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Agile Principles and Mindset

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What is Agile

- Developed for Software projects, but it is a methodology that can be used on all Projects types
- Agile is an umbrella term that is used to refer to different types of iterative development
- Scrum is the most common method of agile, there are others such as extreme programming (XP), lean development, and Kanban.

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Characteristics of four life cycles

Characteristics				
Approach	**Requirements**	**Activities**	**Delivery**	**Goal**
Predictive	Fixed	Performed once for the entire project	Single delivery	Manage cost
Iterative	Dynamic	Repeated until correct	Single delivery	Correctness of solution
Incremental	Dynamic	Performed once for a given increment	Frequent smaller deliveries	Speed

PMI Agile Practice Guide, Page 18 table 3.1

Agile leverage both aspect of Iterative and incremental

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Agile Benefits

- Customer involved throughout the life cycle
- Greater Customer Interaction with all stakeholders
- Constant Feedback is required to stay current and successful
- Greater Value up front
- Change is welcomed by all stakeholders

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Agile Concurrent Development

- Fund incrementally – opt to extend, redirect or cancel at a very granular level
- Deliver & realize value steadily
- Validate designs with users & customers
- Continuously adapt to risk and change
- Integrate early & often

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Agile *Declaration of Interdependence (DOI)*

Agile and adaptive approaches for linking people, projects and value

We are a community of project leaders that are highly successful at delivering results. To achieve these results:

*We **increase return on investment** by making continuous flow of value our focus.*

*We **deliver reliable results** by engaging customers in frequent interactions and shared ownership.*

*We **expect uncertainty** and manage for it through iterations, anticipation, and adaptation.*

*We **unleash creativity and innovation** by recognizing that individuals are the ultimate source of value, and creating an environment where they can make a difference.*

*We **boost performance** through group accountability for results and shared responsibility for team effectiveness.*

*We **improve effectiveness and reliability** through situationally specific strategies, processes and practices.*

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Agile Mindset

Welcoming change

Working in small value increments

Using build and feedback loops

Learning through discovery

Value-driven development

Failing fast with learning

Continuous delivery

Continuous improvement

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Agile vs. Traditional Project Management

- Agile builds in increments vs. as a whole
- Agile does planning throughout vs. done all at once
- Agile delivers products over time vs. all at once
- Customers sees value faster vs. at the end
- Agile wants changes vs. discouraging changes

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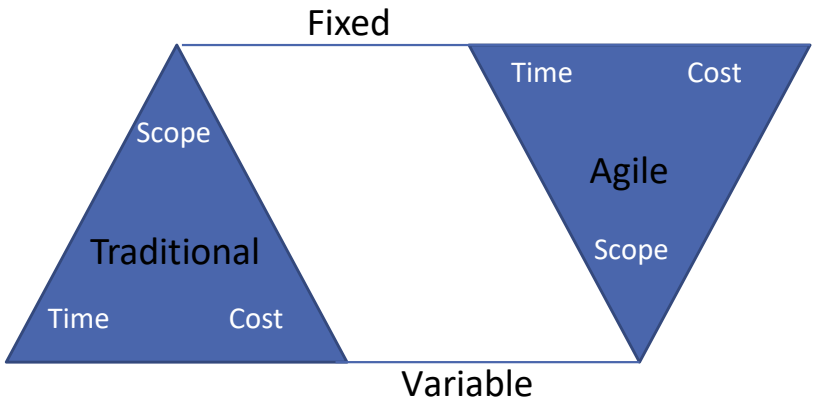
Inverting the Triangle



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Agile Manifesto

Create in 2001

Contains:

- 4 values
- 12 guiding principles

https://agilemanifesto.org/

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The Agile Manifesto Values

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals & interactions	over	Processes & tools
Working software	over	Comprehensive documentation
Customer collaboration	over	Contract negotiation
Responding to change	over	Following a plan

That is, while there is value in the items on the **right**, we value the items on the **left** more.

www.agilemanifesto.org

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Individuals and interactions over processes and tools

- While processes and tools will likely be necessary on our projects, we should focus the team's attention on the individuals and interactions involved.
- Projects are undertaken by people, not tools
- Problems get solved by people, not processes
- Projects are ultimately about people

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Working software over comprehensive documentation

- Focus on the delivering value vs. paperwork.
- Agile documents should be barely sufficient
- Done just in time
- Done just because
- Delivering software that does what it should comes first, before creating documentation.
- Agile dramatically simplify the administrative paperwork relating to time, cost, and scope control

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Customer collaboration over contract negotiation

- Be flexible and accommodating, instead of fixed and uncooperative
- Manage change, don't suppress change
- Shared definition of "done"
- Requires trusting relationship

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Responding to change over following a plan

- Spend effort and energy responding to changes
- Software projects tend to have high rates of change

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Agile Guiding Principles 1-3

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

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Agile Guiding Principles 4-6

4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

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Agile Guiding Principles 7-9

7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers)and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.

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Agile Guiding Principles 10-12

10. Simplicity; the art of maximizing the amount of work not done is essential.
11. The best architectures, requirements and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective then tunes and adjusts its behavior accordingly.

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Agile Methods

- Many agile methodologies
- Scrum
- Extreme Programming (XP)
- Kanban Development
- Lean Software Development
- Scaled Agile (SAFe)

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Agile Scrum Terms

Product Owner - Designated person that represents the customer on the project

Agile Project Manager/Scrum Master – Manages the agile project

Product Backlog - Project requirements from the stakeholders

Sprint Planning Meeting- Meeting done by the agile team to determine what features will be done in the next sprint

Sprint Backlog – Work the team selects to get done in the next sprint

Sprint - A short iteration where the project teams work to complete the work in the sprint backlog, (1-4 weeks typical)

Daily Stand Up Meeting - A quick meeting each day to discuss project statuses, led by the Scrum Master. Usually 15 minutes

Sprint Review – An inspection done at the end of the sprint by the customers

Retrospective – Meeting done to determine what went wrong during the sprint and what when right. Lesson learned for the sprint.

Partial Completed Product - Customers Demo the product and provides feedback. This feedback adjust the next Sprint priorities

Release - Several Sprints worth of work directed to operations for possible rollout and testing

Sprint = Iteration

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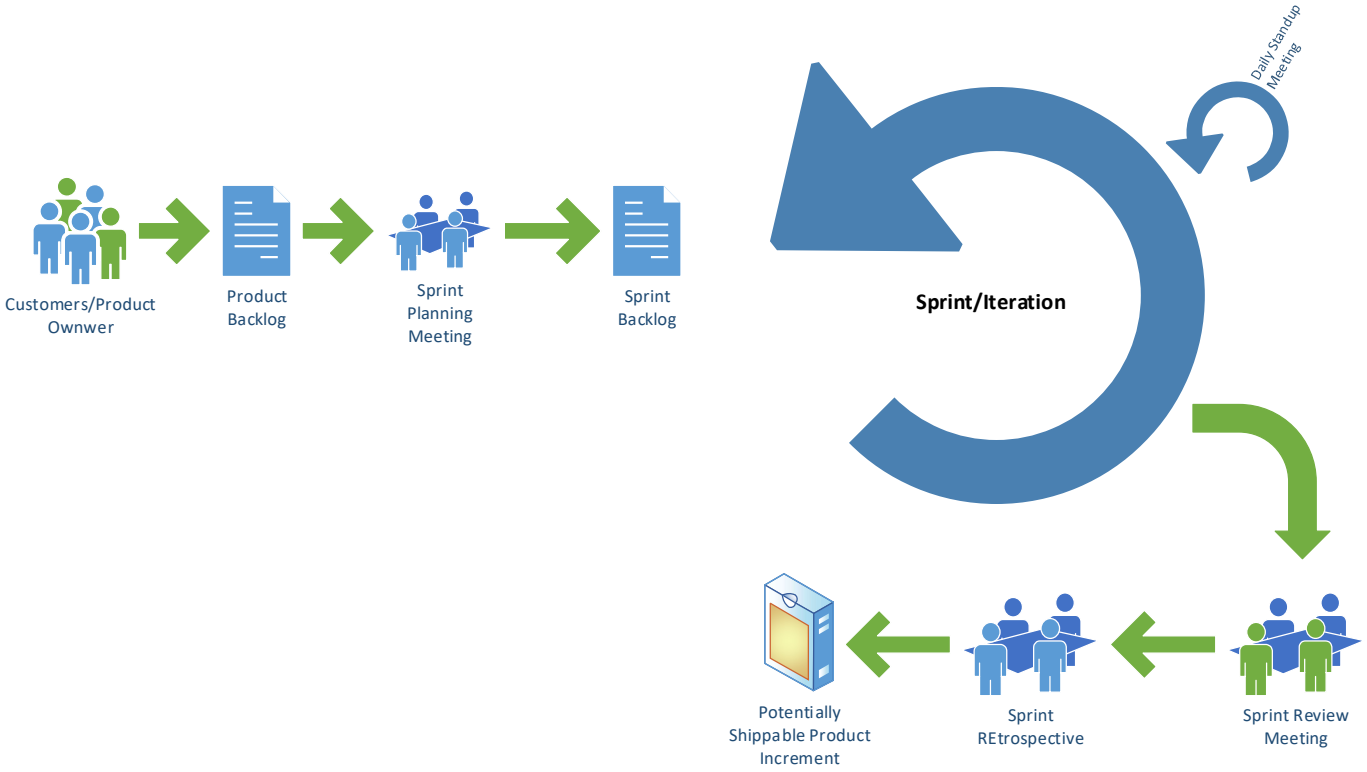
Agile Scrum Process



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Scrum

Set of team guidance practices, roles, events, artifacts, and rules

Based on three pillars of Transparency, Inspection, and Adaptation:

- Transparency
  - Visibility to those responsible for the outcome
- Inspection
  - Timely checks on how well a project is progressing toward goals
  - Looks for problematic deviations or differences from goals
- Adaptation
  - Adjusting a process to minimize further issues if an inspection shows a problem or undesirable trend

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Scrum Roles & Responsibilities

Product Owner

- Owns Product vision
- Defines features, decides on release date and content
- Responsible for market success
- Prioritizes features according to market value
- Can change features and priorities every Sprint

ScrumMaster

- Responsible for facilitating process
- Focuses Team and protects them from external interruption
- Looks for ways to enhance productivity
- Assists Product Owner in leveraging Scrum

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Scrum Roles & Responsibilities

Development Team

- Small group containing all necessary project skills
- Focuses on steady delivery of high quality features
- Generates options for delivery
- Manages own work within Sprints

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Scrum Activities

The Scrum methodology refers to several different types of activities:

1. sprint planning meeting
2. sprints
   - Daily stand-up meeting
3. sprint review meeting
4. sprint retrospectives.

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Sprint Planning Meeting

- ✓Used to determine what work will be done in that sprint and how the work will be achieved.
- ✓The development team predicts what can be delivered based on estimates, projected capacity, and past performance to define the sprint goal.
- ✓The development team then determines how this functionality will be built and how the team will organize to deliver the sprint goal.
- ✓Output of this will be the sprint backlog. The work to get done in the next sprint.

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Sprints

- ✓A sprint is a **timeboxed** (time-limited) iteration of 1-4 weeks to build a potentially releasable product
- ✓Each sprint includes a sprint planning meeting, daily Scrum, the actual work, a sprint review meeting, and the sprint retrospective
- ✓During the sprint, no changes are made that would affect the sprint
- ✓The development team members are kept the same throughout the sprint

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Daily Scrum (or Standup)

- ✓A 15-minute time-boxed activity for the Development Team to synchronize activities and create a plan for the next 24 hours
- ✓Should be held at the same time and place each day
- ✓Each team member should answer 3 questions:
  1. What did you do yesterday?
  2. What will you do today?
  3. Are there any impediments in your way?

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Sprint Review

- ✓Takes place at the end of the Sprint
- ✓Designed to gather feedback from stakeholders on what the Team has completed in the sprint
- ✓Team demonstrates work that was completed during the sprint
- ✓To create a conversation between the Team and the stakeholders about how to make the product better
- ✓should be time boxed to no more than an hour per week of Sprint

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Sprint Retrospective

- ✓Opportunity for the Team to inspect and create a plan for improvements to be done during the next Sprint.
- ✓Team discusses:
  - ✓What went well
  - ✓What went wrong
  - ✓What to do more of
  - ✓What to do less of

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Scrum Artifacts

- ✓Product increment
  - ✓Part of the product that is complete after each sprint
- ✓Product Backlog
  - ✓Prioritized list of valuable items to deliver
- ✓Sprint Backlog
  - ✓List of committed items to be addressed within Sprint

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Product Backlog

- ✓Prioritized list of all work that needs to be done to complete the product
- ✓List is dynamics, it evolves as the more work is added and prioritized
- ✓Items in it is prioritized by the product owner and is sorted by value
- ✓Most valuable items are listed first
- ✓Constantly being refined as more work is added to it.
- ✓Team and product owner will “groom the backlog”.

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Product Increment

- ✓Part of the product that is done after each sprint
- ✓Done to get feedback after each sprint
- ✓The product owner and team needs to agree upon the “definition of done” before the team starts working on the product

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Sprint Backlog

- ✓The sprint backlog is the set of items from the product backlog that were selected for a specific sprint.
- ✓The sprint backlog is accompanied by a plan of how to achieve the sprint goal, so it serves as the development team's forecast for the functionality that will be part of the sprint.
- ✓It is a highly visible view of the work being undertaken and may only be updated by the development team.

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Definition of Done (DoD)

Definition of Done (DoD) is a shared understanding of what it means when work is considered done, it should be defined at the beginning of the project, and it applies globally to the project.

Definition of Done (DoD) is a crucial element of a successful scrum software development

Might include things such as:

- DoD for Unit & functional tests.
- DoD Documentation.
- DoD for a Writing code.

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Extreme Programming (XP)

Software development centric agile method

Focus software development good practices

Scrum at the project management level focuses on prioritizing work and getting feedback

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XP Core Values

Simplicity

- Reduce complexity, extra features, and waste
- “ Find the simplest thing that could possibly work"

Communication

- Team members know what is expected of them and what other people are working on
- Daily stand-up meeting is key communication component

Feedback

- Get impressions of correctness early
- Failing fast allows for faster improvement

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XP Core Values

Courage

- Allow our work to be entirely visible to others

Respect

- People work together as a team and everyone is accountable for the success or failure of the project
- Recognize people work differently and respect those differences

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XP Roles

Coach
- Acts as a mentor, guiding the process and helping the team stay on track. Is a facilitator helping the team become effective.

Customer:
- Business representative who provides the requirements, priorities, and drives the business direction for the project.

Programmers
- Developers who build the product. Writes the codes.

Testers
- Helps the customer define and write the acceptance tests for the user stories.

Product Owner and Customer are equivalent

ScrumMaster and Coach are equivalent

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XP Practices

Planning Activities (Games):

- Release Planning:
  - Push of new functionality all the way to the production user
  - Customer outlines the functionality required
  - Developers estimate difficult build
- Iteration Planning:
  - Short development cycles within a release (Scrum calls "sprints")
  - Conducted at start of every iteration, or every two weeks
  - Customer explains functionality they would like in iteration
  - Developers break functionality into tasks and estimate work
  - Based on estimates and amount of work accomplished in previous iteration,

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XP Practices

Small Releases:

- Frequent, small releases to test environments
- Demonstrate progress and increase visibility for the customer
- Quality is maintained: Rigorous testing or Continuous integration

Customer Tests:

- Customer describes one or more tests to show software is working
- Team builds automated tests to prove software is working.

Collective Code Ownership:

- Any pair of developers can improve or amend any code
- Multiple people work on all code, which results in increased visibility and knowledge of code base
- Leads to a higher level of quality; with more people looking at the code, there is a greater chance defects will be discovered.
- Less risk if programmer leaves, since knowledge is shared

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XP Practices

Code Standards:

- Follow consistent coding standard
- Code looks as if it has been written by a single, knowledgeable programmer

Sustainable Pace:

- While periods of overtime might be necessary, repeated long hours of work are unsustainable and counterproductive
- The practice of maintaining a sustainable pace of development optimizes the delivery of long-term value

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XP Practices

Metaphor:

- XP uses metaphors and similes to explain designs and create a shared technical vision.
- These descriptions establish comparisons that all the stakeholders can understand to help explain how the system should work.
- For example, “The invoicing module is like an Accounts receivable personnel who makes sure money collected from our customers”.

Continuous Integration:

- Integration involves bringing the code together and making sure it all compiles and works together.
- This practice is critical, because it brings problems to the surface before more code is built on top of faulty or incompatible designs.

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XP Practices

Test-Driven Development (TDD):

- The team writes tests prior to developing the new code.
- If the tests are working correctly, the initial code that is entered will fail the tests
- The code will pass the test once it is written correctly.

Pair Programming:

- In XP, production code is written by two developers working as a pair to write and provide real-time reviews of the software as it emerges.
- Working in pairs also helps spread knowledge about the system through the team.

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XP Practices

Simple Design:

- Code is always testable, browsable, understandable, and explainable
- Do the simplest thing that could possibly work next. Complex design is replaced with simpler design
- The best architectures, requirements, and designs emerge from self-organizing teams

Refactoring:

- Remove redundancy, eliminate unused functionality, and rejuvenate obsolete designs
- Refactoring throughout the entire project life cycle saves time and increases quality
- Code is kept clean and concise so it is easier to understand, modify, and extend

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Some Basic Terminology Review

Scrum	Extreme Programming (XP)	Definition
Sprint	Iteration	Fixed-length period of time (timebox)
Release	Small Release	Release to production
Sprint/Release Planning	Planning Game	Agile planning meetings
Product Owner	Customer	Business representative to project
Retrospective	Reflection	“Lessons learned”-style meeting
ScrumMaster	Coach	Agile project manager
Development Team	Team	Empowered Cross-Functional team
Daily Scrum	Daily Standup	Brief daily status meeting

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Lean Software Development

Lean was started by Toyota as manufacturing method that was applied to software development.

Principles:

- Using visual management tools
- Identifying customer-defined value
- Building in learning and continuous improvement

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Lean Software Development

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Lean Software Development

Eliminate waste:

- To maximize value, we must minimize waste. For software systems, waste can take the form of **partially done work**, **delays**, **handoffs, unnecessary features.**

Empower the team:

- Rather than taking a micro-management approach, we should respect team member's superior knowledge of the technical steps required on the project and let them

Deliver fast:

- Quickly delivering valuable software and iterating through designs.

Optimize the whole:

- We aim to see the system as more than the sum of its parts.

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Lean Software Development

Build quality in:

- Build quality into the product and continually assure quality throughout the development process

Defer decisions:

- Balance early planning with making decisions and committing to things as late as possible.

Amplify learning:

- This concept involves facilitating communication early and often, getting feedback as soon as possible, and building on what we learn.

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Seven Wastes of Lean

1. Partially done work
2. Extra Processes
3. Extra features
4. Task switching
5. Waiting
6. Motion
7. Defects

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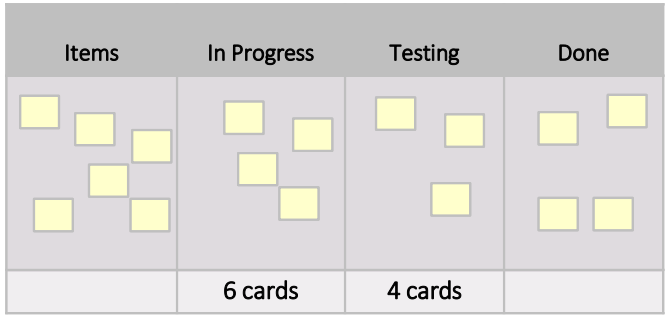
Kanban Development

Kanban development is derived from the lean production system used at Toyota.

"**Kanban**" is a Japanese word meaning "**signboard**."



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Kanban five core principles:

Visualize the workflow:

- Software projects, by definition, manipulate knowledge, which is intangible and invisible.

Limit WIP:

- Keeping the amount of work in progress low increases the visibility of issues and bottlenecks

Manage flow:

- By tracking the flow of work through a system, issues can be identified and changes can be measured for effectiveness

Make process policies explicit:

- It is important to clearly explain how things work so the team can have open discussions about improvements

Improve collaboration:

- Through scientific measurement and experimentation, the team should collectively own and improve the processes it uses.

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Other agile methods

Feature-Driven Development

- Team will first develop an overall model for the product then build a list, and plan the work.

Crystal

- It's a customized methodologies that are coded by color names.
- Crystal clear is for small teams working on non-critical projects
- Crystal magenta is used for larger teams working on more critical work

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Other agile methods

Scalable Agile Framework (SAFe®)

- A framework that implements Scrum at an enterprise level
- Approach that consumes the whole enterprise and not just a team
- Deals with big global teams
- All aspect of the organizations are managed
- Three important parts:
  - Lean Product Development
  - Agile Software Development
  - System Thinking

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Leading Effectively

Servant Leadership

- Leader provides what the team needs
  1. Shield team from interruptions
  2. Remove impediments to progress
  3. (Re)Communicate project vision
  4. Carry food and water

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Twelve Principles for Leading Agile Projects

1. Learn the team members needs
2. Learn the project requirements
3. Act for the simultaneous welfare of the team and the project
4. Create an environment of functional accountability
5. Have a vision of the completed project
6. Use the project vision to drive your own behavior

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Twelve Principles for Leading Agile Projects

7. Serve as the central figure in successful project team development
8. Recognize team conflict as a positive step
9. Manage with an eye toward ethics
10. Remember that ethics is not an afterthought, but an integral part of our thinking
11. Take time to reflect on the project
12. Develop the trick of thinking backwards

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Leadership Tools and Techniques

Using these tools still need soft-skills approach

Modeling Desired Behavior

- Honesty
- Forward-Looking
- Competent
- Inspiring

Communicating project vision

Enabling others to act

- Switch from exclusive tools to inclusive tools

Being willing to change the status quo

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Leadership Task

Practice Transparency through Visualization

Crate a safe environment for experimentation

Experiment with new techniques and processes

Share knowledge through collaboration

Value-Driven Delivery

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How Customers Conduct Value Prioritization

Valued based prioritization is the one of core practices in agile planning

Features are prioritized on the basis of business value, risk and dependencies

Some of prioritization techniques used:

- Simple Scheme
- MoSCoW prioritization
- Monopoly Money
- 100-point method
- Dot Voting or Multi-voting
- Kano Analysis
- Requirements Prioritization Model

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Prioritization Techniques

Simple Scheme

- Priority 1, Priority 2, Priority 3, etc.
- Could be problematic as many items might become the first priority.

MoSCoW prioritization

- Must have
- Should have
- Could have
- Would like to have, but not this time

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Prioritization Techniques

Dot Voting or Multi-voting

- Each person gets a certain number of dots to distribute to the requirements

Monopoly Money

- Give everyone equal monopoly money
- They then distribute the funds to what they value the most

100-point method

- Each person is given 100 points
- They then use that to distribute to individual requirements

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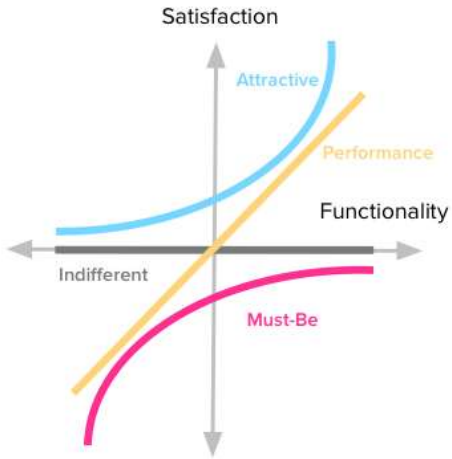
Prioritization Techniques

Kano Analysis

- Helps to understand the customers satisfaction
  - Delighters/Exciters
  - Satisfiers
  - Dissatisfiers
  - Indifferent



https://foldingburritos.com/kano-model/

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Prioritization / Ranking is Relative

Doesn't matter what techniques the customers uses priority, the end results should be a list of prioritized features.

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Delivering Value Incrementally

Incremental delivery is about deploying working parts of a product over the life of the project

In software development, its first delivered to a testing environment then to production

This will reduce the amount of rework by discovering issues early and fixing them

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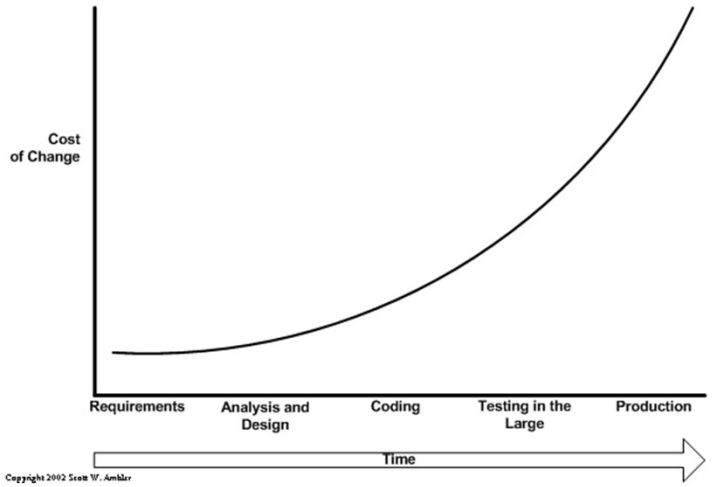
Delivering Value Incrementally



http://www.agilemodeling.com/essays/costOfChange.htm

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Minimal Viable Product (MVP)

Refers to a set of functionality that is complete to be useful, but small enough not to be an entire project

Usually a module in a software

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Tools for Agile Projects

Low-tech, high-touch over computer models

When using computer models problems could arise such as:

- Data accuracy perception increases
- No stakeholder interaction. Only a few people would update them

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Low-Tech, High-Touch Tools

Use card, charts, whiteboards, and walls

Promotes communication and collaboration

Skip using a computer Gantt chart to a Kanban board

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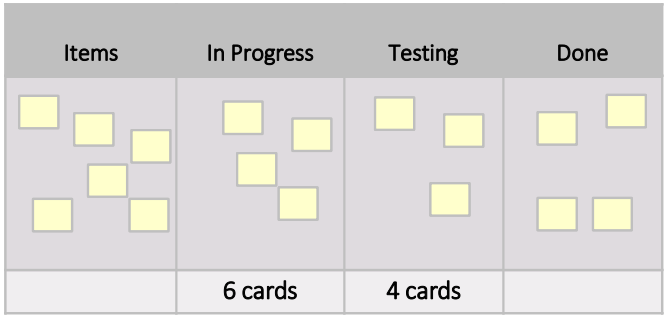
Kanban/Task Board

An "information radiator" - ensures efficient diffusion of information

Can be drawn on a whiteboard or even a section of wall

Makes iteration backlog visible

Serves as a focal point for the daily meeting



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Educating People about Agile

Teach all the stakeholders about the benefits of agile

Concerns about agile can Include:

- Senior management and sponsor: They are worried about the risk of failing
- Managers: fear the loss of control
- Project team: resist agile methods
- Users: will not get all features

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Engaging Stakeholders

Short iterations and release keeps them engage

Keeping then engage can lead to stakeholders being more involved and getting more change request

This helps us to identify risk and issues early

If some stakeholders are causing problems, the agile PM will need to use their interpersonal skills to resolve issues

Need to have a process for escalating stakeholders issues

Why such a big focus on stakeholders?

- Projects and done by people for people

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Methods of Stakeholder Engagement

Get the right stakeholders

Cement stakeholder involvement

Actively manage stakeholder interest

Frequently discuss what done looks like

Show progress and capabilities

Candidly discuss estimates and projections

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Set a Shared Vision

Important to ensure customers and agile project team has the same vision

Methods include:

- Agile Charter
- Definition of “Done”
- Agile Modeling
  - Use case diagram
  - Data models
  - Screen design
- Wireframes
- Personas

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Definition of “Done”

Creating a shared vision of what done looks like

Should be done for:

- User stories
- Releases
- Final project deliverables

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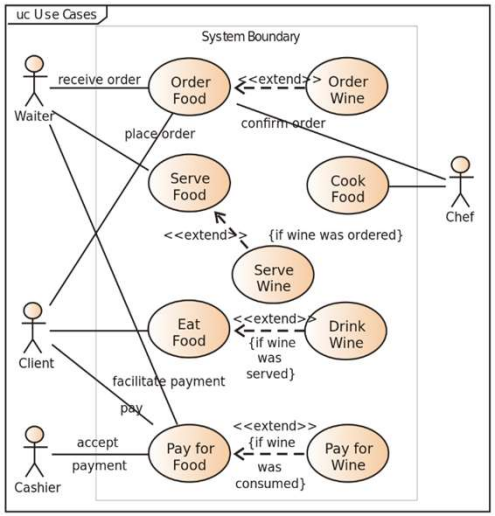
Agile Modeling

- Use case diagrams
  - Visually shows how users would use an application



https://en.wikipedia.org/wiki/Use_case_diagram

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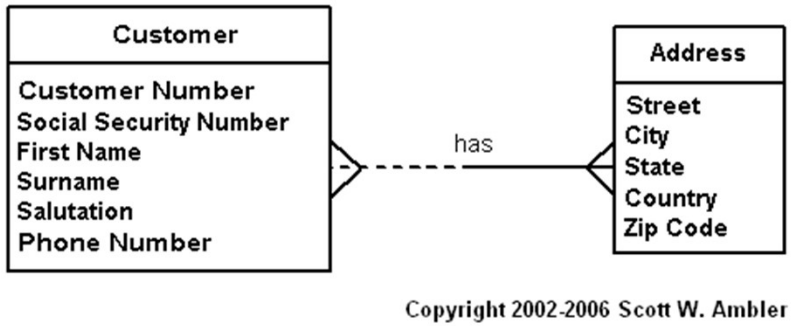
Agile Modeling

- Data models
  - How the data are structured in tables and their relationships



http://www.agiledata.org/essays/dataModeling101.html

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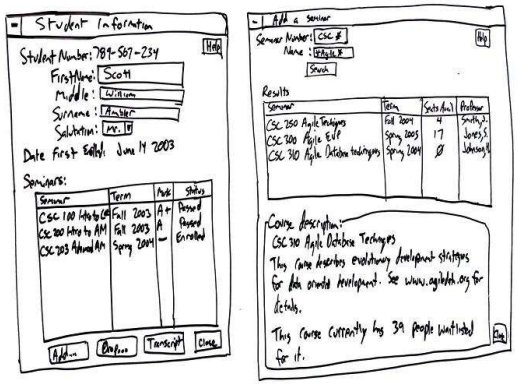
Agile Modeling

- Screen designs
  - Simple screen shots



http://agilemodeling.com/artifacts/uiPrototype.htm

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Wireframes

Wireframes

- Quick mock-up of product
- “low-fidelity prototyping”
- Clarify what “done” looks like
- Validate approach prior to execution

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Personas

Personas

- Quick guides or reminders of key stakeholders and interests
  - Provide description of users
  - Be grounded in reality
  - Be goal-oriented, specific, and relevant
  - Be tangible and actionable
  - Generate focus
- Help team focus on valuable features to users

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Personas

Name: Andrew Jones– Certified Accountant	
	**Value:** Andrew would like to ensure all company bills are paid on time while using online auto payments. He would like to ensure customers are reminded automatically of outstanding balances. He is looking to print the receivables and payable reports on a weekly basics to check on bills and invoices.
Description: Andrew has been an Accountant for over 10 years and has worked at many large accounting firms. He likes to be organized and get his work done on time.	

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Communicating with Stakeholders

Face to face communication

Two-way communication

Knowledge sharing

Information Radiators

Social Media

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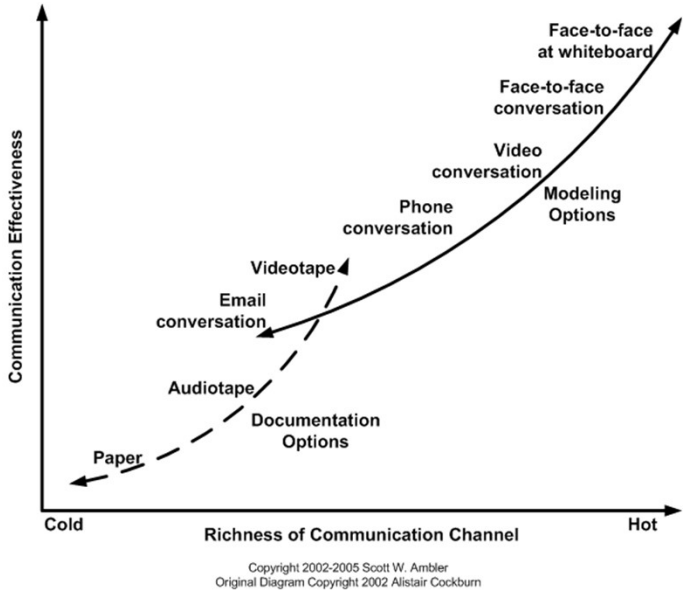
Face-to-face Communication

Face to face communication



http://www.agilemodeling.com/essays/communication.htm

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Communicating with Stakeholders

Two-way communication

- Just don't ask for confirmation or concerns, but actually listen to what they have to say

Knowledge sharing

- Agile teams work closely with each other such as with pair-programming.
- Using Kanban boards or wireframes are ways to share information
- Use of low-tech tools like a whiteboard will allow all to see the work and understand it
- We must encourage it

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Communicating with Stakeholders

Information Radiators

- Things that are highly visible
- Used to display information
- Usually includes chats, graphs and boards

Social Media

- Use to communicate
- Can include twitter or Instagram

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Conflict Resolution

All projects will have conflicts

While some level of conflicts are good, we need to ensure they don't become a "world war" where people are trying to destroy each other

Levels of conflict(1-5):

- Level 1: Problem to solve – sharing info
- Level 2: Disagreement – Personal Protection
- Level 3: Contest – Must win
- Level 4: Crusade – Protecting one's group
- Level 5: World War – Must destroy the other

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Participatory Decision Models

Engage stakeholder in decision making process

- Simple voting
  - Vote “for” or “against” it
- Thumps up/down/sideways
  - People hold their thumps in a way of if the support it or not. Sideway is if they cannot make up their mind
- Fist of five
  - People how up finger based on they support the idea
  - 1 finger: total support – 5 finger: Stop against it

Team Performance

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Development / Delivery Team

Group that build and test the increments of the product

- Build product in increments
- Update information radiators
- Self organize and directing
- Share progress by doing daily stand-up meetings
- Demo the completed product increments
- Holds retrospectives at the end of sprints
- Does release and sprint planning and estimations

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Product Owner/Customer

Prioritizing the product features

Manage the product backlog ensuing its accurate and up to date

Ensures the team has a shared understanding of the backlog items

Defines the acceptance criteria

Provides the due dates for the releases

Attends planning meeting, reviews, and the retrospective.

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Agile Project Manager (ScrumMaster/Coach)

Act as a servant leader

Help the team self-organize and direct themselves

Be a facilitator

Ensure the team plan is visible and the progress is known to the stakeholders

Act as a mentor and coach

Work with the product owner to manage the product backlog

Facilitates meeting

Ensure issues are solved

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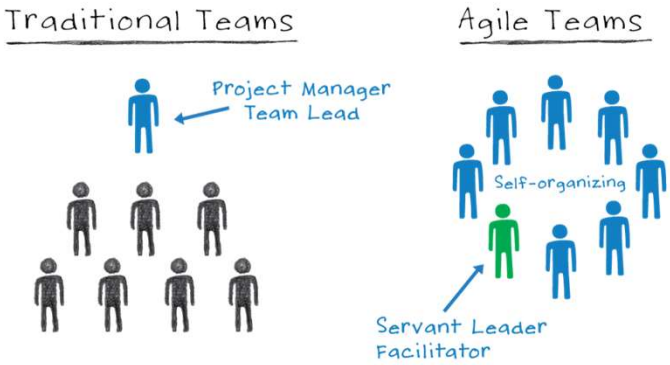
Building Teams

Self-Organizing

Self-Directing

Small teams with fewer than 12 members



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Generalizing Specialists

Have members that can do different tasks

Members skilled in more than one area

Share work reduce bottleneck

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High-Performance Agile Teams

Have a shared vision

Realist goals

Fewer than 12 members

Have a sense of team identity

Provide strong leadership

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Experiments (Have a safe place)

Establish safe environment for disagreement

Allows team members to build strong commitment to decisions

Encourage people to experiments with new methods

Leads to more engagement

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Welcome Constructive Disagreement

Leads to better buy-in and decisions

Avoiding conflicts can lead to conflicts escalating

A safe place for disagreement leads to successful problem solving

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Models of team development

Shu-Ha-Ri Model of Skill Mastery

- Shu- Obey,
- Ha – Moving away,
- Ri – finding individual paths

Dreyfus Model of Adult Skill Acquisition

- Novice, Advanced Beginner, Competent, Proficient, Expert

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Tuckman's Five Stages of Team Development

1. **Forming**: team comes together and starts to get to know each other. There is not much conflict or communication.
2. **Storming**: team members start to have conflicts with each other. They start to learn of each other's ideas and may not agree with them. Most conflicts takes place in this stage.
3. **Norming**: the team members begin to agree with each other on the best methods to build the deliverables. Generally, everyone is coming to a consensus.
4. **Performing:** the team is performing well and is working without conflict.
5. **Adjourning**: In this stage, the project is completed and the team is reassigned.

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Team Spaces

Co-located Teams

Team Spaces

Osmotic Communication

Global and Cultural Diversity

Distributed teams

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Co-Located Teams

All team member work together in the same location

Allows for face-to-face time and interaction

Should be within 33 feet of each other

No physical barriers

Sometimes a virtual co-location

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Team Space

Lots of low-tech, high touch
- Whiteboards and task boards
- Sticky notes, flip charts
- Round table
- No barriers to face-to-face communication

Caves and Common
- Caves → space team members can retreat to individually
- Common → space team members can work as group

Osmotic Communication
- Information flows that occur as part of everyday conversations and questions
- 33 feet or 10 meters

Tacit Knowledge
- Information that is not written down; supported through collective group knowledge

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Global and Cultural Diversity

Time Zones

Cultures

Native Languages

Styles of communications

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Distributed Teams

At least one team member working off-site

Need to find ways to replicate co-location team benefits

Agile Tools

- Low-Tech, High-Touch Tools
- Digital Tools for distribute teams
  - Video conferencing
  - Interactive whiteboards
  - IM / VoIP
  - Virtual card walls
  - Web cams
  - Digital cams

Adaptive Planning

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Adaptive Planning

Planning is ongoing process

Multiple mechanisms to proactively update plan

Focus on value delivery and minimize nonvalue-adding work

Uncertainty drives need to replan

Frequently discover issues and experience high rates of change

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Agile Plans

Agile planning varies from traditional planning

1. Trial and demonstration uncover true requirements, which then require replanning
2. Agile planning is less of an upfront effort, and instead is done more throughout the project
3. Midcourse adjustments are the norm

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Principles of Agile Planning

1. Plan at multiple levels
2. Engage the team and the customer in planning
3. Manage expectations by frequently demonstrating progress
4. Tailor processes to the project's characteristics
5. Update the plan based on the project priorities
6. Ensure encompassing estimates that account for risk, distractions, and team availability
7. Use appropriate estimate ranges to reflect the level of uncertainty in the estimate
8. Base projections on completion rates
9. Factor in diversion and outside work

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Value-Base Analysis and Decomposition

Assessing and prioritizing the business value of work items, and then plan accordingly.

Value-Based Decomposition

- Breaks down requirements and prioritized them
- Design the product box

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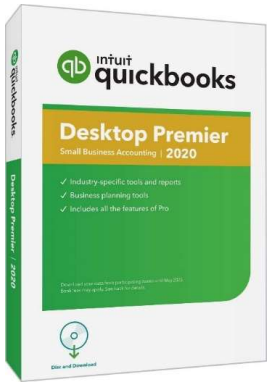
Design the Product Box



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Timeboxing

Short, fixed-duration periods of time in which activities or work are undertaken

- If work is not completed within time period, move it to another timebox

Daily Stand-up – 15 minutes

Retrospectives – 2 hours

Sprints – 1-4 weeks

Beware of Parkinson's Law

- Work tends to expand to fill the time given

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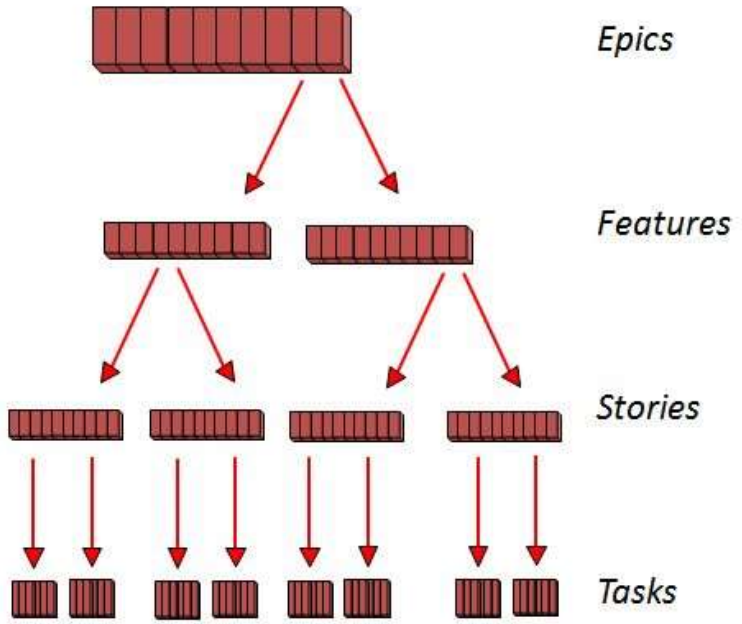
Decomposing Requirements



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User Stories

User Stories / Backlogs

- Business functionality within a feature that involves 1-3 days of work.
- Acts as agreement between customers and development team
- Every requirement is user story
- Every story, including technical stories, has value
- Common structure of a user story

As a <*user type*>
I <*want to/need, etc.*> goal
So that <***value***>

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User Story Example

"As an payroll clerk, I want to be able to view a report of all payroll taxes, so that I can pay them on time"

"As a sales person, I want to be able to see a current list of leads, so that I can call them back quickly"

"As student of this course, I want to be able to understand the requirements of the exam, so that I know if I qualify for it or not"

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Three C's of Stories

Have users write the stories on index cards

No details, it's used to help conversate

3 Cs:

- Card
- Conversation
- Confirmation

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User Stories - INVEST

Effective user stories should be “INVEST”

Independent
- Should be independent so it can reprioritize

Negotiable
- Should allow for trade-off’s based on cost and function

Valuable
- Should clearly state the value of it

Estimatable
- Should be able to estimate how long to complete

Small
- Stories should be between 4-40 hours of work

Testable
- Should be testable to ensure it will be accepted once competed

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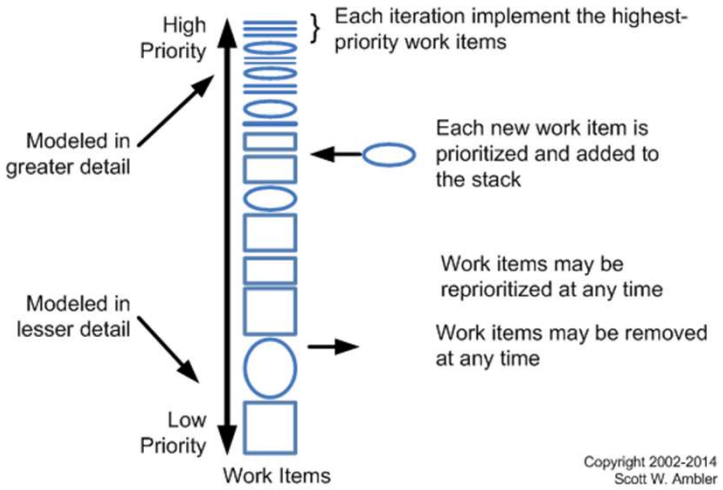
User Story Backlog (Product Backlog)

Prioritize Requirements

Refining (Grooming) Backlog

- Keeping the backlog updated and accurately prioritized



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Relative Sizing and Story Points

Absolute estimates are difficult for humans to make

Estimates should be relative

Assign points to each story using a relative numbers

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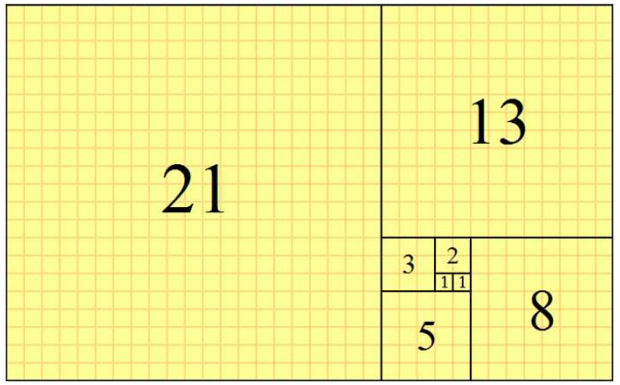
Fibonacci Sequence



https://en.wikipedia.org/wiki/Fibonacci_number

Fibonacci Sequence: 1, 2, 3, 5, 8, 13, 21

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Guidelines for Using Story Points

Team should own the definition of their story points

Story point estimates should be all-inclusive

Point sizes should be relative

Complexity, work effort, and risk should all be included in the estimate

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Affinity Estimating and T-Shirt Sizing

Affinity Estimating

- Group estimates into categories or collections

T-Shirt Sizing

- Place stories in sizes of t-shirts

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Wideband Delphi

Wideband Delphi

- Group-based estimation approach
- Panel of experts, anonymously

It’s used to prevent:

- Bandwagon effect
- HIPPO decision making (HIghest-Paid Person's Opinion)
- Groupthink

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Planning Poker

Advantages of Wideband Delphi

Fast, collaborative process

Uses cards with Fibonacci sequence

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Product Roadmap

Shows when features will be delivered and what is included in each release

Can convert the story map into a product roadmap

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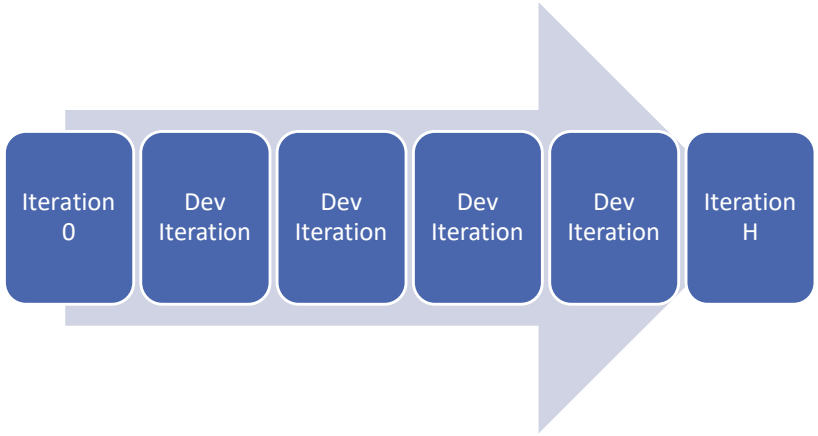
Types of Iterations

Iteration 0
- Set the stage for development efforts
- Doesn't build anything

Development Iteration
- Build the product increment

Iteration H (hardening sprint or release)
- Done at the end to clean up codes or producing documentation



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Spikes

- Architectural spike
  - Period of time dedicated to proof of concept
- Risk-Based Spike
  - Team investigate to reduce or eliminate risk

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Tracking Team Performance

Burn Charts
- Burnup
- Burndown

Velocity Charts

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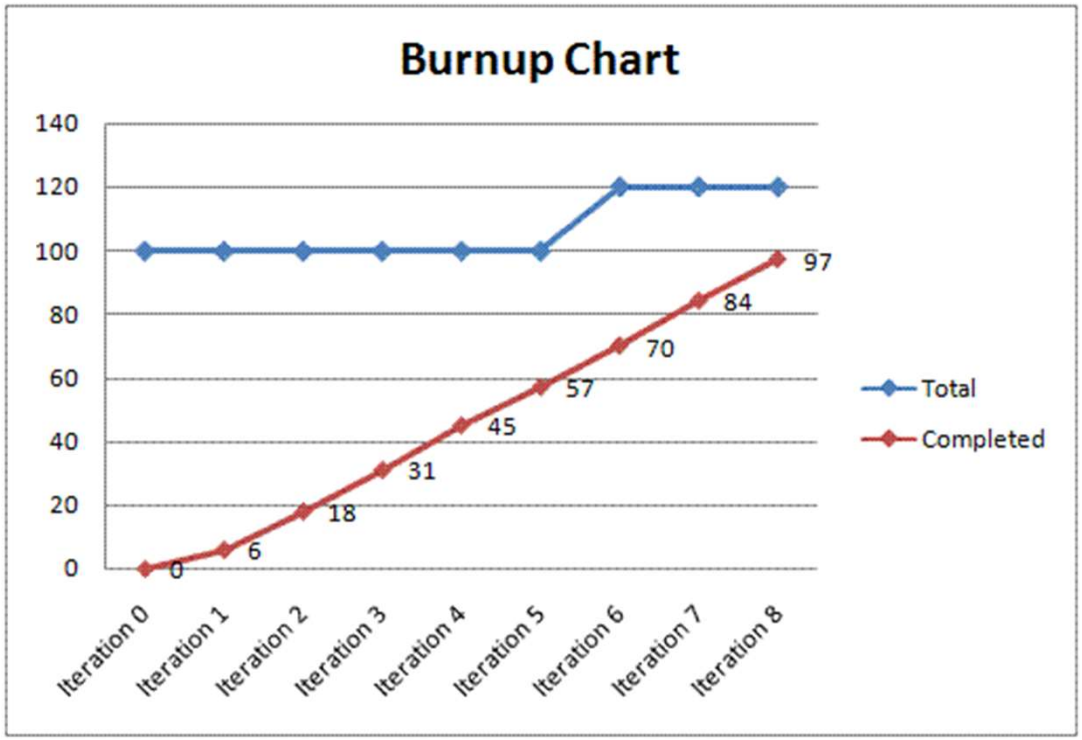
Burnup Chart



Work that has been done

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Burndown Chart

Work that remains to be done

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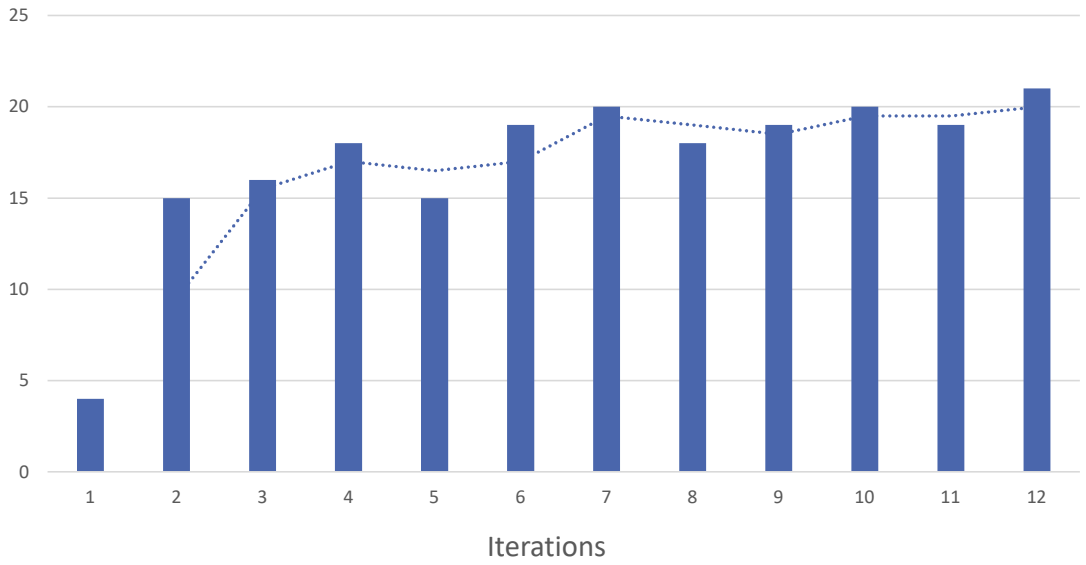
Velocity Charts



Show how the team is performing

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Velocity Charts

If a team has complete 3 iterations with the average velocity of 18 points per iteration, how many iterations would it take to complete 250 points of work?

=250/18 = About 14 more iterations.

Continuous Improvement

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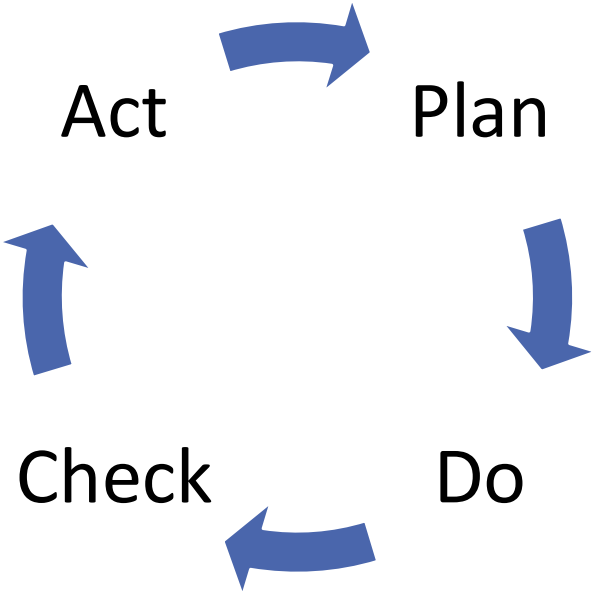
PDCA



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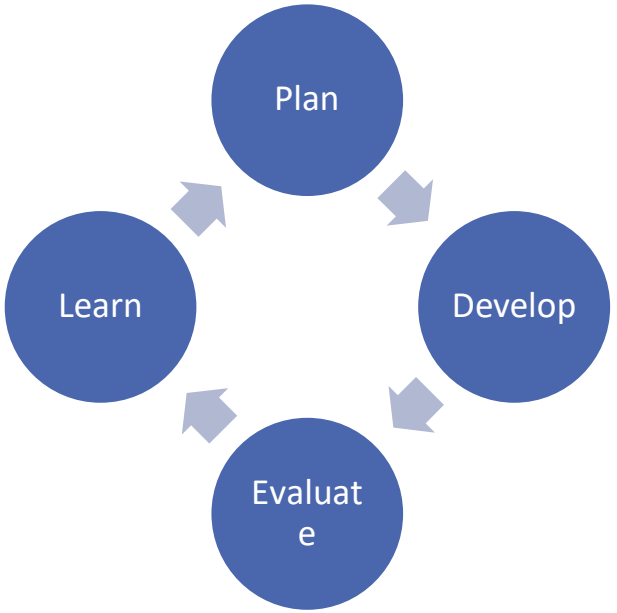
Agile Cycle



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Process Analysis

Review and diagnose issues

Look for tailoring possibilities

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Process Tailoring

Amend methodology to better fit project environment

Change things for good reason, not just for sake of change

Develop a hybrid

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Value Stream Map

Optimize the flow of information or materials to complete a process

Reduce waste (waiting times) or unnecessary work

Steps to creating:

- Identify the product or service
- Create a value stream map
- Review to find waste
- Create a new map with the desire improvement
- Develop a roadmap to implement the fixes
- Plan to revisit it again

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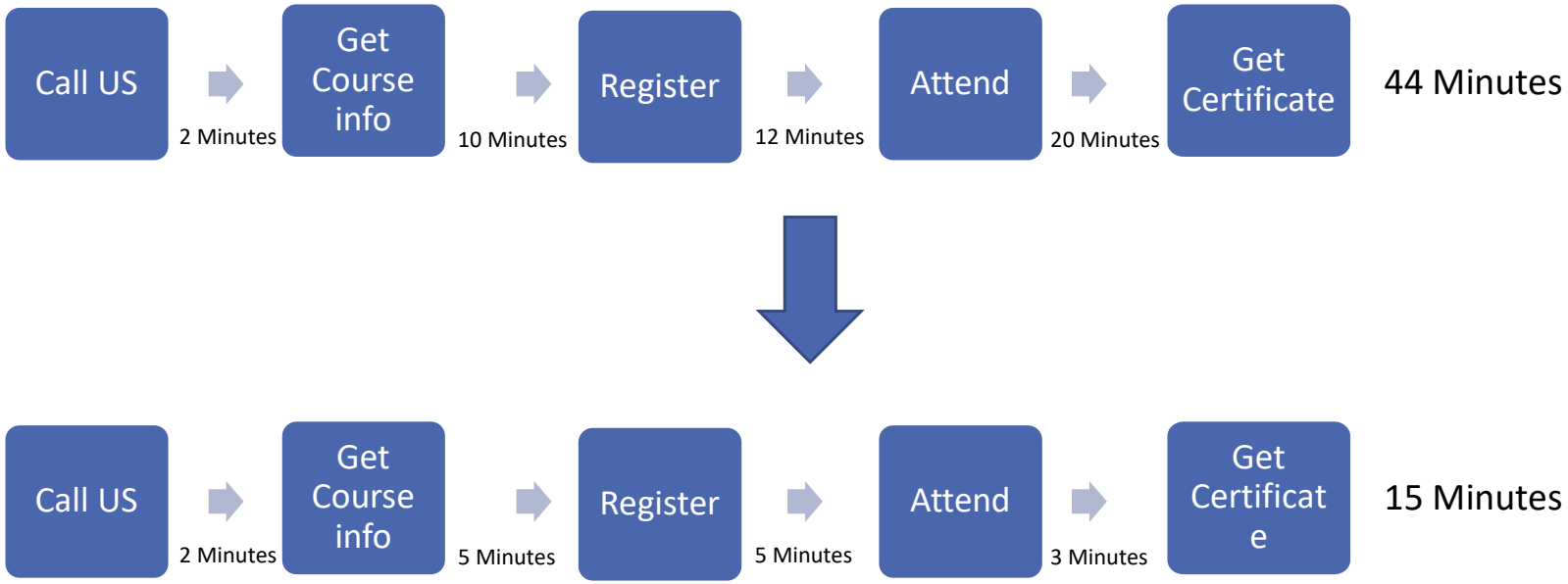
Value Stream Map Example



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Retrospectives

Special meeting that takes place after each iteration

Inspect and improve methods and team work

Offers immediate value

Should have a 2 hour time limit

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Retrospectives Stages

About 2 Hours for a typical retrospective

1. Set Stage – 6 Minutes
2. Gather Data – 40 Minutes
3. Generate Insights – 25 Minutes
4. Decide What to Do – 20 Minutes
5. Close Retrospective – 20 Minutes

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1. Set the Stage

Start of the retrospective

Help people to get focus

Encourage participation to ensure everyone start talking early

Outlining the approach and topics for discussion

Get people in mood for contributing information

Activities include:

- Check-In
- Focus On/Focus Off
- ESVP
  - People identify if they are an explorer, shopper, vacationer, or Prisoner

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2. Gather Data

Create a picture of what happened during the sprint

Start to collect information to be used for improvement

Activities:

- Timeline
- Triple Nickels: break the team into 5 groups to spend 5 minutes collecting 5 ideas, 5 time
- Mad, Sad, Glad: what where the team emotion as the sprint was taking place

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3. Generate Insights

Analyze the data

Helps to understand what was found

Activities Include:

- Brainstorming
- Five Whys: asking why five times
- Fishbone analysis
- Prioritize with dots: use a dot voting technique

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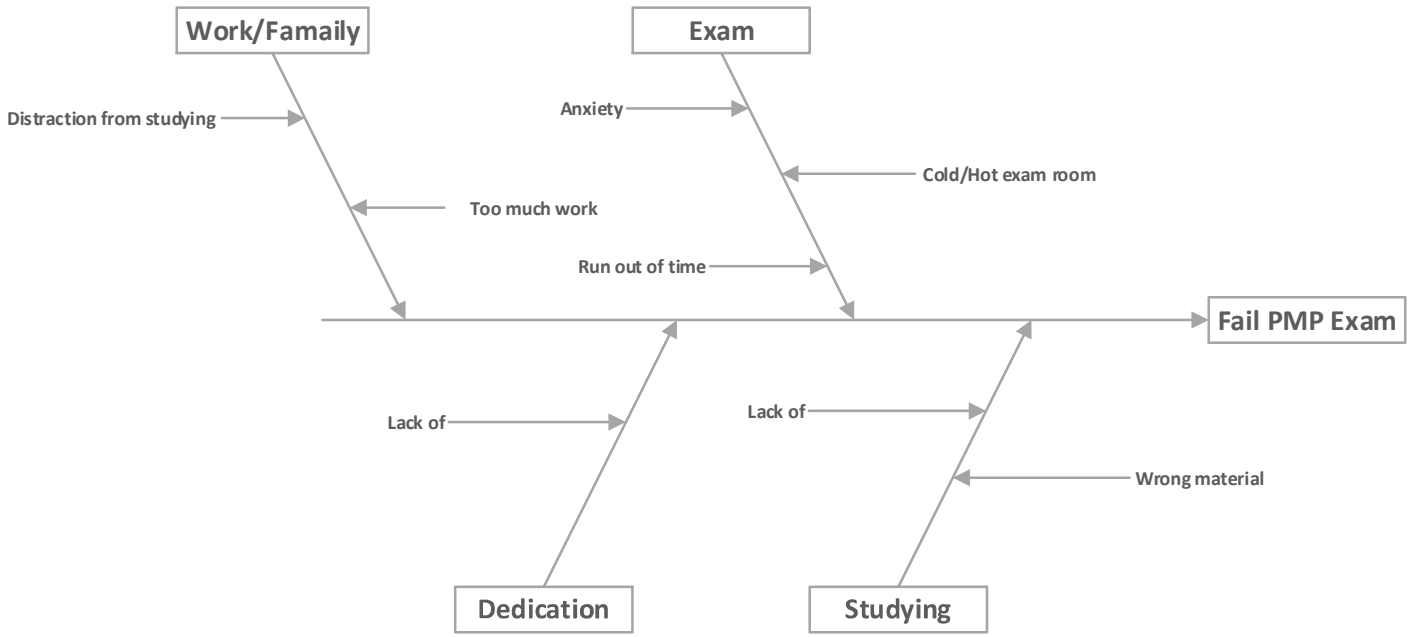
Fishbone Analysis



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4. Decide what to do

Decide what to do about the problems that was found

How can we improve for the next iteration

Activates include:

- Short Subjects
- Smart Goals

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Short Subjects

Team decides what actions to take in the next iteration:

- Start doing
- Stop doing
- Do more of
- Do less of

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SMART Goals

Team sets goals that are SMART:

- **S**pecific
- **M**easurable
- **A**ttainable
- **R**elevant
- **T**imely

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5. Close the Retrospective

Opportunity to reflect on what happened during the retrospective

Activities include:

- Plus/Delta: make two column of what the team will do more of and what to do less of