing Industry

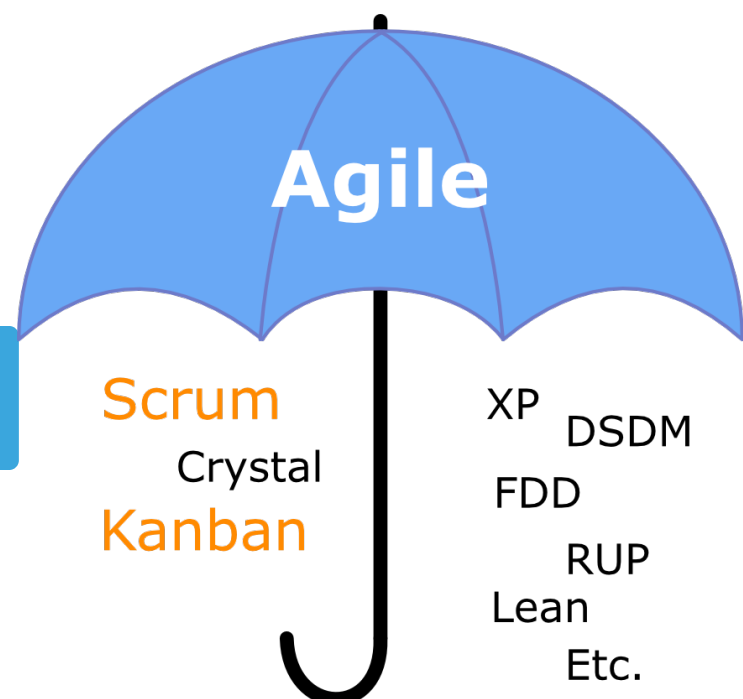
Advantages

- **Easy to understand and implement.** There is no need to train the team and familiarize them with the Waterfall methodology.
- The **start and end points** for each phases are **set**, which makes it **easy to measure** progress.
- The **stability** of the model makes project management easier.
- Since all phases occur without any overlap, hence it **reduces** the project **complexity**.
- **Careful** planning of project development **structure reduces** the number of problematic **issues**;
- **Quality and Detailed Documentation**.

Disadvantages

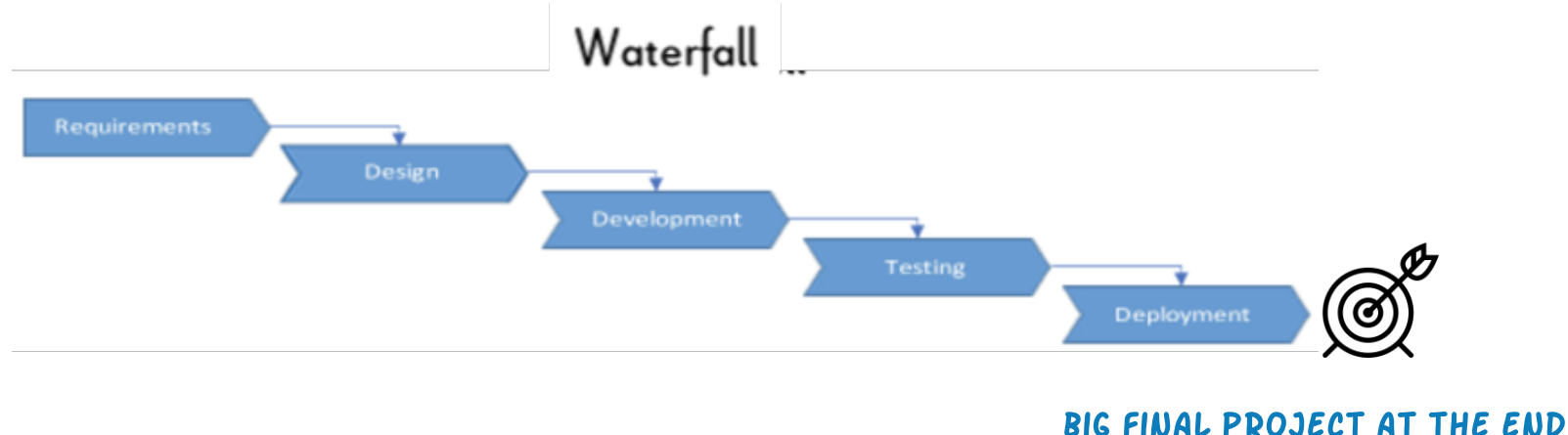
- Poor software result for long duration and large projects.
- Since the next stage is dependent on the outcome of the previous step, hence even a small change in the project scope can pose a big challenge.
- If the customer's requirements are not clear or not available early, then it could create significant complications later in the project development life cycle.
- **Little to No Changes**. once the requirement is finalized, any changes in requirements would not only be difficult but also costly

Agile Methodology



Agile methodology definition:

- Modern, well-known, wide used software project methodology
- Started in 2000
- The **goal** is: **speed up development times** in order bring new software to market faster
- This goal can be achieved by :
 1. Shortening the deployment time
 2. Getting feedback from users quickly
- The **success** of the Agile process **depends on**:
 - * Short & quick (increments in a couple of weeks and the fully functional version in a few months)
 - * Self-organized team
 - * Each team member
 - * Communication
 - * quickly adjust the working process
 - * Quick feedback
- To implement the Agile in a company/team, first each member should know **Agile-Manifesto**
- The Agile Manifesto is an advisory, public advice which contains the values and principles to follow in the Agile methodology.
- Agile Manifesto = 4 **Agile Values** & 12 **Agile Principles**



Agile Manifesto

Agile 4 Values

- 1- Trust **individuals** and prefer **interactions** over processes and tools
- 2- **Focus** on delivering working **software** rather than complete documentation
- 3- More **customer involvement** than just negotiation
- 4- Willing to **accommodate changes** instead of being rigid to a plan

Agile 12 Principles

- 1- **Satisfy the customer** - Short development cycles, quick delivery, and happy customer
- 2- **Accept changes**, revise goals
- 3- **Continuous delivery** of working software
- 4- **Collaboration** between all stakeholders throughout the project;
- 5- **Trust & support** - Show confidence in the people involved
- 6- **Face-to-face conversation** - Allow transparent **interactions**
- 7- **Working software** defines the progress
- 8- **Maintain constant pace**; Agile processes to normalize the development speed
- 9- **Good ideas & improvement**; Continues attention on technical details
- 10- **Simplicity**
- 11- **Self-organizing** is the key to good architectures, requirements, and designs
- 12- **Revisit** how to become more efficient

Advantages

- **Better time-to-time market**
- **Strong collaboration**
- **Accept changes** at any time
- project goal is defined with the client
- Project Improved Quality

Disadvantages

- **Planning may be weak**
- Lack of documentation
- Training and Skill Required
- Organizational Transformation - business & development members