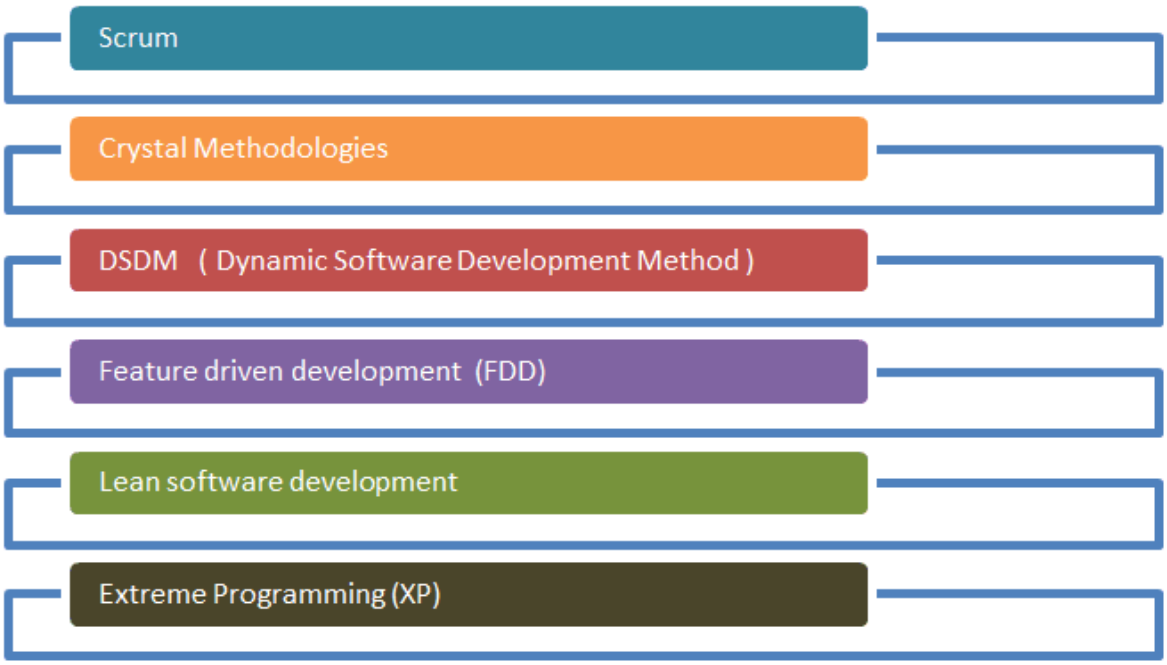
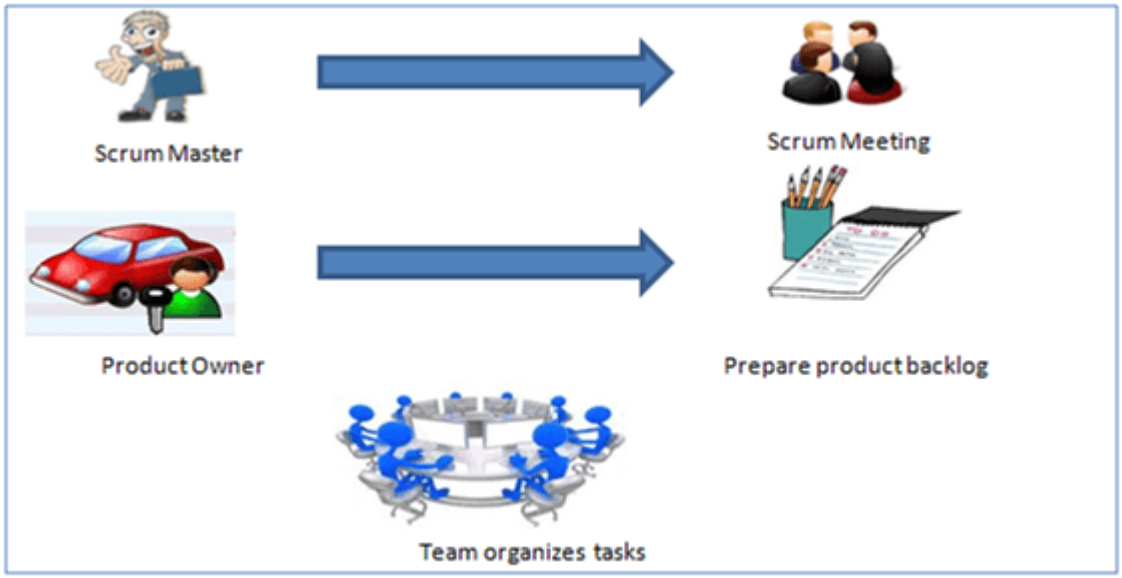
Types of Agile methodology



Scrum

- Scrum is a **framework** through which we build software product by **following agile principle.**
- Scrum is derived from activity that occurs during a **rugby** match. (team member working together to achieve a common goal).
- Scrum include the group of people called as **scrum team** normally contains 5-9 members.

Scrum consist of three roles and responsibilities



- Product owner
- Scrum master
- Development and QA team

Product owner

He is only direct interact with customer and gathering the requirement, and also assign the features

- ✓ Define the feature of product
- ✓ Priorities feature according to the market value.
- ✓ Adjust feature and priority every iteration as needed.
- ✓ Accept or reject the work result.

Scrum master

he is main role of agile. he is facilitating and driving the agile process

he will take care of all process, like if any blocker scrum master is responsible.

Developer and QA team.

Developer designs the software (design, coding, unit testing.)

Testing team should test the environment, execution.

Scrum terminologies

User stories: a feature/model in a software.(100 features)?

Epics: collection of user stories.

Product backlog: - contain list of user story. It contains the excel. Prepared by product owner

It's the beginning process of agile methodology.

Sprint/iteration: period of time to complete the user stories. its decided by the product owner and team.

Usually 2-4 weeks in time.

How many stories develop dev/testing team.

Sprint planning meeting: - meting conducted by team to define what can be delivered in sprint and duration.

What are stories will dev/test. how many duration

Sprint backlog: list of committed stories by dev/test for specialist.

(100 features are there/ dev and testing team choose particular feature for that much of sprint time)

Scrum meeting:

Everyday we have 10-15 minutes conduct the meeting.

Scrum master track the entire process conduct by meeting.

In that 15 minutes team member should tell us

- What did you do yesterday?
- What will do today?
- Are there any impediment in your way?.

Sprint retrospective meeting

This meeting conduct only one time after completion of sprint

The entire team and product owner and scrum master should participate

- And discuss what went well
- What went wrong.

Story point

Rough estimation of user stories will be given QA/DEV team in the form of Fibonacci series

0,1,1,2,3,5,8, …

1 story point=1 hour/1 day (6 hours to 8 hours)

Login module developer estimation =5 story point mean = 5 hours

Testing estimation=3 story point mean=3 hours

Totally=8 hours/ 1 day

Burndown chart

Scrum master take care of graph

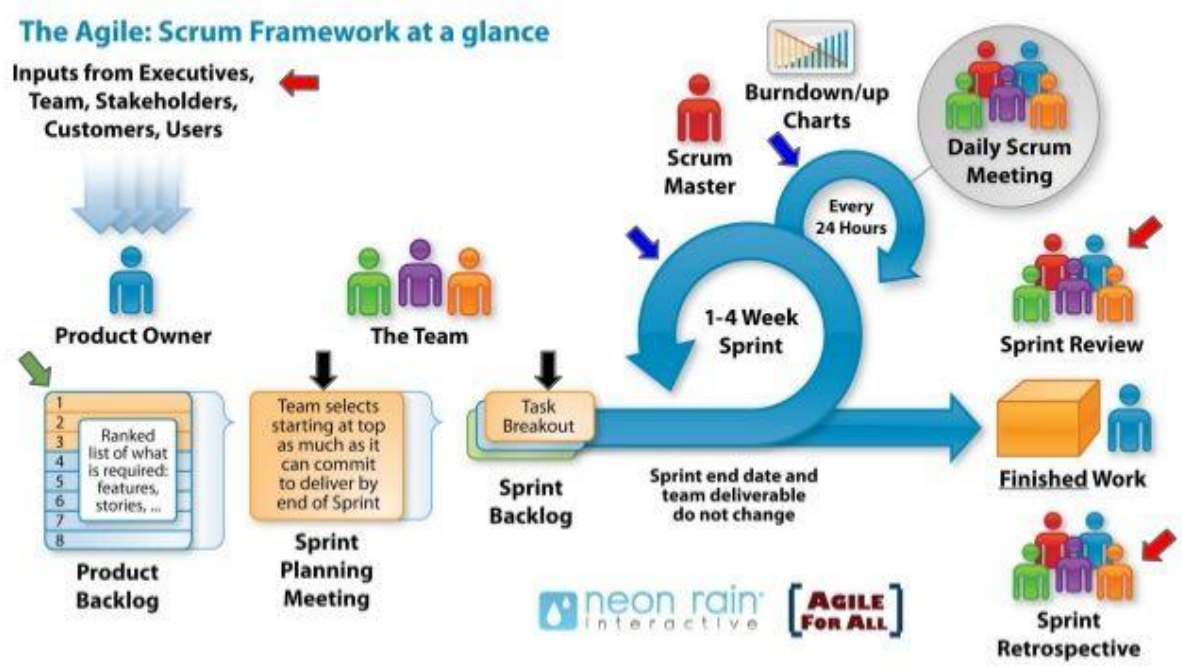
Its shows, how much work is pending/completed/InProgress.

1 story point = 1 hours

But, it will take=3 hours

Scrum master ask the question. why its delay.

Scrum workflow



What are the roles:

- Scrum master
- Product owner
- Team

Artifexts:(document we have)

- Product backlog
- Sprint backlog
- Burndown chart

Different ceremonies

- Sprint planning
- Daily scrum meeting
- Scrum review

Advantages of Scrum Testing:

The advantages of scrum testing are:

- It helps in determining the quality of the software.
- It helps in unit testing.

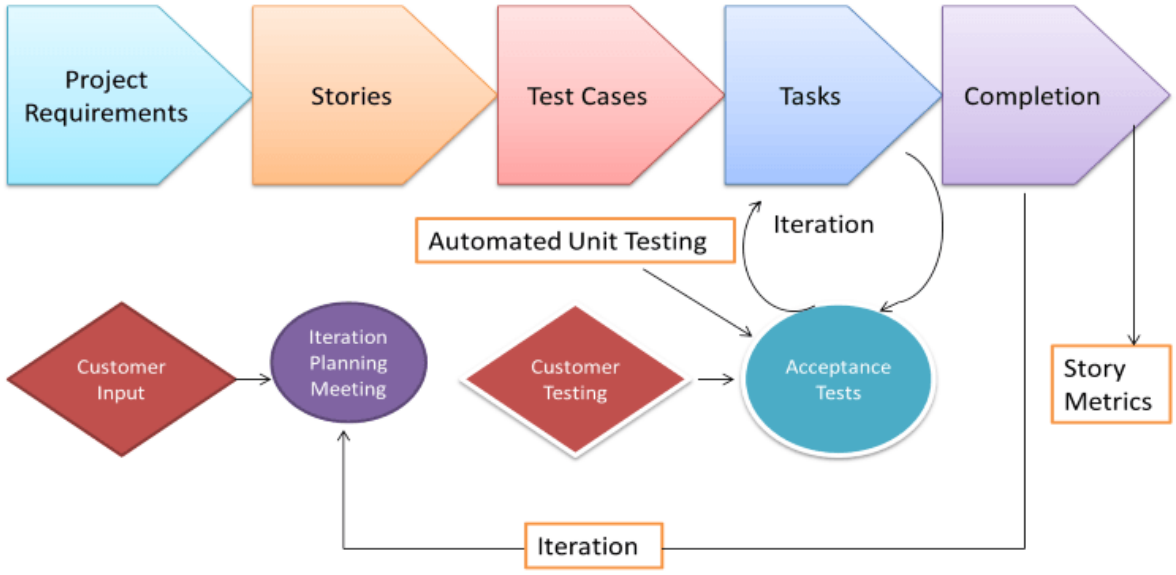
- It helps in building complicated software

Disadvantages:

- Losing the track of the project
- Not clear defining each role
- No big picture of the project

EXTREME PROGRAMMING(XP)

Extreme Programming technique is very helpful when there is constantly changing demands or requirements from the customers or when they are not sure about the functionality of the system. It advocates frequent "releases" of the product in short development cycles, which inherently improves the productivity of the system and also introduces a checkpoint where any customer requirements can be easily implemented. The XP develops software keeping customer in the target.



Extreme Programming (XP)

Extreme Programming

Business requirements are gathered in terms of stories. All those stories are stored in a place called the parking lot.

In this type of methodology, releases are based on the shorter cycles called Iterations with span of 14 days time period. Each iteration includes phases like coding, unit testing and system testing where at each phase some minor or major functionality will be built in the application.

Phases of extreme programming:

There are 6 phases available in Agile XP method, and those are explained as follows:

Planning

- Identification of stakeholders and sponsors
- Infrastructure Requirements
- Security related information and gathering
- Service Level Agreements and its conditions

Analysis

- Capturing of Stories in Parking lot
- Prioritize stories in Parking lot
- Scrubbing of stories for estimation
- Define Iteration SPAN(Time)
- Resource planning for both Development and QA teams

Design

- Break down of tasks
- Test Scenario preparation for each task
- Regression Automation Framework

Execution

- Coding
- Unit Testing
- Execution of Manual test scenarios
- Defect Report generation
- Conversion of Manual to Automation regression test cases
- Mid Iteration review
- End of Iteration review

Wrapping

- Small Releases
- Regression Testing
- Demos and reviews
- Develop new stories based on the need
- Process Improvements based on end of iteration review comments

Closure

- Pilot Launch
- Training
- Production Launch
- SLA Guarantee assurance
- Review SOA strategy
- Production Support

There are two storyboards available to track the work on a daily basis, and those are listed below for reference.

- Story Cardboard
    - This is a traditional way of collecting all the stories in a board in the form of stick notes to track daily XP activities. As this manual activity involves more effort and time, it is better to switch to an online form.
- Online Storyboard
    - Online tool Storyboard can be used to store the stories. **Several teams can use it** for different purposes.

Advantages:

- Simple codes, easy to improve
- The whole cycle of Xp is visible.
- Constant testing makes the process more agile
- Uplifting the talent of teams

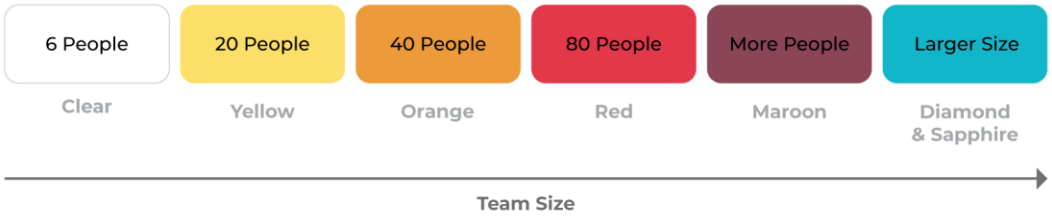
Disadvantages:

- More attention to code and less to design
- Not working in remote working teams
- If issue are not document rightly, possibility for repeating the same issues.

Some of the tools for extreme programming are:

- ❖ Targetprocess
- ❖ Plone Extreme Management Tool
- ❖ Maven and AntHill
- ❖ Ant and XDoclet
- ❖ AntHill and CruiseControl

Crystal Methodologies



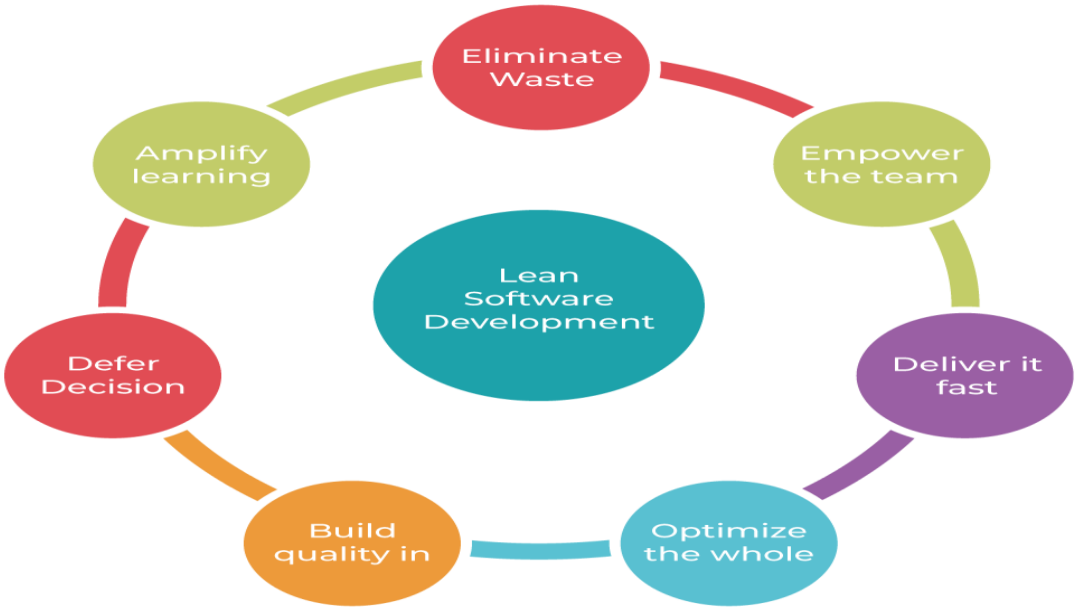
Crystal Methodology is based on three concepts

1. **Chartering:** Various activities involved in this phase are creating a development team, performing a preliminary feasibility analysis, developing an initial plan and fine-tuning the development methodology
2. **Cyclic delivery:** The main development phase consists of two or more delivery cycles, during which the
    1. Team updates and refines the release plan
    2. Implements a subset of the requirements through one or more program test integrate iterations
    3. Integrated product is delivered to real users
    4. Review of the project plan and adopted development methodology
3. **Wrap Up:** The activities performed in this phase are deployment into the user environment, post- deployment reviews and reflections are performed.

Lean Software Development

Lean software development method is based on the principle “Just in time production”. It aims at increasing speed of software development and decreasing cost. Lean development can be summarized in seven steps.

1. Eliminating Waste
2. Amplifying learning
3. Defer commitment (deciding as late as possible)
4. Early delivery
5. Empowering the team
6. Building Integrity
7. Optimize the whole



Advantages include:

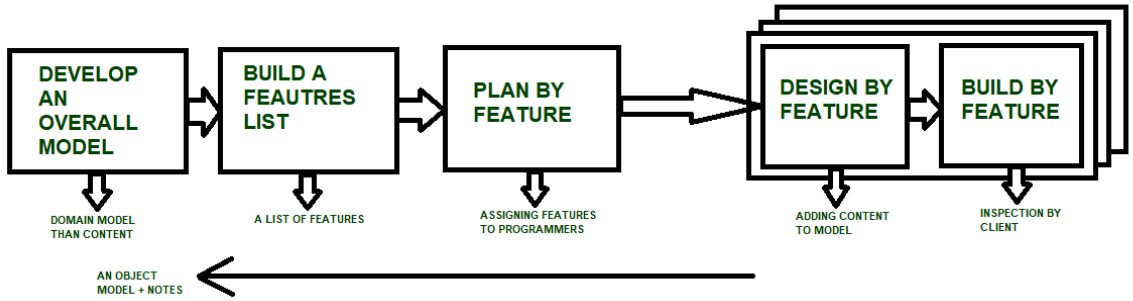
- A streamlined approach allows more functionality to be delivered in less time
- Eliminates unnecessary activity, and as a result, can reduce costs
- Empowers the development team to make decisions, which can also boost morale

Disadvantages include:

- Heavily depends on the team involved, making it not as scalable as other frameworks
- Strong documentation is required, and failure to do so may result in mistakes.

Feature Driven Development (FDD)

This method is focused around “designing & building” features. Unlike other Agile methods in software engineering, FDD describes very specific and short phases of work that has to be accomplished separately per feature. It includes domain walkthrough, design inspection, promote to build, code inspection and design. FDD develops product keeping following things in the target



1. Domain object Modeling
2. Development by feature
3. Component/ Class Ownership
4. Feature Teams
5. Inspections
6. Configuration Management
7. Regular Builds
8. Visibility of progress and results.

Advantages of FDD

- Reporting at all levels leads to easier progress tracking.
- FDD provides continuous success for larger size of teams and projects.
- Reduction in risks is observed as whole model and design is build in smaller segments.
- FDD provides greater accuracy in cost estimation of the project due to feature segmentation.

Disadvantages of FDD

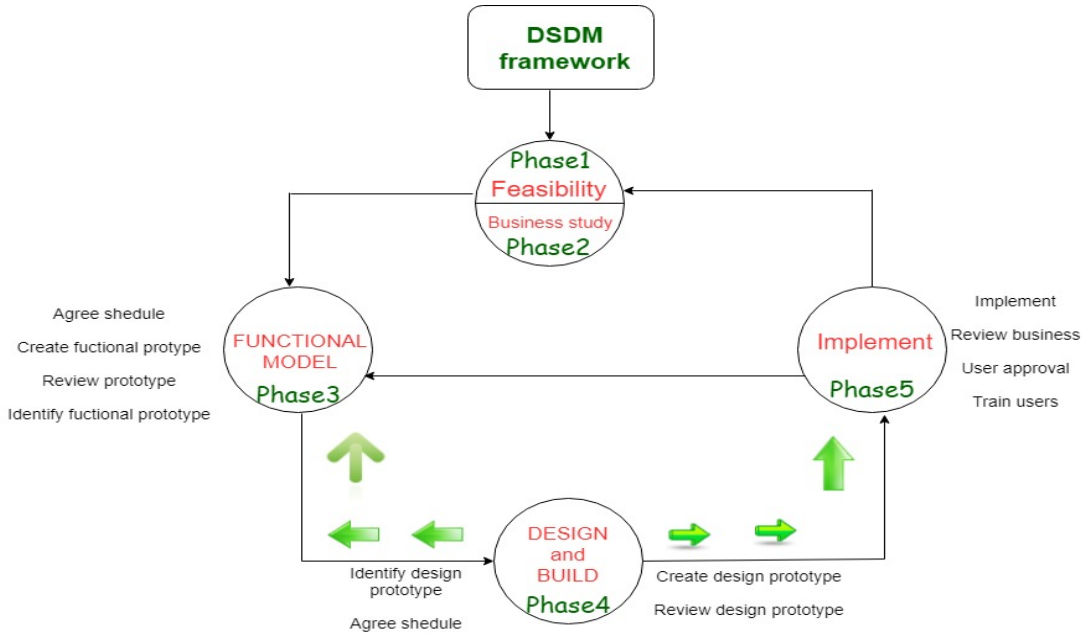
- This agile practice is not good for smaller projects.
- There is high dependency on lead programmers, designers and mentors.
- There is lack of documentation which can create an issue afterwards.

Dynamic Software Development Method (DSDM)

DSDM is a Rapid Application Development (RAD) approach to software development and provides an agile project delivery framework. The important

aspect of DSDM is that the users are required to be involved actively, and the teams are given the power to make decisions. Frequent delivery of product becomes the active focus with DSDM. The techniques used in DSDM are

1. Time Boxing
2. MoSCoW Rules
3. Prototyping



Dynamic Systems Development Method life cycle

The DSDM project consists of 7 phases

1. Pre-project
2. Feasibility Study
3. Business Study
4. Functional Model Iteration
5. Design and build Iteration
6. Implementation
7. Post-project

Advantages of DSDM

- ✓ DSDM provides High level of customer satisfaction from fast time to market and a high quality solution.

- ✓ DSDM provides Low cost of ownership as the process is efficient and effective.
- ✓ DSDM provides Development teams with a better work/life balance, with shorter hours and more time off which results in enhanced productivity and creativity. DSDD provides Fast delivery of value to.
- ✓ DSDM ensures a more predictable schedule and cost .
- ✓ DSDM facilitates better control with increased use of formal inspections.
- ✓ DSDM provides more thorough testing.

Disadvantages of DSDM

Need a disciplined approach to project management, or it will fail.

- ✓ DSDM is not as well-known as many other methods and may require training for those implementing it.
- ✓ Documentation required is extensive.
- ✓ Time must be allocated early in the project to determine how much time each part of the project will take, or initial estimates will be inaccurate. DSDM Requires a relatively large number of experienced staff. Which can be taxing and cause a lot of hassle sometimes.
- ✓ Time scales are very tight – five months from brief to first working model.
- ✓ High level of customer and stakeholder involvement and commitment.

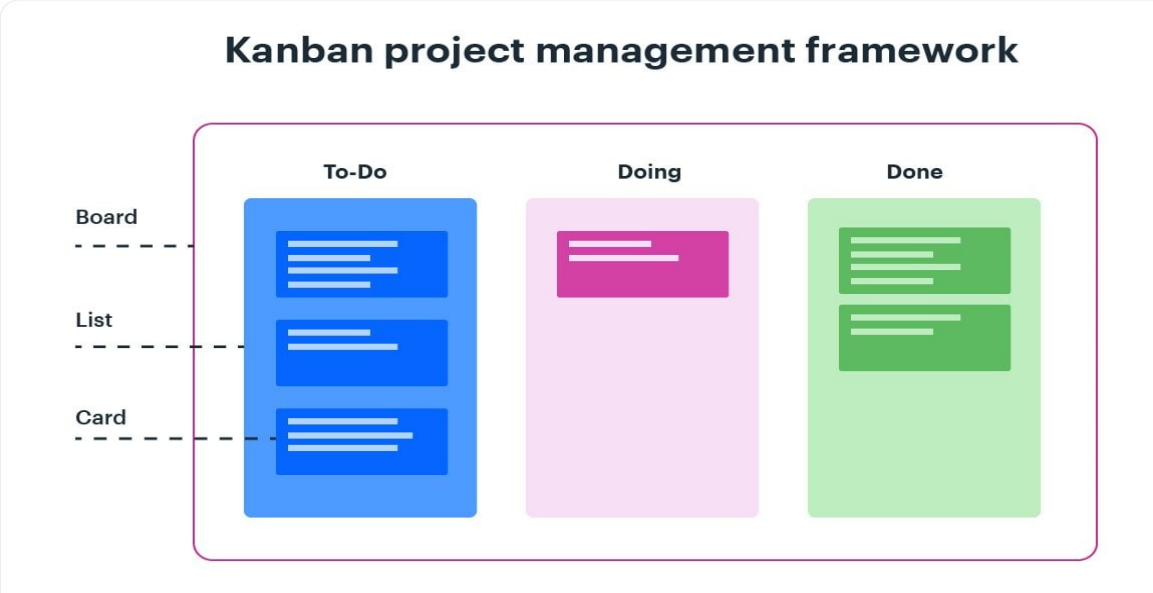
Kanban

The word **Kanban** is of Japanese origin and its meaning is linked to the concept of “just in time”. In practice, the Kanban method is organised on a board or table (Kanban board), divided into columns, showing every flow within the software

production project. As the development evolves, the information contained in the table changes, and whenever a new task comes into play, a new “card” is created.

This methodology is also useful in individual business departments, such as HR, marketing, etc., bringing the desired visibility over all the team’s tasks.

The Kanban method **requires communication and transparency** so that the members of any team all know exactly what stage development is at and can see the status of a project at any time. It primarily focused on team capacity and is best for processes that undergo small changes.



ADVATAGES:

- ✓ Ability to view all the tasks under a single project (by Completed, In Progress or In testing, for example) using the simple concept of “Cards”;
- ✓ You can limit the number of running tasks (that is, the amount of work, bearing its resolution or deliverability in mind);
- ✓ Focuses on the duration of a cycle – how long it takes a task to go from backlog to final stage;
- ✓ Allows continuous deliveries;
- ✓ Probably one of the simplest methodologies to implement outside the “IT world”.

DISADVANTAGES:

- ✓ It's possible for team members to misinterpret the information shown on the Kanban Board, especially when it is shown as outdated;
- ✓ Since there are no timeframes in Kanban, you can face time-related problems, such as delays, at each and every stage.

Difference between scrum and kanban

Methodology	SCRUM	KANBAN
origin	Software development	Lean manufacturing
ideology	Solve the complex problems while delivering value product	Use visuals to improve work-in-progress
Delivery cycle	Regular, fixed-length sprints (i.e. two weeks)	Continuous flow
Practices	Sprint planning, sprint, daily scrum, sprint review, sprint retrospective	Visualize the flow of work, limit work-in-progress, manage flow, incorporate feedback loops
roles	Product owner, scrum master, development team	No required roles
Metrics	velocity	Cycle time throughput time
Artifacts	Product backlog, sprint backlog, product increments	Kanban board
Key concepts or pillars	Transparency, adaptation, inspection	Effective, efficient, predictable
Tools	Jira Software, Axosoft, VivifyScrum, Targetprocess	Jira Software, Kanbanize, SwiftKanban, Trello, Asana
Methods to follow	It follows the iterative method.	It does not follow the iterative approach
Process	To solve a problem, it breaks it into small tasks and then processes it further.	It does not break a problem into sub-problems.