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2.2.2 Approaching the Triple Cost Constraint Summary Points

Understanding who uses Agile also requires understanding the methods employed to control a project's constraints. This brings us back to the Iron Triangle for the Triple Cost Constraint:

- Scope - controlling the work done
- Schedule - controlling the calendar time for doing the work
- Budget - controlling capital expenditures

Controlling Scope

- Traditional
    - *Work Breakdown Structure (WBS)* - controls work by concretely defining its components
        - Often has three levels: Product, Major Features, Feature Components
        - Used to define what will and will not be in a project
    - *Change Control Board (CCB)* - controls changes to the WBS by committee review
        - Includes all major stakeholders
        - Must be organized and often slows changes to a project
- Lean
    - *Tickets* - identify work items and their priority for response (urgency and impact)

- *Requests* - these are informal or semi-formal requests that could be tickets
- Notes
    - Both tickets and requests go into a queue for work, and are executed through a value stream
    - Value streams are steps to complete work (e.g. define, analyze, build, test).
  - Agile
    - *Product Backlogs* - the list of work to be done for the entire project. It's an ordered list of work increments.
    - *Sprint Backlog* - the work that will get done during the sprint.

Note that Backlogs are used for Tickets in Lean and Stories in Agile. You can also have what's often called the "Kanban Sandwich" where Lean processes are used to set Sprint Goals, Agile is used to manage a Product and Sprint Backlog, and then work during a sprint is managed in a Lean process.

Controlling Schedule

- Traditional
    - *Estimated Tasks and Schedules* - work is estimated and modeled for precedence
    - *Program Evaluation and Review Technique (PERT)* - adds stochastic modeling of task completion
    - *Critical Path Method (CPM)* - uses deterministic modeling to identify critical tasks for on-time delivery
    - Notes
        - Determining the critical series of tasks helps to focus managers in traditional on the important tasks
        - This does not necessarily align with business importance
        - Schedule and scope are fixed, however, scope modeling comes before scheduling to define estimates and dependencies in the work
        - A schedule is considered the primary tool in Traditional Management for controlling delivery
  - Lean
    - *Kanban & Queues* - work is managed in a list and executed based on priority
    - *Service Agreements* - sets the priority of work by defining what is critical, major, or minor
    - Notes
        - Together the Kanban & Queue techniques, along with the Service Agreements, allow for Lean projects to adjust when delivery will occur for each work item.
        - This is intended since schedule is varied in Lean projects

- Agile
    - *Timeboxes* - a set period of time in which the most important work is done first
    - *Releases and Roadmaps* - sets goals for major features to be release together
    - Notes
        - Timeboxes are used at all levels of the project to set deadlines
            - Sprints are given a fixed time to drive improvement
            - Any work not done in the timebox goes back into the backlogs
        - Releases and Roadmaps set objects for multiple sprints that can be met at varying quality levels
        - This allows for the most important work to achieve an objective to get done first
        - This aligns the business importance with what work actually gets done on time

Controlling Budget

- Traditional
    - *Earned Value Management (EVM)* - compares current performance to the plan
        - *Planned Value (PV)* - shows the cost over time expected to complete the work on schedule
        - *Earned Value (EV)* - shows how much work is completed to date
        - *Actual Cost (AC)* - shows the cost so far to complete the work
    - *Cost Centers*
        - Evaluates the differences in performance by cost center
        - *Cost Performance Index (CPI)* is the factor EV / AC, where above 1.0 means good performance
        - *Schedule Performance Index (SPI)* is the factor (EV / PV), where above 1.0 means good performance
        - This allows you to estimate the costs or savings expected for on-time delivery of total scope
- Lean
    - *Service and Severity Levels* - sets the level at which the company reaps benefits from the solutions
        - Service Levels set the Goal
        - Severity Levels set the Impact of meeting or not the goal for different problem types
    - *Key Performance Indicators (KPIs)* - evaluate performance against goals for set time periods

- If the KPI is meeting or exceeding the Service Level Goal, then you're making money
        - KPIs will often vary over time, so it's important to look at trending
- Agile
    - *Return on Investment (ROI)* - the net income as a ratio to total investment
        - Positive ROIs should be expected after the first or second release of a product
        - Allows for selecting and refining the backlogs
    - *Burndown Charts* - shows progress in achieving the backlog over time
        - Used for projects that haven't yet released the project, or cannot easily estimate ROI
        - Projects often start with a set of stories and story points estimated
        - The expectation is a linear burndown - meaning a linear decrease in total remaining work to be done
        - Teams often are slow at the beginning and speed up over time, or hit snags that stall backlog burn

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