Project Scope Management

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Websites: www.pmi.org
www.projectmanagement.com

Project Scope vs Product Scope:
- Product Scope
  Features and functions that characterize a product, service or result
  Ex: BBQ night - product scope

- Project Scope:
  Work performed to deliver the product
  Ex: The process leading up to the BBQ night (gathering the necessary stuff)

1. Introduction to Agile Project Management

- **Definition:**
  - Agile Project Management is an iterative and incremental approach that focuses on delivering value in small, manageable increments, allowing for adaptability and continuous improvement.
- **Core Values (Agile Manifesto):**
  - Individuals and interactions over processes and tools.
  - Working software over comprehensive documentation.
  - Customer collaboration over contract negotiation.
  - Responding to change over following a plan.
- **Key Principles:**
  - Deliver working software frequently.
  - Welcome changing requirements, even late in development.
  - Work closely with stakeholders throughout the project.
  - Maintain a sustainable work pace.
  - Emphasize simplicity and technical excellence.

2. Agile Frameworks and Methodologies

Framework	Description	Best Suited For
Scrum	Iterative framework with sprints, daily stand-ups, and fixed roles (Product Owner, Scrum Master, Development Team).	Projects with evolving requirements and need for rapid delivery.
Kanban	Visual workflow management using boards to limit work in progress and manage flow.	Projects with ongoing tasks and a need for continuous delivery.
Lean	Focuses on maximizing value while minimizing waste. Originates from manufacturing principles.	Projects seeking efficiency and waste reduction.
Extreme Programming (XP)	Emphasizes technical excellence, pair programming, test-driven development, and continuous integration.	Software development projects with rapidly changing requirements.

| Crystal | Tailored to project size, criticality, and team dynamics. Emphasizes communication and reflection. | Projects with varying complexity and team size. |

3. Scrum Framework: Key Elements

- **Sprint:**
  - A time-boxed period (typically 1-4 weeks) during which a specific set of deliverables is developed.
- **Scrum Roles:**
  - **Product Owner:** Defines product vision, prioritizes backlog, and ensures alignment with business goals.
  - **Scrum Master:** Facilitates the Scrum process, removes impediments, and protects the team.
  - **Development Team:** Cross-functional members responsible for delivering the product increment.
- **Scrum Events:**
  - **Sprint Planning:** Defines sprint goal and selects backlog items.
  - **Daily Stand-Up:** Short, time-boxed meeting to discuss progress, impediments, and next steps.
  - **Sprint Review:** Demonstrates completed work to stakeholders.
  - **Sprint Retrospective:** Reflects on sprint outcomes to identify areas for improvement.

4. Kanban Methodology

- **Kanban Board:**
  - Visual representation of workflow using columns such as "To Do," "In Progress," "Testing," and "Done."
- **Work in Progress (WIP) Limits:**
  - Controls the number of tasks in progress to avoid bottlenecks.
- **Pull System:**
  - Tasks are "pulled" into the workflow based on capacity, preventing overloading the team.
- **Cycle Time:**
  - The time taken to complete a task from start to finish.

5. Lean Project Management

- **Core Principles:**
  1. Define value from the customer's perspective.
  2. Identify and eliminate waste (e.g., defects, overproduction, waiting).
  3. Optimize workflow and reduce process delays.
  4. Implement continuous improvement (Kaizen).
  5. Empower the team to make decisions.
- **7 Types of Waste in Lean:**
  - Overproduction, Waiting, Transport, Extra Processing, Inventory, Motion, Defects.

6. Agile vs. Waterfall: A Comparative Analysis

Aspect	Waterfall	Agile
Approach	Sequential, linear	Iterative, incremental
Flexibility	Limited once plan is set	High, accommodates changes
Risk Handling	Managed at end of project	Managed throughout project

Testing	After development phase	Continuous testing and feedback
Documentation	Comprehensive upfront	Minimal, focuses on essentials
Delivery	Single delivery at end	Frequent deliveries throughout

7. Agile Project Lifecycle

1. **Concept Phase:**
   - Identify project vision and stakeholders.
   - Develop a high-level backlog.
2. **Inception Phase:**
   - Define project scope and key objectives.
   - Establish team roles and responsibilities.
3. **Iteration Phase (Development):**
   - Plan, execute, and review sprints.
   - Continuous delivery of working software.
4. **Release Phase:**
   - Deploy final increment to production.
   - Ensure all documentation and training are complete.
5. **Maintenance Phase:**
   - Address bugs, make updates, and ensure product stability.

8. Agile Project Artifacts

- **Product Backlog:**
  - List of all desired features and tasks, prioritized by the Product Owner.
- **Sprint Backlog:**
  - Subset of the Product Backlog selected for the current sprint.
- **Product Increment:**
  - Working version of the product delivered at the end of each sprint.
- **Burndown Chart:**
  - Visual representation of remaining work over time.

9. Estimation Techniques in Agile

- **Story Points:**
  - Relative measure of effort, complexity, and risk.
- **Planning Poker:**
  - Estimation technique using cards to avoid groupthink and encourage discussion.
- **Velocity:**
  - Average work completed in a sprint, used for future sprint planning.
- **T-Shirt Sizing:**
  - Assigns effort levels as XS, S, M, L, XL to user stories.

10. Agile Metrics and KPIs

- **Velocity:** Measures the team's work output per sprint.
- **Cycle Time:** Time taken to complete a user story or task.
- **Lead Time:** Time from task creation to completion.
- **Burnup/Burndown Charts:** Tracks project progress against planned work.
- **Cumulative Flow Diagram (CFD):** Visualizes workflow, bottlenecks, and progress.

11. Agile Challenges and Solutions

Challenge	Solution

Scope Creep	Regular backlog refinement and prioritization.
Resistance to Change	Effective communication and training.
Lack of Team Collaboration	Daily stand-ups and retrospectives.
Unclear Requirements	Continuous stakeholder engagement and iterative development.
Overloading the Team	Implement WIP limits and regular capacity planning.

12. Agile Tools and Technologies

- **Jira:** Project tracking and issue management.
- **Trello:** Visual task management using boards.
- **Asana:** Task tracking and workflow management.
- **Miro:** Collaborative whiteboard for brainstorming.
- **Slack:** Team communication and collaboration.

13. Key Terms and Definitions

- **User Story:** Short, simple description of a feature from the perspective of the end user.
- **Epic:** Large user story that can be broken down into smaller user stories.
- **Sprint Goal:** Specific objective to be achieved during a sprint.
- **Definition of Done:** Checklist to determine if a task is complete.
- **Retrospective:** Meeting to reflect on what went well and what can be improved.