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Agile Methodology

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Goal of the Submodule

Provides an overview of Project management including few Agile Frameworks.

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Topics

- Project management
- WaterFall Methodology
- Agile Methodology
  - Scrum
- Estimation
- Burndown charts
- Velocity Charts

Project Management

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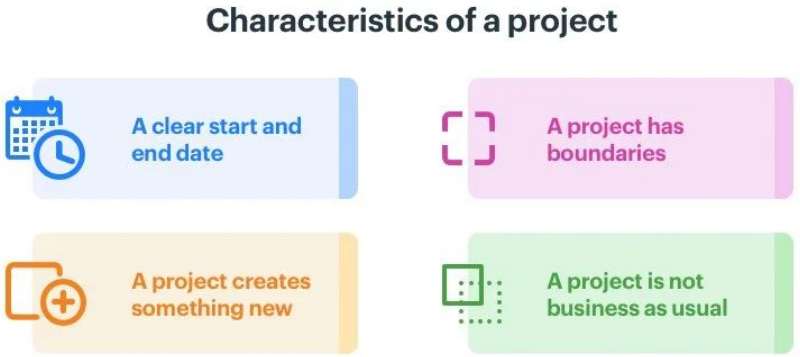
What is a Project?

A **project** is defined as a sequence of tasks that must be completed to attain a certain outcome.

According to the Project Management Institute (**PMI**), the term Project refers to ” *to any temporary endeavor with a definite beginning and end*”.

The outcome of a project results in deliverables. Anything that’s produced during the project’s development such as documents, plans, and project reports is considered a **deliverable**.



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Continued...

What is a Project?

If the desired outcome is achieved on time and within budget, a project is considered to be a success.

Every project operates within certain **boundaries** called constraints:

- Project scope
- Project schedule
- People
- Resources.

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What is Project Management?

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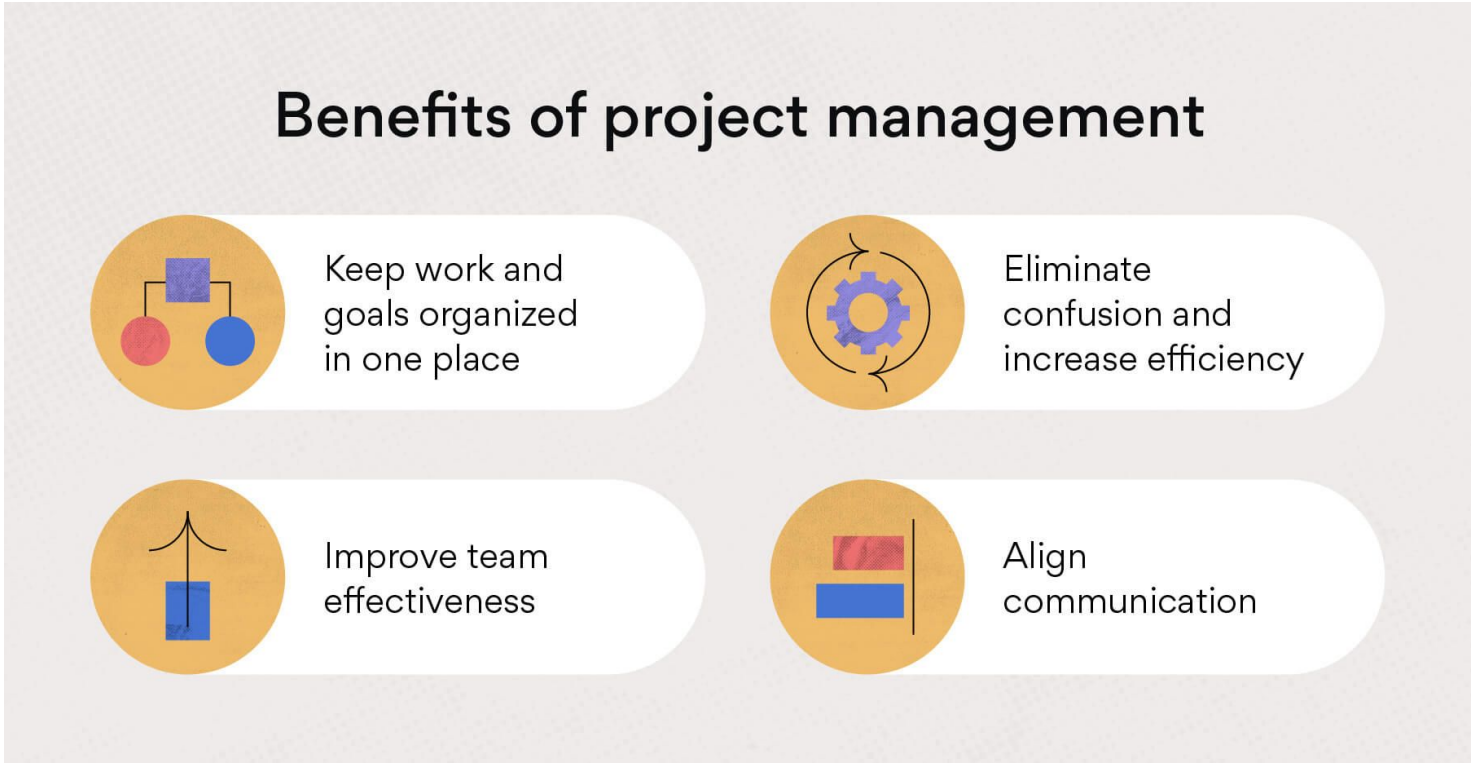
- Project management is a way to help your team **track** all of the work being done in order to meet a project's requirements on time.
- PMI defines project management as "the use of specific knowledge, skills, tools, and techniques to deliver something of value to people."
- In simple terms, project management means the process of leading a team to hit goals or complete deliverables within a set timeframe.
- Project management involves project documentation, planning, tracking, and communication—all with the goal of delivering work successfully within the constraints of time, scope, and budget.

Benefits of Project Management



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Why is Project Management Important ?

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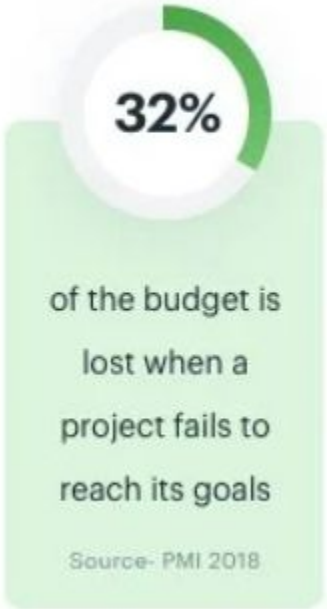

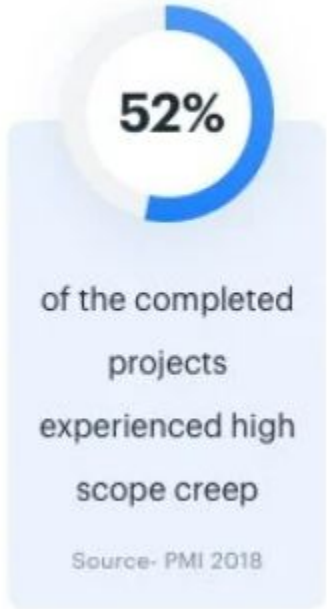

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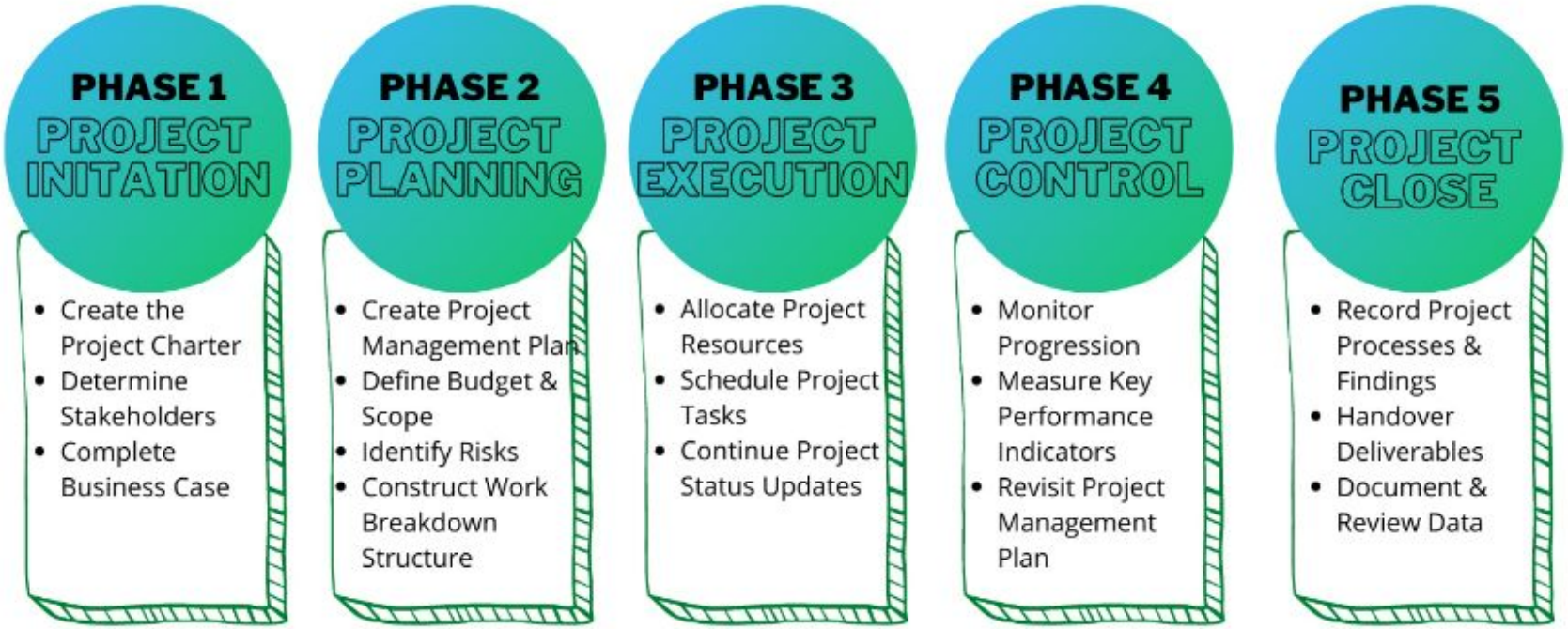
Project Management Process



https://quickbooks.intuit.com/

Project Management Process - self study

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Project initiation. During the initiation phase, you'll assemble your project team and identify your project scope. Depending on the complexity and scale of your project, you may also want to create a project roadmap.

Project planning. Project planning is when you outline your project requirements and define what "project success" will look like. This project phase is critical to successful project management—and hitting your project goals. During the planning stage, you'll create your project plan, identify key milestones, and align on project costs and timeline.

Project execution. The bulk of your project will be the executing phase—this is the time you and your team will be working towards your project deliverables. During the executing phase, you'll want to practice workload management, time management, and task management to make sure your team is aligned, on track, and not overwhelmed.

Project Management Process - self study

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Project performance. Reporting happens during and after the executing phase. During the project, reporting will help you course correct, collaborate, and increase cross-functional visibility into your work. Then, once your project is complete, you can report on how you did, and brainstorm ideas with project stakeholders on how to improve during future projects.

Project closure. Once the project is done, take some time to debrief with project stakeholders in order to capture lessons learned. Depending on your team, you might do this as a project retrospective meeting, a project post mortem, or a project debrief.

When is a project considered a success?

The short of it is that a project that is completed **on time** and **on a budget** can be considered a success.

A project can be evaluated on many criteria:

- Does it meet business requirements?
- Is it delivered on schedule and on a budget?
- Does it deliver the expected value and Return on Investment(ROI)?
- What defines a successful project is likely to change based on the type of project. This is why it is important to define what project success means during the initiation and planning phases of a project.

Types of Project Management

- **Waterfall model.** In the waterfall model, tasks cascade down in a linear approach: once one task is completed, the next is ready, and so on. The waterfall model includes six phases: requirements, analysis, design, coding, testing, and operations. This model is best suited for projects where the deliverables and scope are fixed, since the waterfall method can be less flexible in-the-moment than some other project management methodologies.
- **Agile project management**. Agile is a type of lean project management that's popular with product, engineering, and software development teams. With Agile, teams believe in continuous improvement, flexible reactions to change, iterative processes, and incremental evolution. Some popular Agile frameworks include Scrum and Kanban.
- And a few more…

Waterfall

What is Waterfall Project Management?

The waterfall project management approach follows a **linear, sequential formula**.

It works well for work that has predictable, recurring processes.

Stages:

1. Requirement Gathering Stage/Feasibility Study
2. Design Stage
3. Built Stage
4. Integration and Test Stage
5. Deployment Stage
6. Maintenance Stage

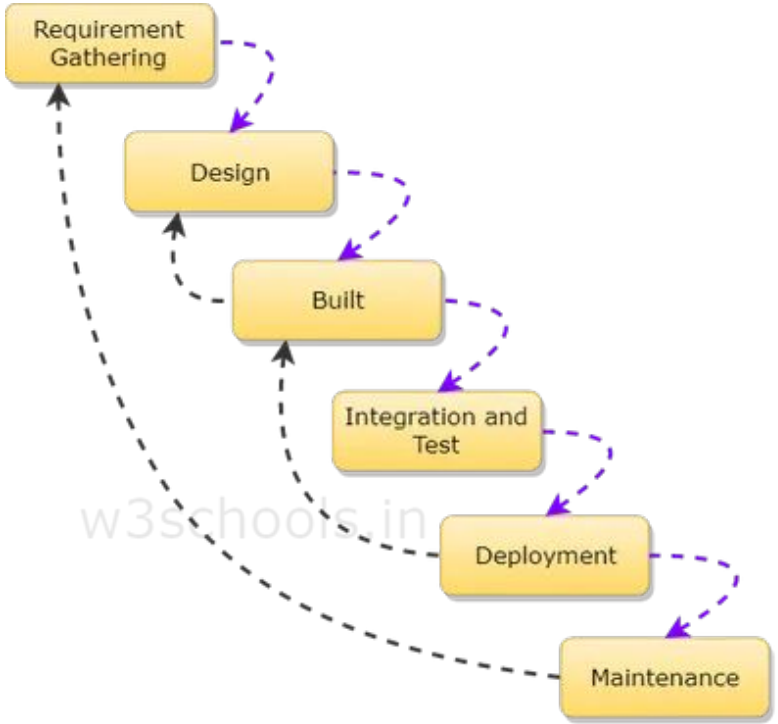

Fig: SDLC Waterfall Model

Waterfall Pros vs Cons

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What is Agile?

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- Agile is an **iterative approach** to project management and software development that helps teams deliver value to their customers faster and with fewer headaches.
- Instead of betting everything on a "big bang" launch, an agile team delivers work in small, but consumable, increments.
- Requirements, plans, and results are **evaluated continuously** so teams have a natural mechanism for responding to change quickly.
- Open communication, collaboration, adaptation, and trust amongst team members are at the heart of agile.
- Agile is a group of methodologies that demonstrate a commitment to **tight feedback cycles and continuous improvement**.

What is Agile Project Management?

It is an iterative approach to manage software development projects that focuses on **continuous releases and incorporating customer feedback** with every iteration.

This increases the development speed, expand collaboration, and foster the ability to better respond to market trends

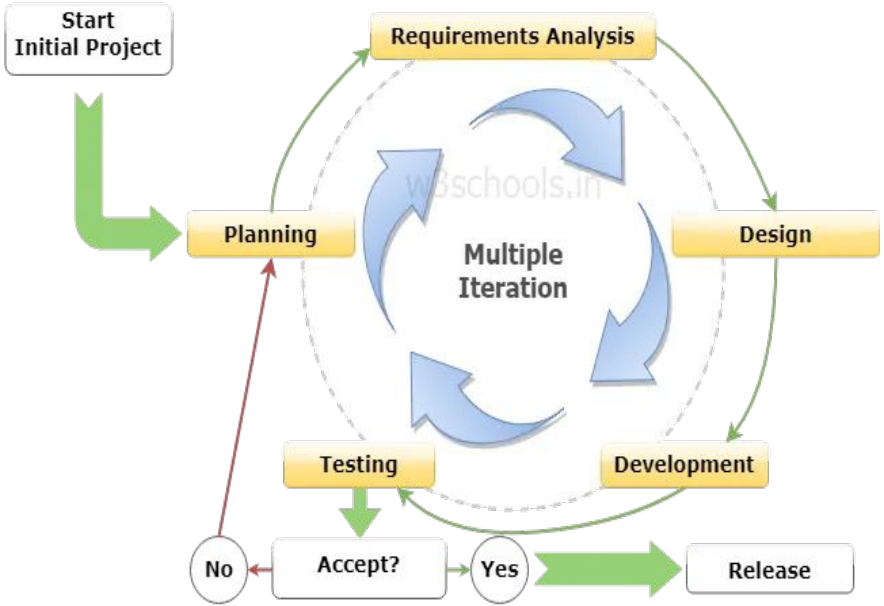
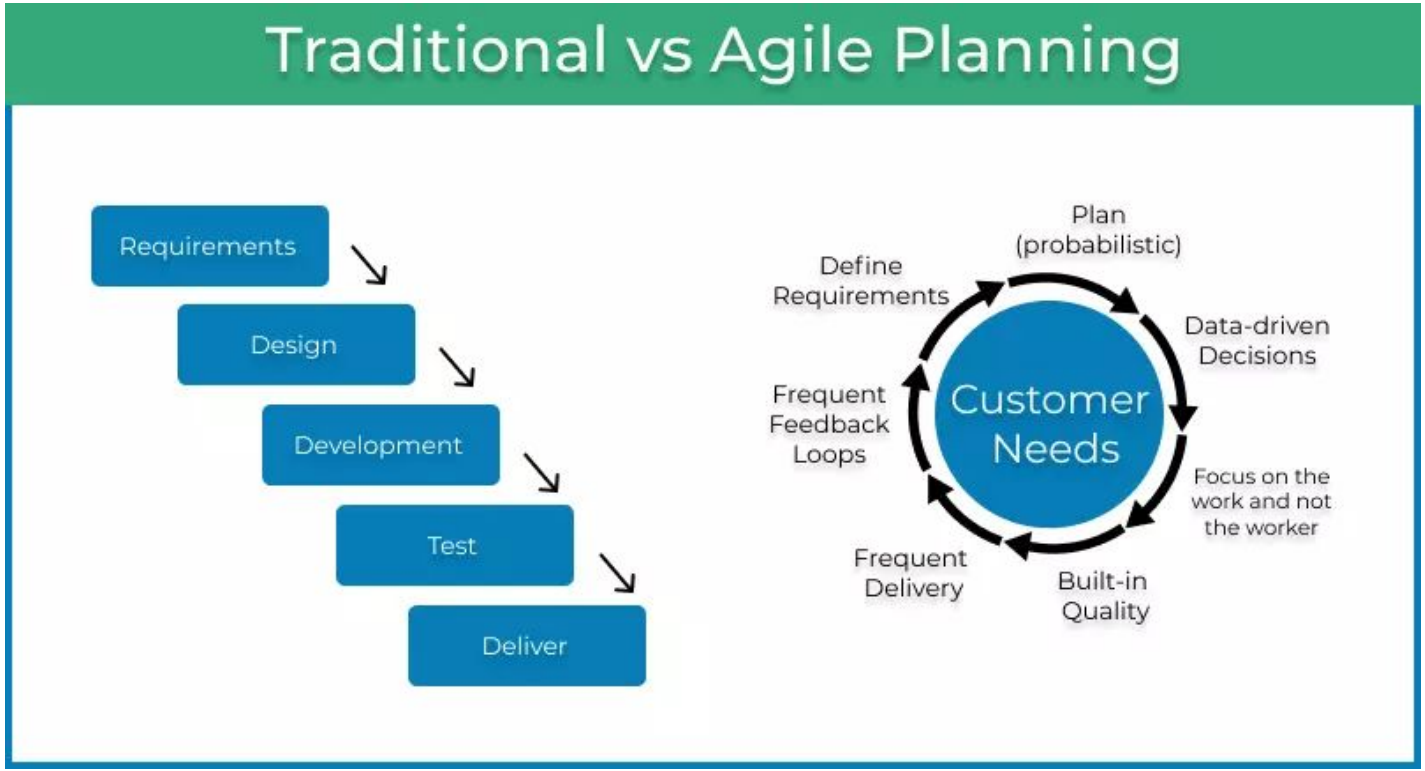


Fig: SDLC Agile Software Development Model

Agile's Four Main Values:

https://hygger.io/

Traditional vs Agile



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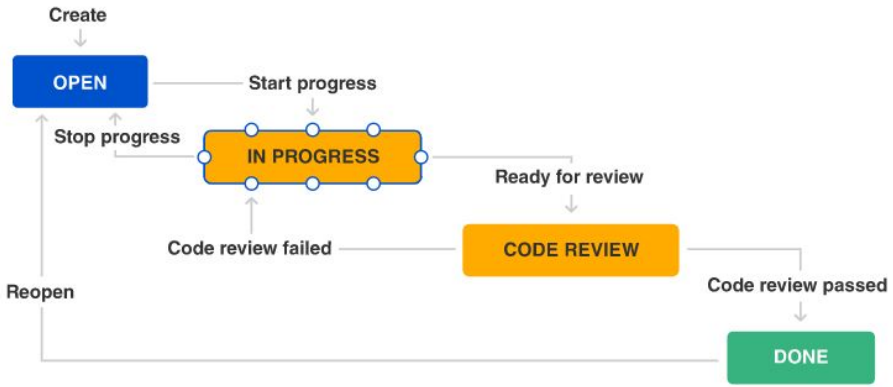
Agile Workflow



TO DO

Work that has not been started

IN PROGRESS

Work that is actively being looked at by the team

CODE REVIEW

Work that is completed and awaiting review

DONE

Work that is completely finished and meets the team's definition of done

https://www.atlassian.com/

What are stories, epics, and initiatives?

Stories, also called “user stories,” are short requirements or requests written from the perspective of an end user.

Epics are large bodies of work that can be broken down into a number of smaller tasks (called stories).

Initiatives are collections of epics that drive toward a common goal.

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User Stories

A user story is the **smallest unit of work** in an agile framework.

User stories **describe the why and the what** behind the day-to-day work of development team members, often expressed as persona + need + purpose.

User stories are often expressed in a simple sentence, structured as follows:

“As a [persona], I [want to], [so that].”

- As Sascha, I want to organize my work, so I can feel more in control.

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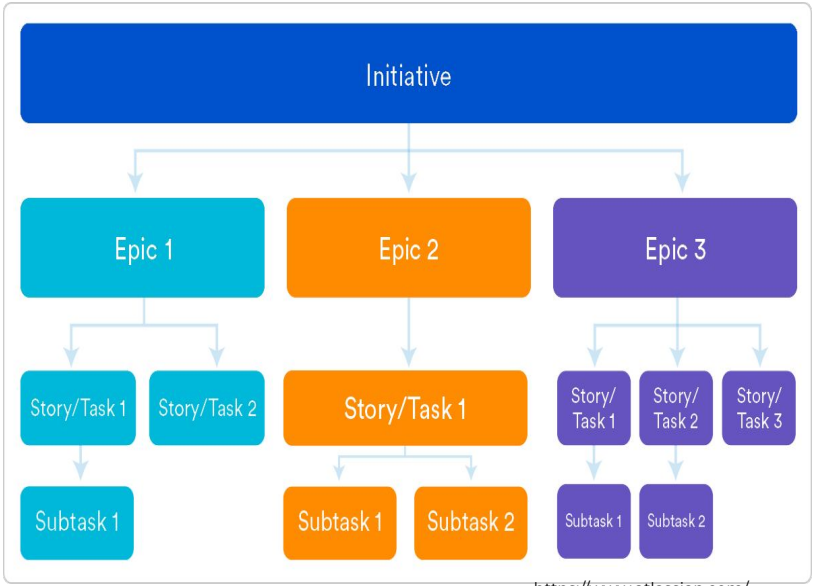
Example of epics in initiatives

Let's say your rocket ship company wants to decrease the cost per launch by 5% this year. That's a great fit for an initiative, as no single epic could likely achieve that big of a goal. Within that initiative, there would be epics such as, "Decrease launch-phase fuel consumption by 1%," "Increase launches per quarter from 3 to 4," and "Turn all thermostats down from 71 to 69 degrees."



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Agile Pros & Cons

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Agile Pros

- High flexibility of the project and the ability to adapt projects frequently.
- High customer satisfaction over the development process.
- Constant interaction among stakeholders that stimulates creativity and leads to better results.
- Continuous quality assurance and attention to detail.

Agile Cons

- Problems with workflow coordination.
- Difficult planning at early stages where you should assess resources, build up teams, and communicate an overall vision of the project.
- Only experienced software developers, testers, and managers should be working on the project.
- Lack of long-term planning.

https://hygger.io/

Different Agile Frameworks

- **Scrum**
- **Kanban**
- Lean (LN)
- Extreme Programming (XP)
- Dynamic Systems Development Model (DSDM)
- Feature-driven development (FDD)
- Crystal
- Adaptive software development (ASD)
- Agile Unified Process (AUP)
- Disciplined Agile delivery
- Scaled Agile Framework
- Scrumban
- RAD (Rapid Application Development)

https://www.vinsys.com/

Scrum

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What is Scrum Framework?

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- Scrum is a **framework** within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value.
- Scrum is a lightweight framework that helps people, teams and organizations generate value through adaptive solutions for complex problems.
- Scrum requires a **Scrum Master** to foster an environment where:
    - A **Product Owner** orders the work for a complex problem into a Product Backlog.
    - The **Scrum Team** turns a selection of the work into an Increment of value during a Sprint.
    - The Scrum Team and its stakeholders inspect the results and adjust for the next Sprint.
    - Repeat

An Introduction to the Scrum Framework

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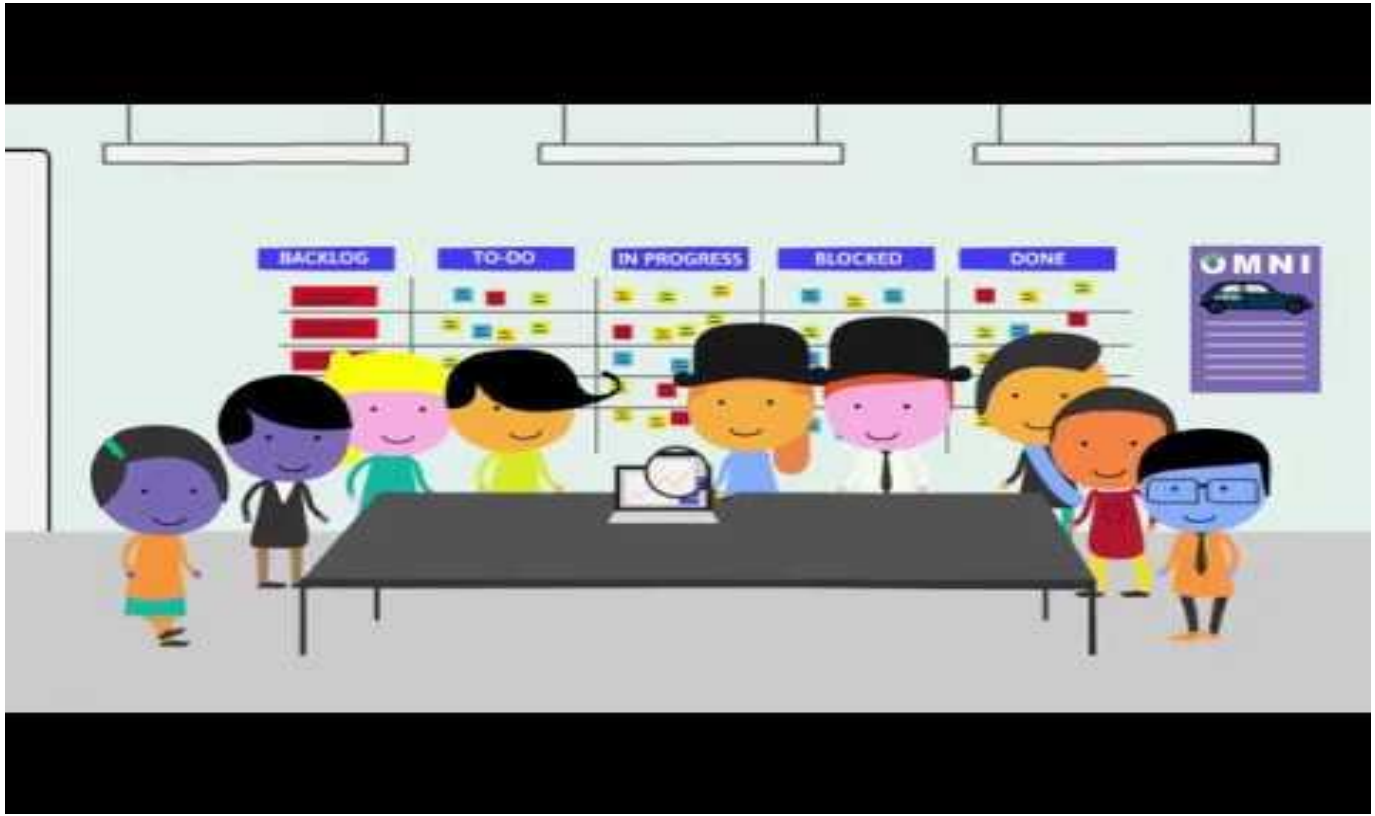

Scrum Glossary - self study

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- **Burn-down Chart:** a chart which shows the amount of work which is thought to remain in a backlog. Time is shown on the horizontal axis and work remaining on the vertical axis. As time progresses and items are drawn from the backlog and completed, a plot line showing work remaining may be expected to fall. The amount of work may be assessed in any of several ways such as user story points or task hours. Work remaining in Sprint Backlogs and Product Backlogs may be communicated by means of a burn-down chart. See also: Burnup Chart
- **Burn-up Chart:** a chart which shows the amount of work which has been completed. Time is shown on the horizontal axis and work completed on the vertical axis. As time progresses and items are drawn from the backlog and completed, a plot line showing the work done may be expected to rise. The amount of work may be assessed in any of several ways such as user story points or task hours. The amount of work considered to be in-scope may also be plotted as a line; the burn-up can be expected to approach this line as work is completed.

Scrum Glossary - self study

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- **Daily Scrum:** Scrum Event that is a 15-minute time-boxed event held each day for the Developers. The Daily Scrum is held every day of the Sprint. At it, the Developers plans work for the next 24 hours. This optimizes team collaboration and performance by inspecting the work since the last Daily Scrum and forecasting upcoming Sprint work. The Daily Scrum is held at the same time and place each day to reduce complexity.
- **Definition of Done:** is a formal description of the state of the Increment when it meets the quality measures required for the product. The moment a Product Backlog item meets the Definition of Done, an Increment is born. The Definition of Done creates transparency by providing everyone a shared understanding of what work was completed as part of the Increment. If a Product Backlog item does not meet the Definition of Done, it cannot be released or even presented at the Sprint Review.
- **Developer:** any member of a Scrum Team, that is committed to creating any aspect of a usable Increment each Sprint regardless of technical, functional or other specialty.

Scrum Glossary - self study

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- **Forecast** (of functionality): the selection of items from the Product Backlog Developers deems feasible for implementation in a Sprint.
- **Increment:** Scrum Artifact that defines the complete and valuable work produced by the Developers during a Sprint. The sum of all Increments form a product.
- **Product Backlog:** A Scrum Artifact that consists of an ordered list of the work to be done in order to create, maintain and sustain a product. Managed by the Product Owner.
- **Product Backlog refinement:** the activity in a Sprint through which the Product Owner and the Developers add granularity to the Product Backlog.
- **Product Owner:** Role in Scrum accountable for maximizing the value of a product, primarily by incrementally managing and expressing business and functional expectations for a product to the Developers.

Scrum Glossary - self study

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- **Product Goal:** The Product Goal describes a future state of the product which can serve as a target for the Scrum Team to plan against. The Product Goal is in the Product Backlog. The rest of the Product Backlog emerges to define “what” will fulfill the Product Goal.
- **Ready:** a shared understanding by the Product Owner and the Developers regarding the preferred level of description of Product Backlog items introduced at Sprint Planning.
- **Scrum:** Scrum is a lightweight framework that helps people, teams and organizations generate value through adaptive solutions for complex problems as defined in the Scrum GuideTM.
- **Scrum Board:** a physical board to visualize information for and by the Scrum Team, often used to manage Sprint Backlog. Scrum boards are an optional implementation within Scrum to make information visible.
- **Scrum Master:** Role within a Scrum Team accountable for guiding, coaching, teaching and assisting a Scrum Team and its environments in a proper understanding and use of Scrum.

Scrum Glossary - self study

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- **Scrum Team:** a self-managing team consisting of one Scrum Master, one Product Owner, and Developers.
- **Scrum Values:** a set of fundamental values and qualities underpinning the Scrum framework; commitment, focus, openness, respect and courage.
- **Self-Managing:** Scrum Teams are cross-functional, meaning the members have all the skills necessary to create value each Sprint. They are also self-managing, meaning they internally decide who does what, when, and how.
- **Sprint:** Scrum Event that is time-boxed to one month or less, that serves as a container for the other Scrum events and activities. Sprints are done consecutively, without intermediate gaps.
- **Sprint Backlog:** Scrum Artifact that provides an overview of the development work to realize a Sprint's goal, typically a forecast of functionality and the work needed to deliver that functionality. Managed by the Developers.

Scrum Glossary - self study

- **Sprint Goal:** a short expression of the purpose of a Sprint, often a business problem that is addressed. Functionality might be adjusted during the Sprint in order to achieve the Sprint Goal.
- **Sprint Planning:** Scrum Event that is time-boxed to 8 hours, or less, to start a Sprint. It serves for the Scrum Team to inspect the work from the Product Backlog that's most valuable to be done next and design that work into Sprint backlog.
- **Sprint Retrospective:** Scrum Event that is set to a time-box of 3 hours, or less, to end a Sprint. It serves for the Scrum Team to inspect the past Sprint and plan for improvements to be enacted during future Sprints.
- **Sprint Review:** Scrum Event that is set to a time-boxed of 4 hours, or less, to conclude the development work of a Sprint. It serves for the Scrum Team and the stakeholders to inspect the Increment of product resulting from the Sprint, assess the impact of the work performed on overall progress toward the Product Goal and update the Product backlog in order to maximize the value of the next period.

Scrum Glossary - self study

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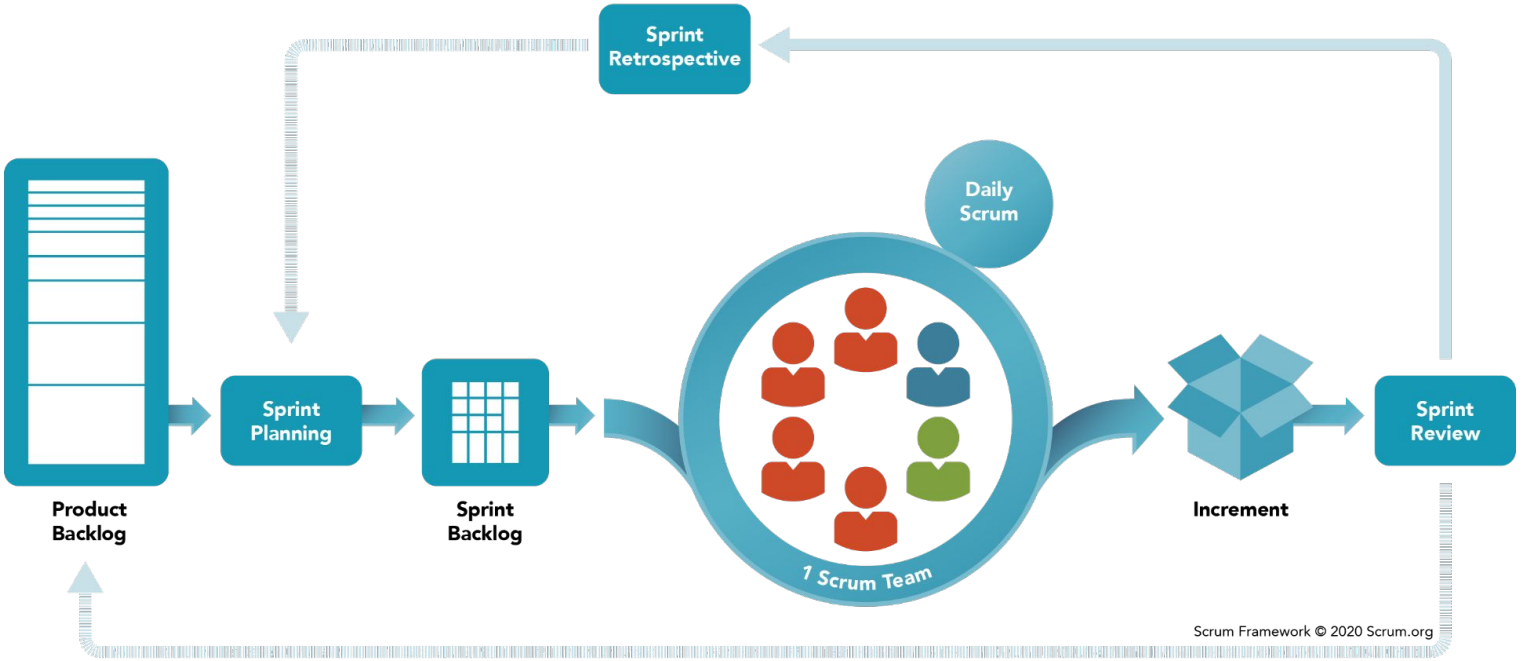
- **Stakeholder:** a person external to the Scrum Team with a specific interest in and knowledge of a product that is required for incremental discovery. Represented by the Product Owner and actively engaged with the Scrum Team at Sprint Review.
- **Velocity:** an optional, but often used, indication of the amount of Product Backlog turned into an Increment of product during a Sprint by a Scrum Team, tracked by the Developers for use within the Scrum Team.

Scrum Values

How scrum works



Scrum Events

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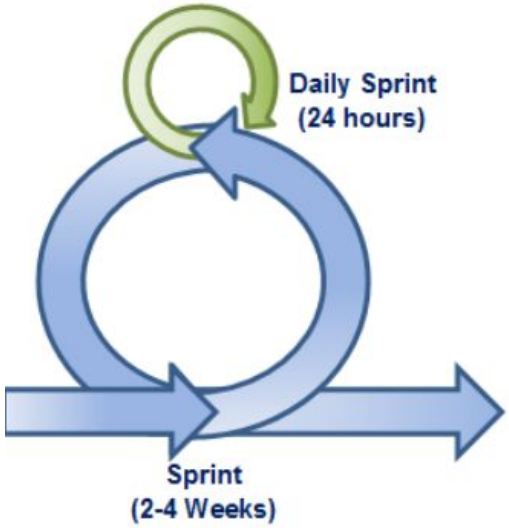
- Sprint
- Sprint Planning
- Daily Scrum
- Sprint Review
- Sprint Retrospective

Scrum Events: Sprint

- Sprints are the heartbeat of Scrum, where ideas are turned into value.
- They are **fixed length events of one month or less** to create consistency. A new Sprint starts immediately after the conclusion of the previous Sprint.
- All the work necessary to achieve the Product Goal, including Sprint Planning, Daily Scrums, Sprint Review, and Sprint Retrospective, happen within Sprints.



Each sprint lasts between 2 and 4 weeks. The work done in a day is sometimes called the Daily Sprint. Each day there is a short Stand-Up Meeting to keep the Sprint on track.

http://www.wilsisney.com/

During the Sprint

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- No changes are made that would endanger the Sprint Goal;
- Quality does not decrease;
- The Product Backlog is refined as needed; and,
- Scope may be clarified and renegotiated with the Product Owner as more is learned.
- Sprints enable predictability by ensuring inspection and adaptation of progress toward a Product Goal at least every calendar month. When a Sprint’s horizon is too long the Sprint Goal may become invalid, complexity may rise, and risk may increase. Shorter Sprints can be employed to generate more learning cycles and limit risk of cost and effort to a smaller time frame. Each Sprint may be considered a short project.

Scrum Events: Sprint Planning

- Sprint Planning initiates the Sprint by laying out the work to be performed for the Sprint. This resulting plan is created by the collaborative work of the entire Scrum Team.
- The Product Owner ensures that attendees are prepared to discuss the most important Product Backlog items and how they map to the Product Goal. The Scrum Team may also invite other people to attend Sprint Planning to provide advice.
- Sprint Planning addresses the following topics:
    - Why is this Sprint valuable?
    - What can be Done this Sprint?
    - How will the chosen work get done?

Continued...

Sprint Planning Event

Why is this Sprint valuable?

- The Product Owner proposes how the product could increase its value and utility in the current Sprint. The whole Scrum Team then collaborates to define a Sprint Goal that communicates why the Sprint is valuable to stakeholders. The Sprint Goal must be finalized prior to the end of Sprint Planning.

What can be Done this Sprint?

- Through discussion with the Product Owner, the Developers select items from the Product Backlog to include in the current Sprint. The Scrum Team may refine these items during this process, which increases understanding and confidence.
- Selecting how much can be completed within a Sprint may be challenging. However, the more the Developers know about their past performance, their upcoming capacity, and their Definition of Done, the more confident they will be in their Sprint forecasts.

Continued...

Sprint Planning Event

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How will the chosen work get done?

- For each selected Product Backlog item, the Developers plan the work necessary to create an Increment that meets the Definition of Done. This is often done by decomposing Product Backlog items into smaller work items of one day or less. How this is done is at the sole discretion of the Developers. No one else tells them how to turn Product Backlog items into Increments of value.

The Sprint Goal, the Product Backlog items selected for the Sprint, plus the plan for delivering them are together referred to as the Sprint Backlog.

Sprint Planning is timeboxed to a **maximum of eight hours** for a one-month Sprint. For shorter Sprints, the event is usually shorter.

Role of The Development Team during Sprint Planning

- Make sure stories have acceptance criteria, it helps the team to understand what is needed to complete a story.
- Do not rush in forecasting by picking up stories based on the previous team's velocity. Spend time to understand even if these were refined/groomed because some new information might have emerged lately.
- If a story seems big, then split it like a slice of cake to ensure it still deliver value to the customers/users.
- Craft Sprint Goal together with the Product Owner and the Scrum Master as it will help the team understand the Sprint's purpose.

Continued...

Role of The Development Team during Sprint Planning

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- Talk about design and how to accomplish stories because you plan and not just pick up work. Scrum framework doesn’t mention when to discuss and decide design and architecture, but my experience says product backlog refinement and sprint planning has been a good place to discuss these.
- Refer Definition of Done while coming up with a plan as it may influence the amount of work a team can forecast during the sprint planning.

Scrum Events: Daily Scrum

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Daily Scrum Meeting

- Time Box (15 min)
- Same place
- Same time
- Facilitated by Scrum Master

3 **Focus upon 3 questions:**

- What did I do yesterday?
- What will I do today?
- Is there any impediment?

HYGGER

Scrum Events: Daily Scrum

The **purpose** of the Daily Scrum is to inspect progress toward the Sprint Goal and adapt the Sprint Backlog as necessary, adjusting the upcoming planned work.

The Daily Scrum is a **15-minute event** for the Developers of the Scrum Team. To reduce complexity, it is held at the same time and place every working day of the Sprint. If the Product Owner or Scrum Master are actively working on items in the Sprint Backlog, they participate as Developers.

The Developers can select whatever structure and techniques they want, as long as their Daily Scrum focuses on progress toward the Sprint Goal and produces an actionable plan for the next day of work. This creates focus and improves self-management.

Daily Scrums **improve communications, identify impediments, promote quick decision-making**, and consequently eliminate the need for other meetings.

The Daily Scrum is not the only time Developers are allowed to adjust their plan. They often meet throughout the day for more detailed discussions about adapting or re-planning the rest of the Sprint's work.

How to Keep Standups Effective?

1. Be Mindful of the Participant's Time
2. Stay Focused
3. Set Clear Goals
4. Make the Format Flexible if Necessary
5. Involve Distributed Employees
6. Stay Consistent
7. Follow Up

Best Practices of Daily Standup Meetings

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- In case a status update turns into a lengthy discussion, then the facilitator should step in and propose to dissect it after the standup is over.
- In case someone starts to unnecessarily recount a play-by-play of how he/she debugged a certain problem, the facilitator should step in and remind about a quick and concise update.
- In case team members tell that they're working on a problem you've already faced before, tell them that you can propose help if they need it.
- The Daily Standup is an internal meeting. But in case others are present, the Scrum Master ensures that they do not disrupt the process and act only as spectators.
- In case your teammates seem exhausted from the workday, perhaps it may make sense to move the Daily Scrum to a different time when people are more energized.

Tips for Remote Stand-Ups

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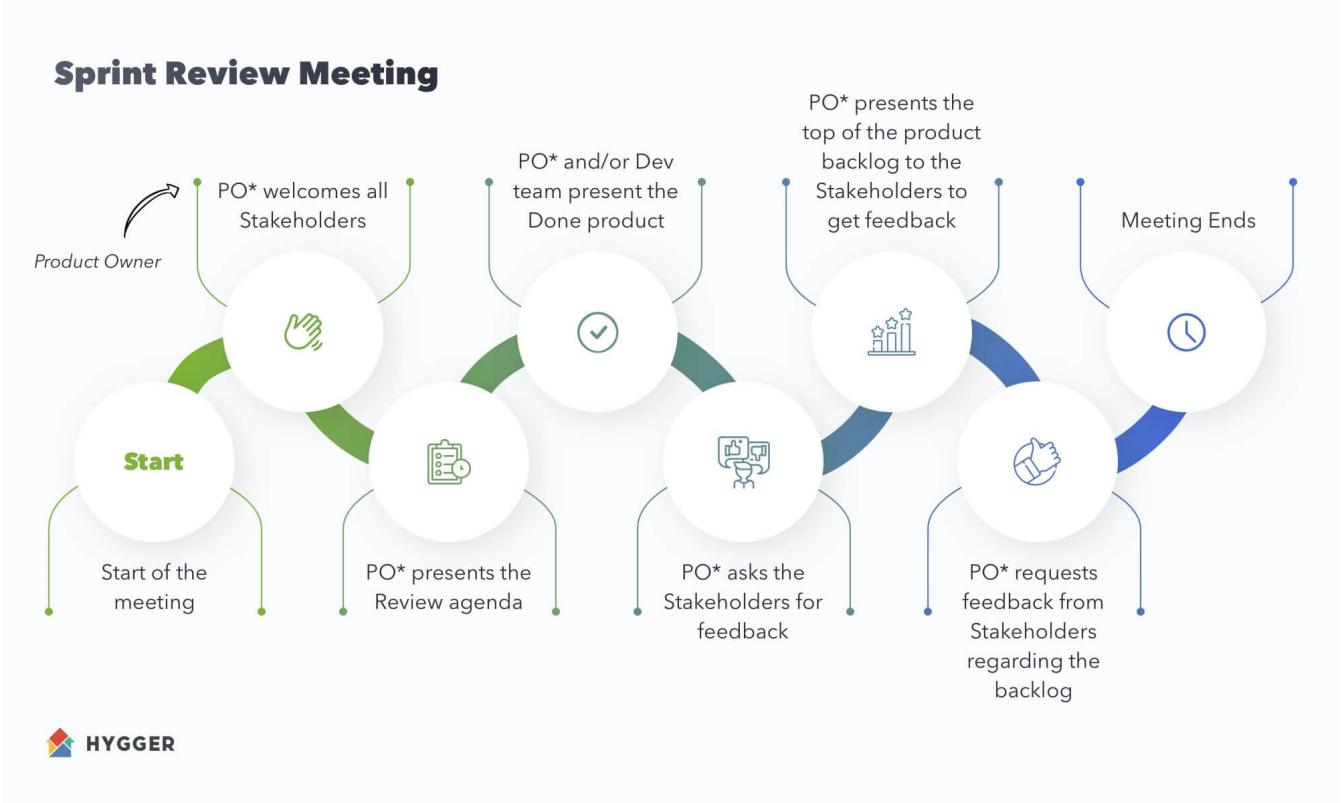
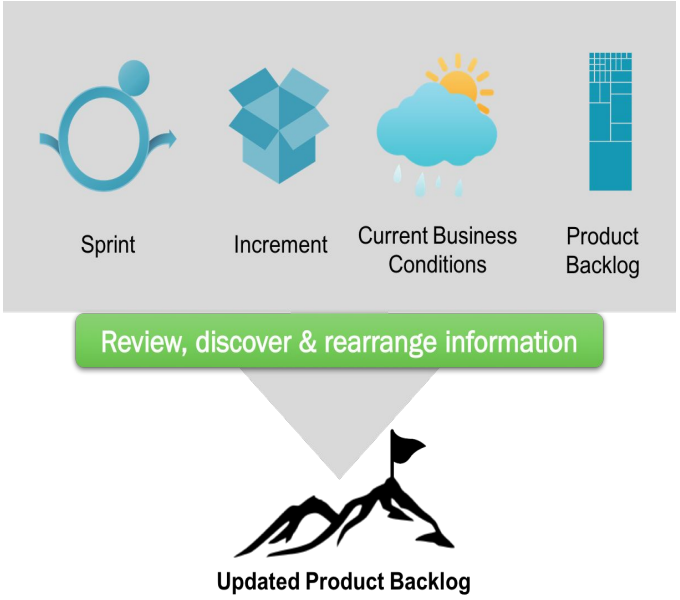
- Make team members visual using an appropriate video-conferencing tool. For example, Zoom provides visibility to all team members so you can connect with more than just the person that's talking.
- Reference your Scrum or Kanban board. Be sure, gathering around your online task board can be a powerful way to keep everyone on the same page.
- Be open to asynchronous meetings. Sometimes teams have no overlapping work hours. In this case, they can comment on their work board to share updates as they come online.

Scrum Events: Sprint Review



Scrum Events: Sprint Review

- The purpose of the Sprint Review is to **inspect the outcome** of the Sprint and determine future adaptations. The Scrum Team presents the results of their work to key stakeholders and progress toward the Product Goal is discussed.
- The result of the Sprint Review is a **revised Product Backlog** that defines the probable Product Backlog items for the next Sprint. The Product Backlog may also be adjusted overall to meet new opportunities.
- The Sprint Review is the second to last event of the Sprint and is timeboxed to a **maximum of four hours** for a one-month Sprint. For shorter Sprints, the event is usually shorter.



https://www.scrum.org/

Scrum Events: Sprint Review

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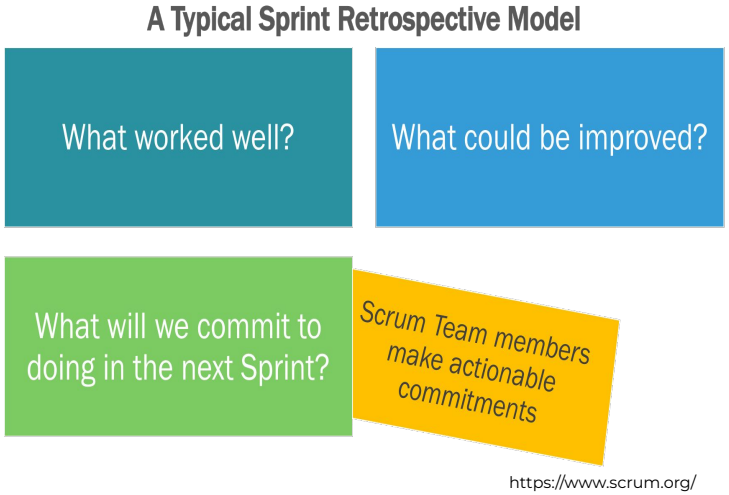
- Attendees include the Scrum Team and key stakeholders invited by the Product Owner;
- Members of the Scrum Team explain what Product Backlog items have been “Done” and what has not been “Done”;
- The Developers discuss what went well during the Sprint, what problems it ran into, and how those problems were solved;
- The Developers demonstrate the work that it has “Done” and answers questions about the Increment;
- The Product Owner discusses the Product Backlog as it stands. He or she projects likely target and delivery dates based on progress to date (if needed);
- The entire group collaborates on what to do next, so that the Sprint Review provides valuable input to subsequent Sprint Planning;

Scrum Events: Sprint Retrospective

- The purpose of the Sprint Retrospective is to plan ways to **increase quality and effectiveness**.
- The Scrum Team inspects how the last Sprint went with regards to individuals, interactions, processes, tools, and their Definition of Done.
- The Sprint Retrospective **concludes the Sprint**. It is timeboxed to a **maximum of three hours** for a one-month Sprint. For shorter Sprints, the event is usually shorter.



Scrum Events: Sprint Retrospective

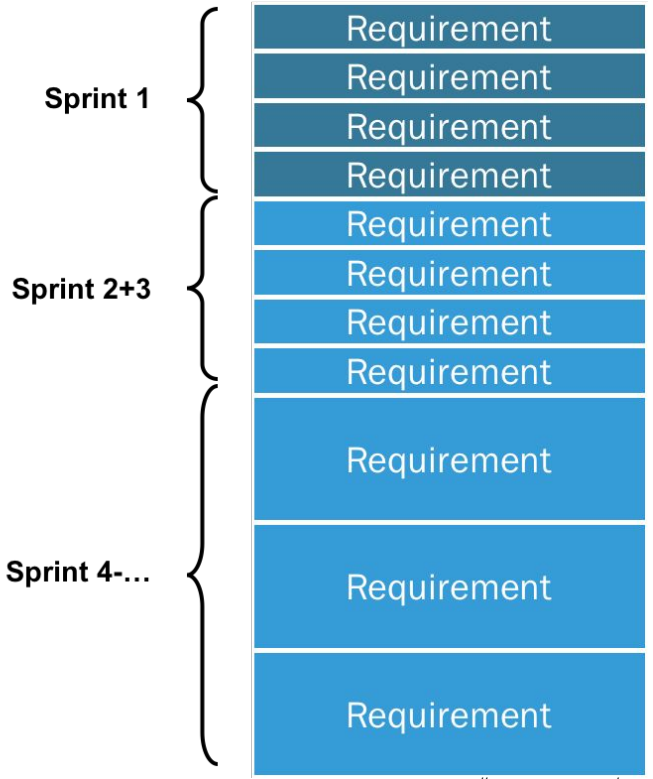
- During the Sprint Retrospective, the team discusses:
  - What went well in the Sprint
  - What could be improved
  - What will we commit to improve in the next Sprint
- During each Sprint Retrospective, the Scrum Team plans **ways to increase product quality** by improving work processes or adapting the definition of “Done” if appropriate and not in conflict with product or organizational standards.
- By the end of the Sprint Retrospective, the Scrum Team should have identified improvements that it will implement in the next Sprint.

Scrum Artifacts

- Product Backlog
- Sprint Backlog
- Increment

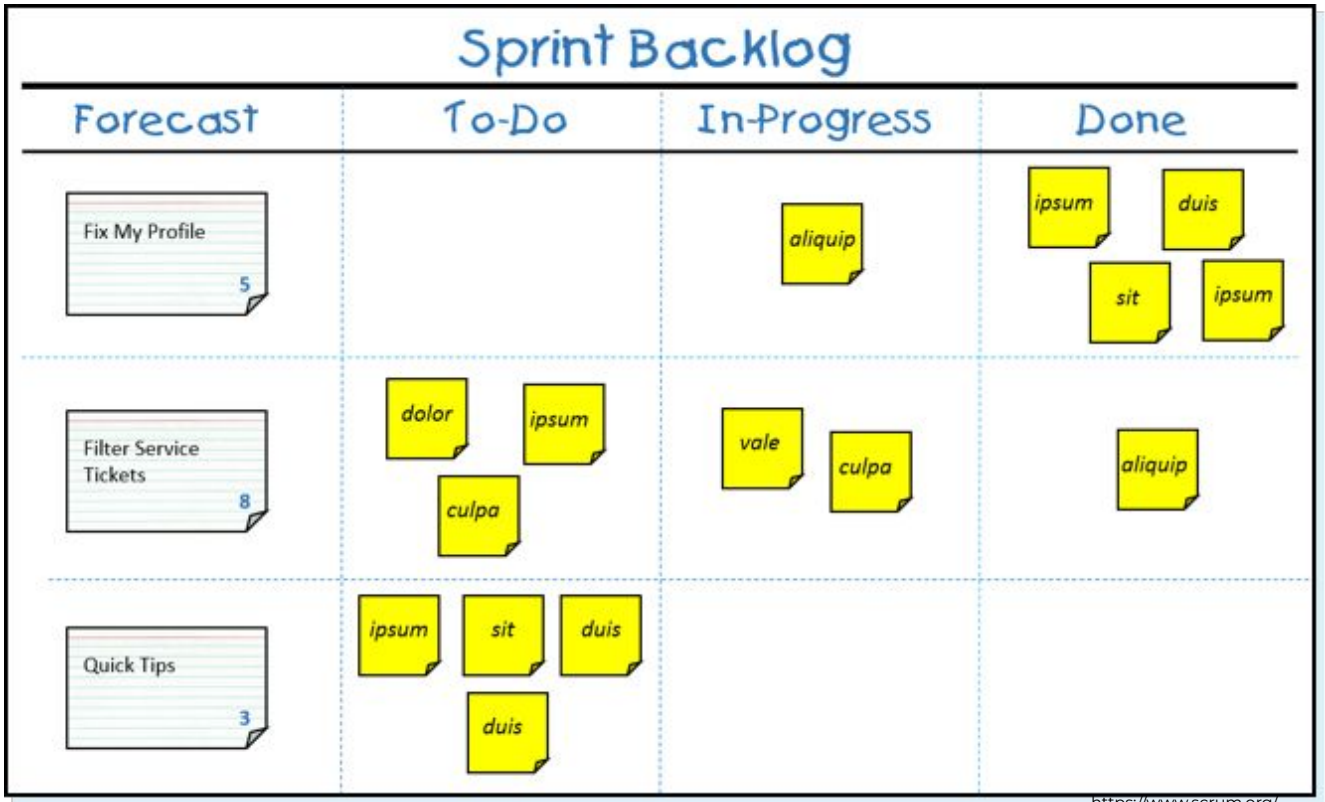
Scrum Artifact: Product Backlog

- The **Product Backlog** is an emergent, ordered list of what is needed to improve the product. It is the single source of work undertaken by the Scrum Team.
- **Product Backlog refinement** is the act of breaking down and further defining Product Backlog items into smaller more precise items.
- The **Product Goal** describes a future state of the product which can serve as a target for the Scrum Team to plan against. The Product Goal is in the Product Backlog. The rest of the Product Backlog emerges to define “what” will fulfill the Product Goal.



https://www.scrum.org/

Scrum Artifact: Sprint Backlog



https://www.scrum.org/

Scrum Artifact: Sprint Backlog

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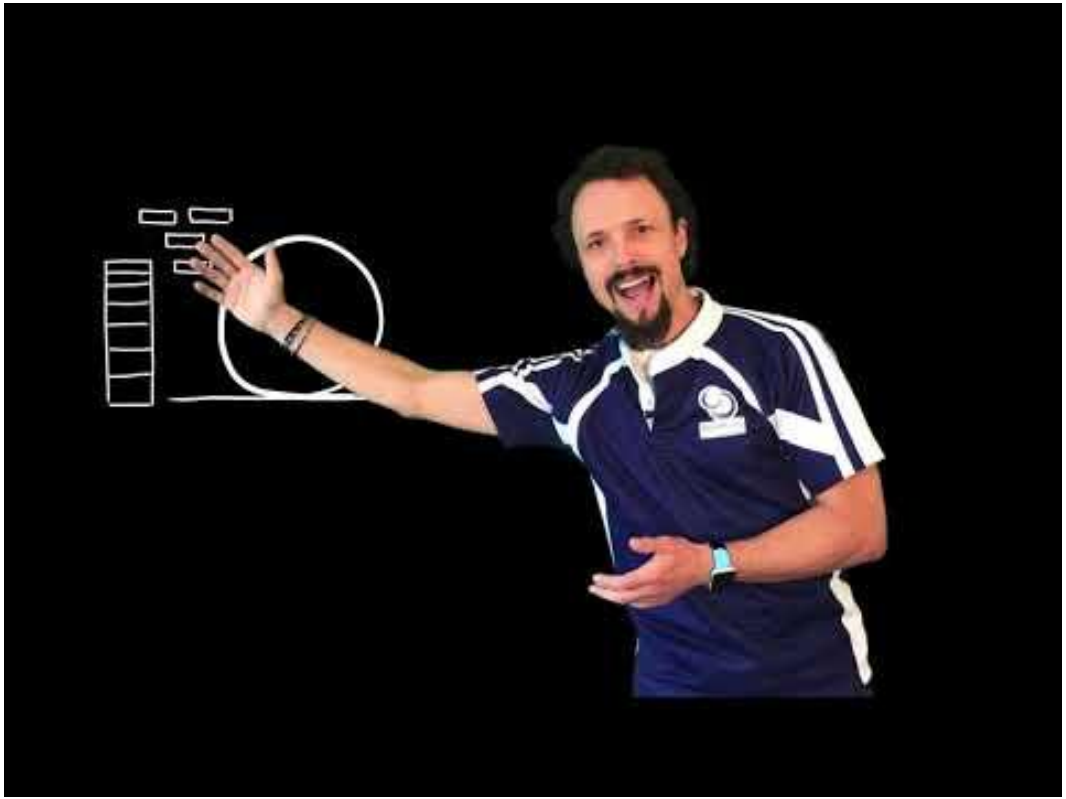
- The **Sprint Backlog** is composed of the Sprint Goal (why), the set of Product Backlog items selected for the Sprint (what), as well as an actionable plan for delivering the Increment (how)
- The Sprint Backlog is a plan by and for the Developers. It is a highly visible, real-time picture of the work that the Developers plan to accomplish during the Sprint in order to achieve the Sprint Goal.
- The **Sprint Goal** is the single objective for the Sprint. The Sprint Goal is created during the Sprint Planning event and then added to the Sprint Backlog.
- **An Increment** is a concrete stepping stone toward the Product Goal. Each Increment is additive to all prior Increments and thoroughly verified, ensuring that all Increments work together. In order to provide value, the Increment must be usable.
- Work cannot be considered part of an Increment unless it meets the Definition of Done.

Scrum Artifact: Increment

- The **Definition of Done** is a formal description of the state of the Increment when it meets the quality measures required for the product.
- The **moment a Product Backlog item meets the Definition of Done, an Increment is born**.
- The Definition of Done creates transparency by providing everyone a shared understanding of **what work was completed** as part of the Increment. If a Product Backlog item does not meet the Definition of Done, it cannot be released or even presented at the Sprint Review. Instead, it returns to the Product Backlog for future consideration.
- If the Definition of Done for an increment is part of the standards of the organization, all Scrum Teams must follow it as a minimum. If it is not an organizational standard, the Scrum Team must create a Definition of Done appropriate for the product.

Definition of Done vs Acceptance Criteria



Scrum Pros & Cons

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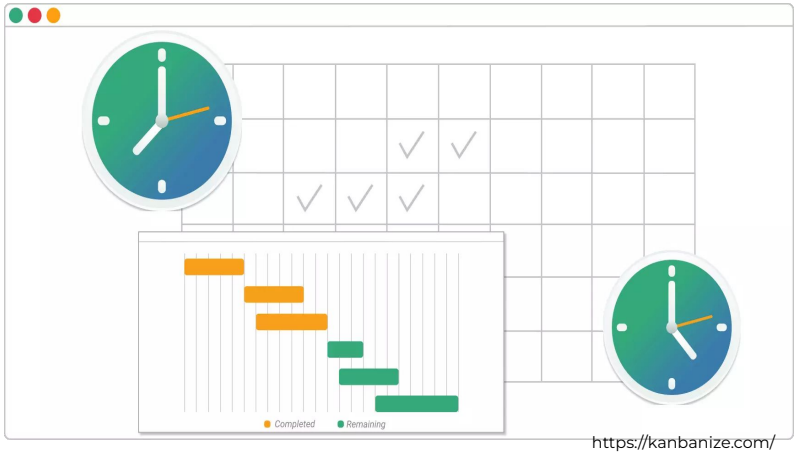
Estimation

Estimation

- Agile estimation is the process for estimating the **effort required to complete a prioritized task** in the product backlog. This effort is usually measured with respect to the time it will take to complete that task.
- Agile methodologies/frameworks such as Scrum use **story points** based on past team velocity to estimate the required effort for completing user stories in a team's product backlog. Methods such as Kanban, on the other hand, rely on **historical workflow data** to create probabilistic outcomes for the duration of single or multiple work items.



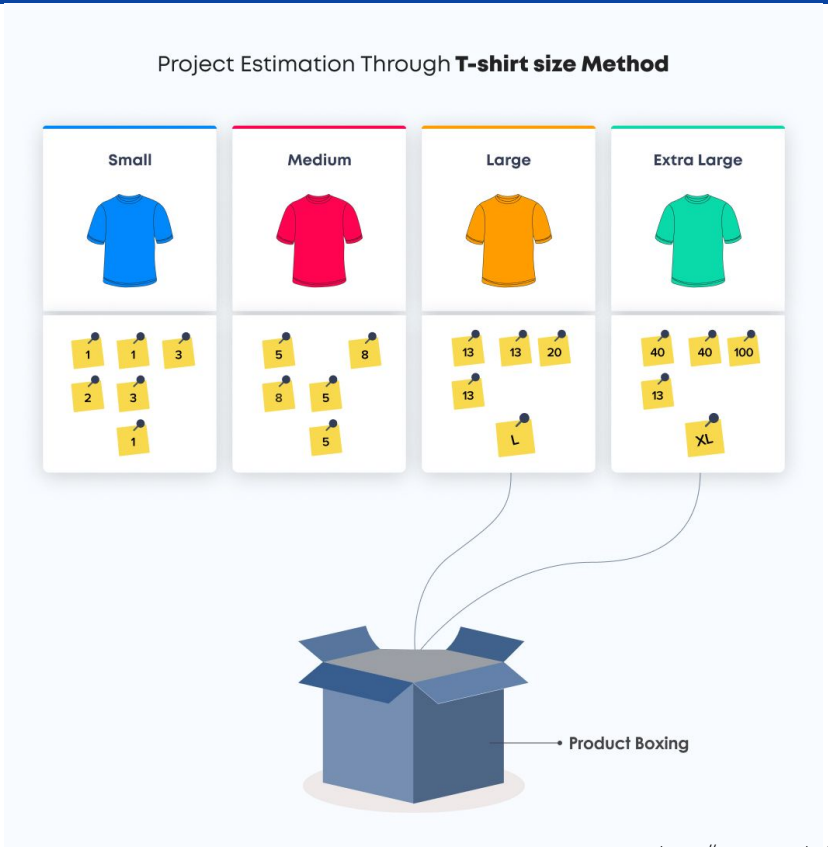
https://kanbanize.com/

Techniques for Estimation

- T-Shirt Size Estimation.
- Planning Poker.
- The Bucket System Estimation.
- Three-Point Method.

T-Shirt Size Estimation

- T-shirt sizing is one of the methods used by Scrum teams to estimate various work items (user stories, epics, initiatives). Work items are each estimated using standard t-shirt sizing – XS, S, M, L, XL, XXL. The sizes give an overview of the complexity or required effort depending on the team's preference.



https://www.netsolutions.com/

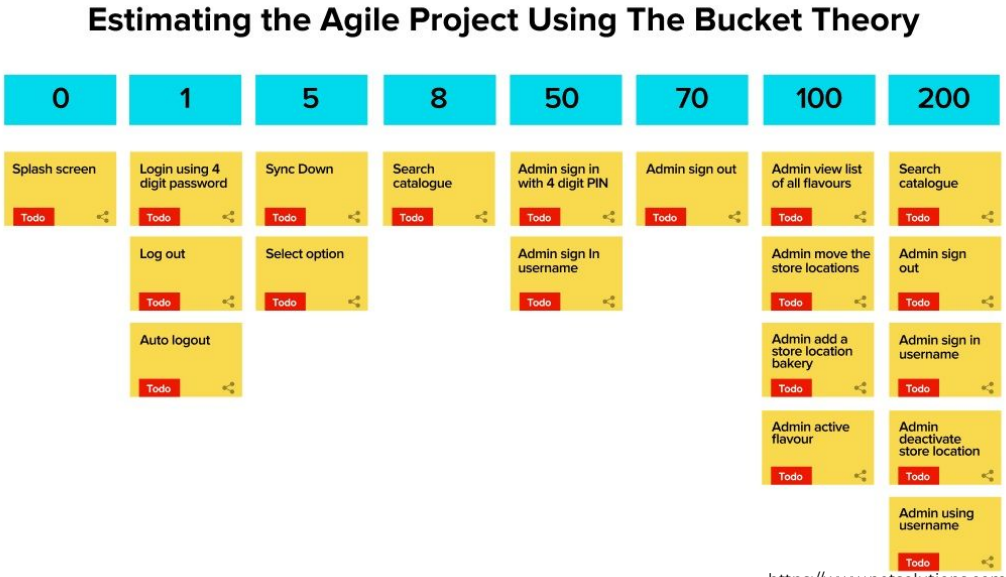
Planning Poker

In Scrum, team members use numbered cards to assign story points to user stories and determine work items' complexity. The team discusses their estimates based on previous experience or expert's opinion, and the prevailing number becomes the item's final estimation.

https://www.netsolutions.com/

The Bucket System Estimation

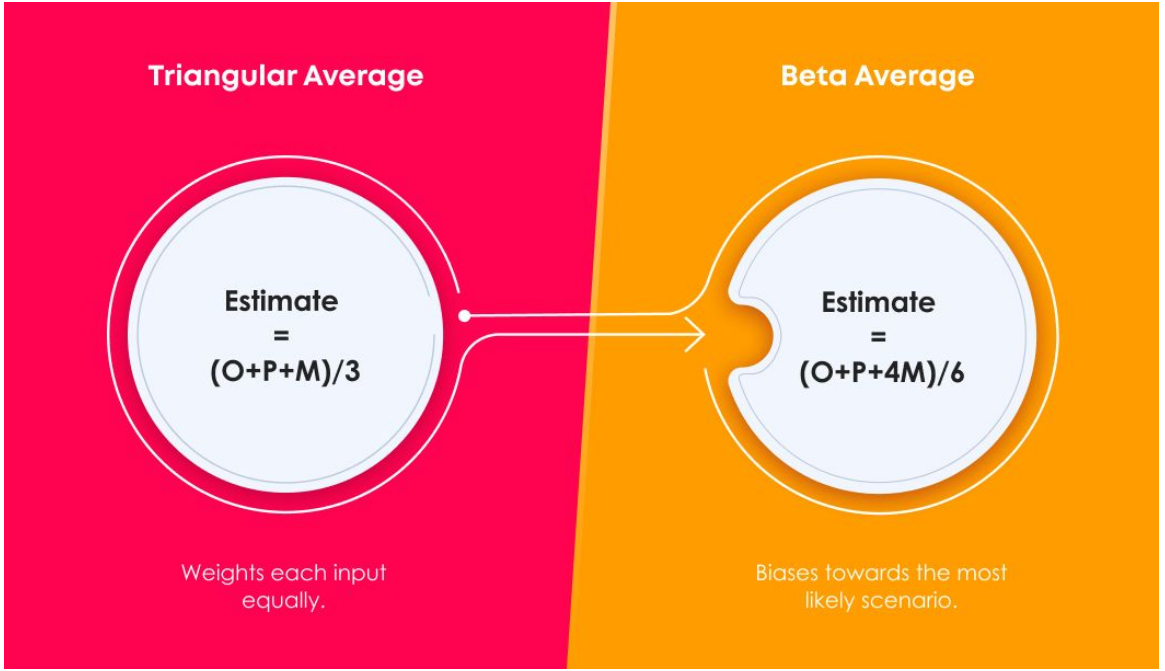
The Agile team using this approach discusses the work items which are divided into “buckets” based on their complexity. The Bucket system allows teams to quickly size a large number of work items.



https://www.netsolutions.com/

Three-Point Method

The Three-Point estimation model is a probabilistic approach where each work item is assigned three different values to reflect **Optimistic, Pessimistic, and Most likely** outcomes. The approach is useful when dealing with large and complex projects with many unknowns.



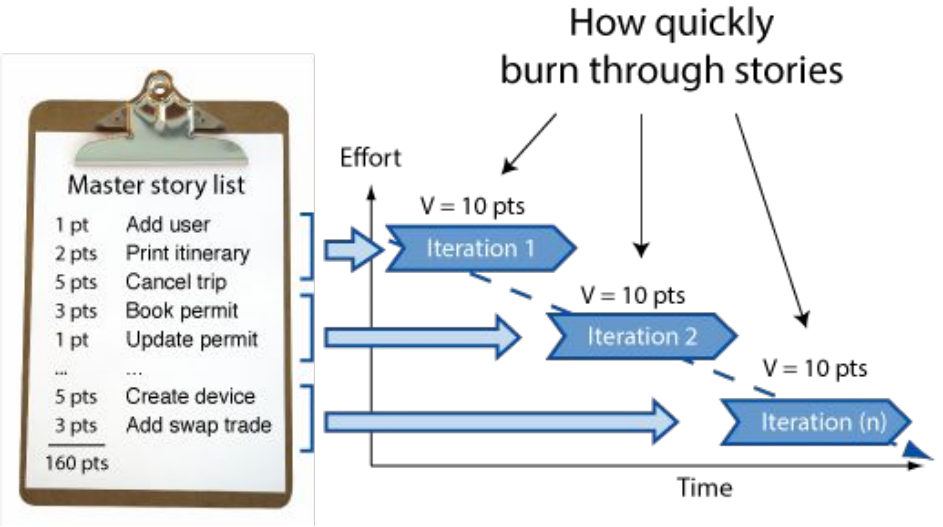
https://www.netsolutions.com/

Burn down Charts

Burndown Chart

The burndown is a chart that shows how quickly you and your team are burning through your customer's user stories. It shows the total effort against the amount of work we deliver each iteration.

A burndown chart helps agile project management teams keep track of what's been done, what needs to be done and how much time is left in the project.



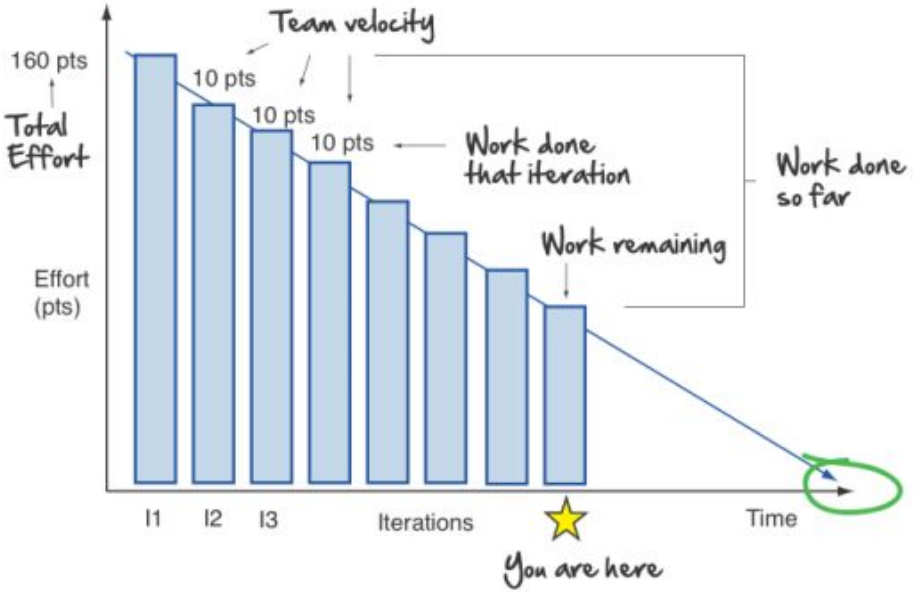
http://www.agilenutshell.com/

Burndown Chart

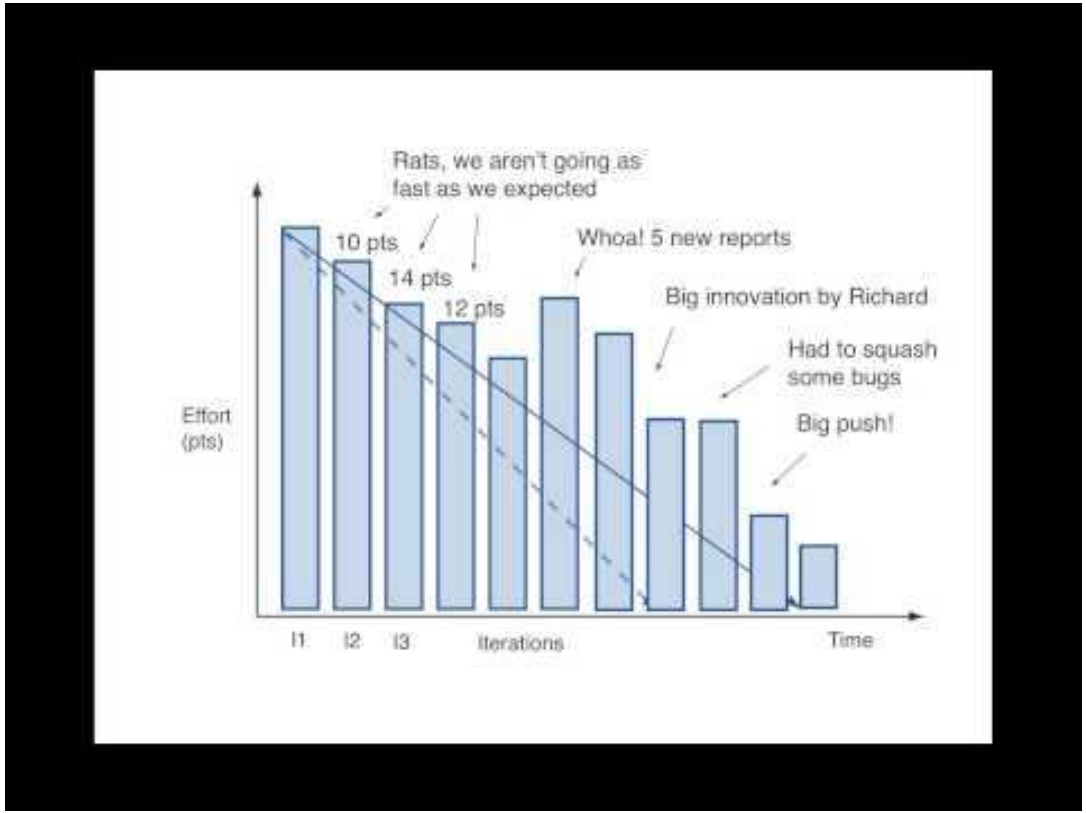
We can see the total effort on the left, our team velocity on the right. But look what else this simple graphs gives us.

- Work done each iteration
- Work remaining
- Work done so far
- When we can expect to be done

The obvious benefit of a burndown chart is that it provides an updated **status report** on the progress of the project. Having a visual representation of this key data keeps everyone on the same page.



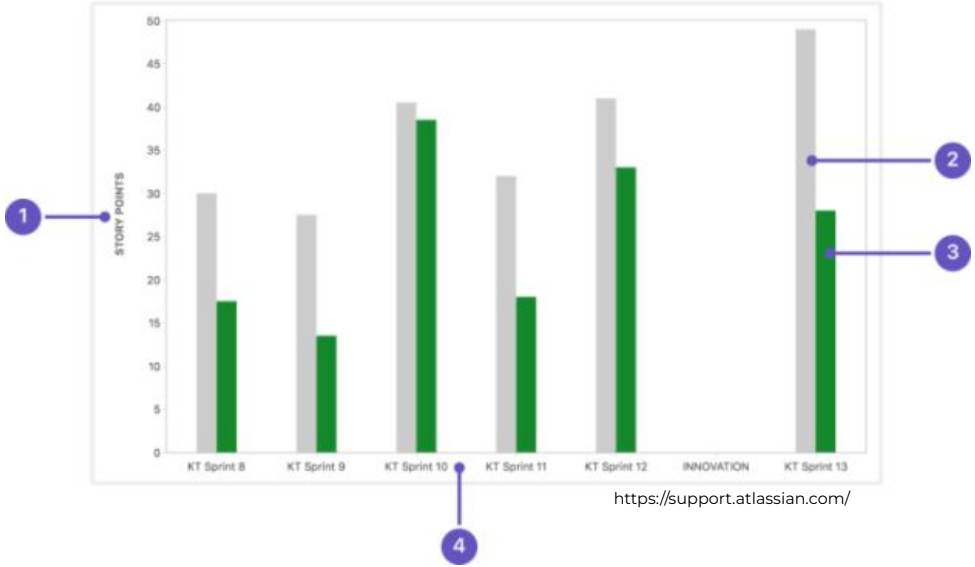
Burn down charts



Velocity Charts

Velocity Chart

- The velocity chart displays the average amount of work a scrum team completes during a sprint. Teams can use velocity to predict how quickly they can work through the backlog because the report tracks the forecasted and completed work over several sprints. The more sprints, the more accurate the forecast.



https://support.atlassian.com/

Velocity Chart - How to read

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1. **Estimation statistic:** The y-axis displays the statistic used for estimating stories. Learn more about configuring estimation and tracking. Estimates can be based on:
    - Story points, as shown in the example above
    - Original time (minutes, hours, days or weeks)
    - Issue count
    - Any numeric custom field in your Jira system**.**
2. **Commitment:** The gray bar for each sprint shows the total estimate of all issues in the sprint when it begins. After the sprint has started, any stories added to the sprint, or any changes made to estimates, will not be included in this total.
3. **Completed:** The green bar in each sprint shows the total completed estimates when the sprint ends. Any scope changes made after the sprint started are included in this total.
4. **Sprints:** The x-axis displays the last 7 sprints completed by the team. This data is used to calculate velocity.

Velocity Chart - How to calculate velocity.

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A team's recent velocity can be useful in helping to predict how much work can be completed by the team in a future sprint. Velocity is calculated by taking the average of the total completed estimates over the last several sprints. So in the chart above, the team's velocity is (17.5 + 13.5 + 38.5 + 18 + 33 + 28) / 6 = 24.75 (we've ignored the zero story point sprint). This means that the team can be expected to complete around 24.75 story points worth of work in the next sprint.

This value should become more accurate and reliable over time, as more data becomes available and the team gets better at estimating issues.

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