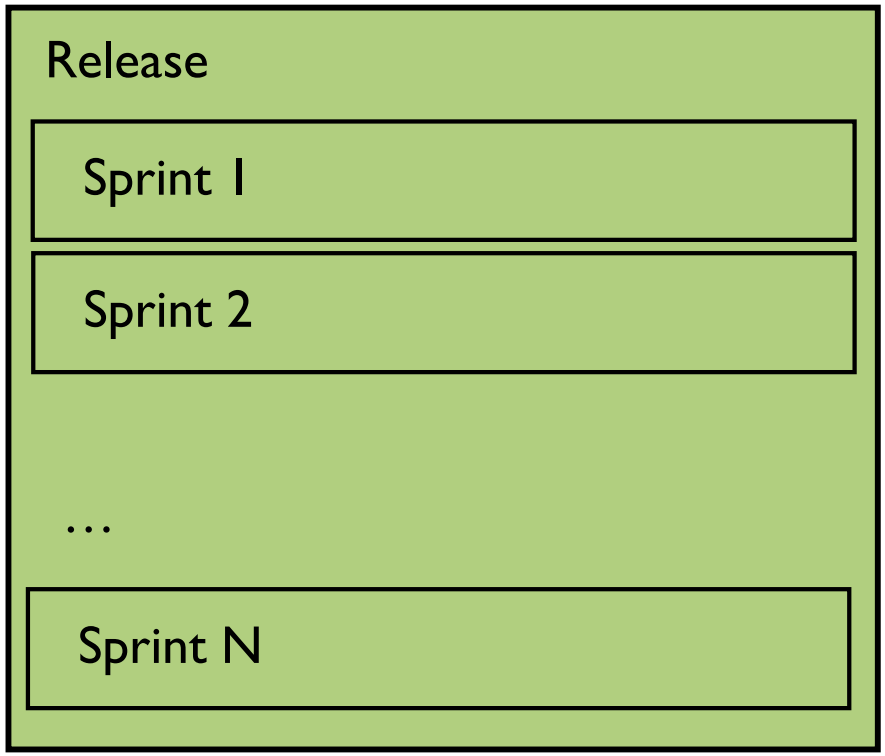
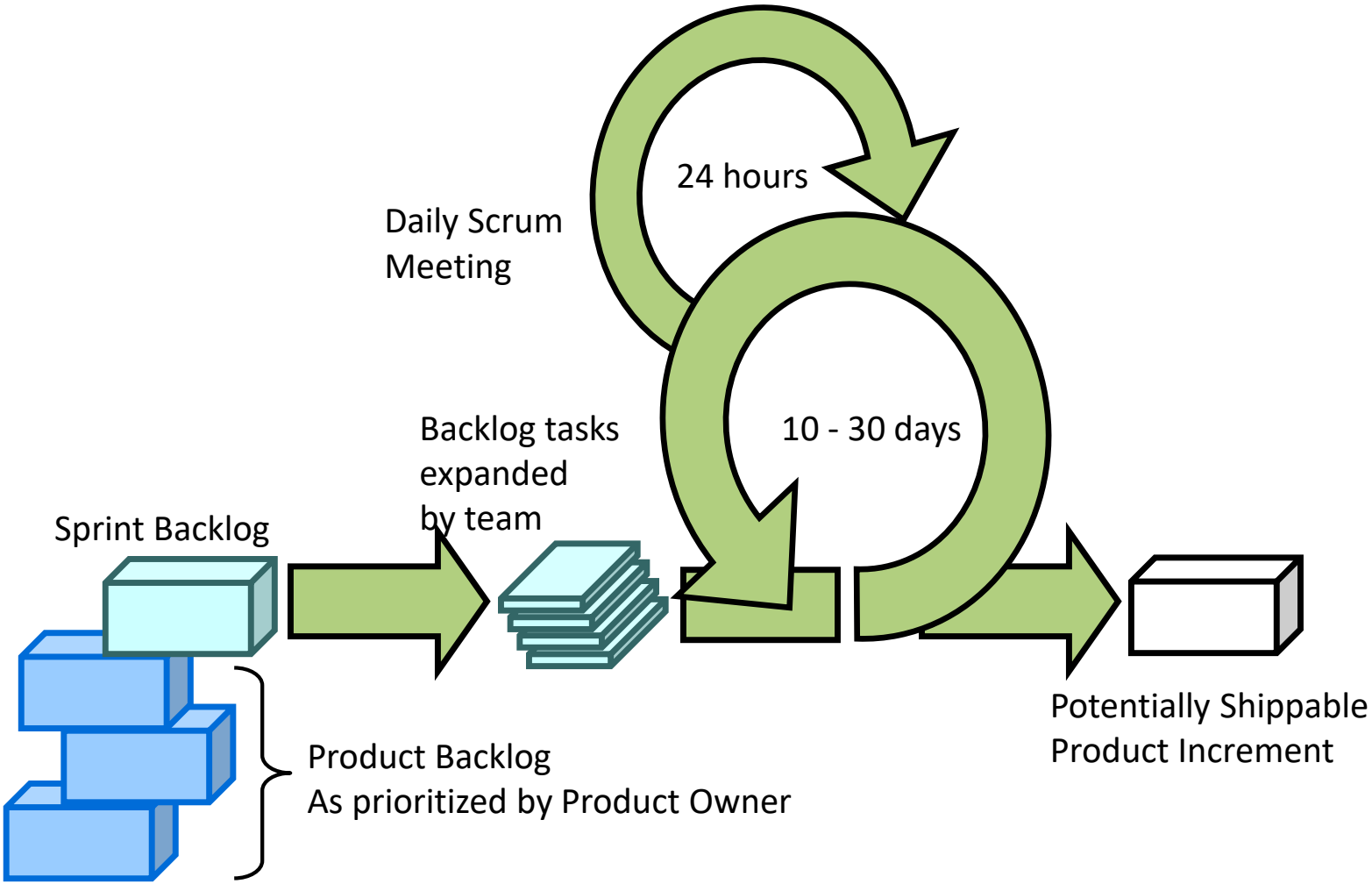
Overview of Sprints

Releases: Multiple Sprints

- A Release occurs at the end off multiple Sprints
- In CS 115, there are three Sprints and one release, at the end of the quarter



Scrum Process Overview



Source: Adapted from *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

Product backlog

This is the product backlog

- The requirements
- A list of all desired work on the project
- Ideally expressed such that each item has value to the users or customers of the product
- Prioritized by the product owner
- Reprioritized at the start of each sprint

A sample product backlog

Priority	Hotel Reservation System Backlog item	Story Point Estimate
1	As a guest, I want to make a reservation	3
2	As a guest, I want to cancel a reservation.	5
3	As a guest, I want to change the dates of a reservation.	3
4	As a hotel employee, I can run RevPAR reports (revenue-per-available-room)	8
5	Improve exception handling	8
6	...	30

Sprints

- Scrum projects make progress in a series of "sprints"
  - An increment in the 'Iterative and Incremental' model
    - e.g. as defined in IBM Rational Unified Process (RUP)
  - Increment includes sprint's user stories broken into 'tasks'
- Typical sprint duration is
  - 2–4 weeks
  - a calendar month at most
  - (others: 1 to 6 weeks)
- A constant duration leads to a better rhythm
- Product is designed, coded, and tested during the sprint
  - Team members iterate through workflows until sprint end

Scrum framework

Roles

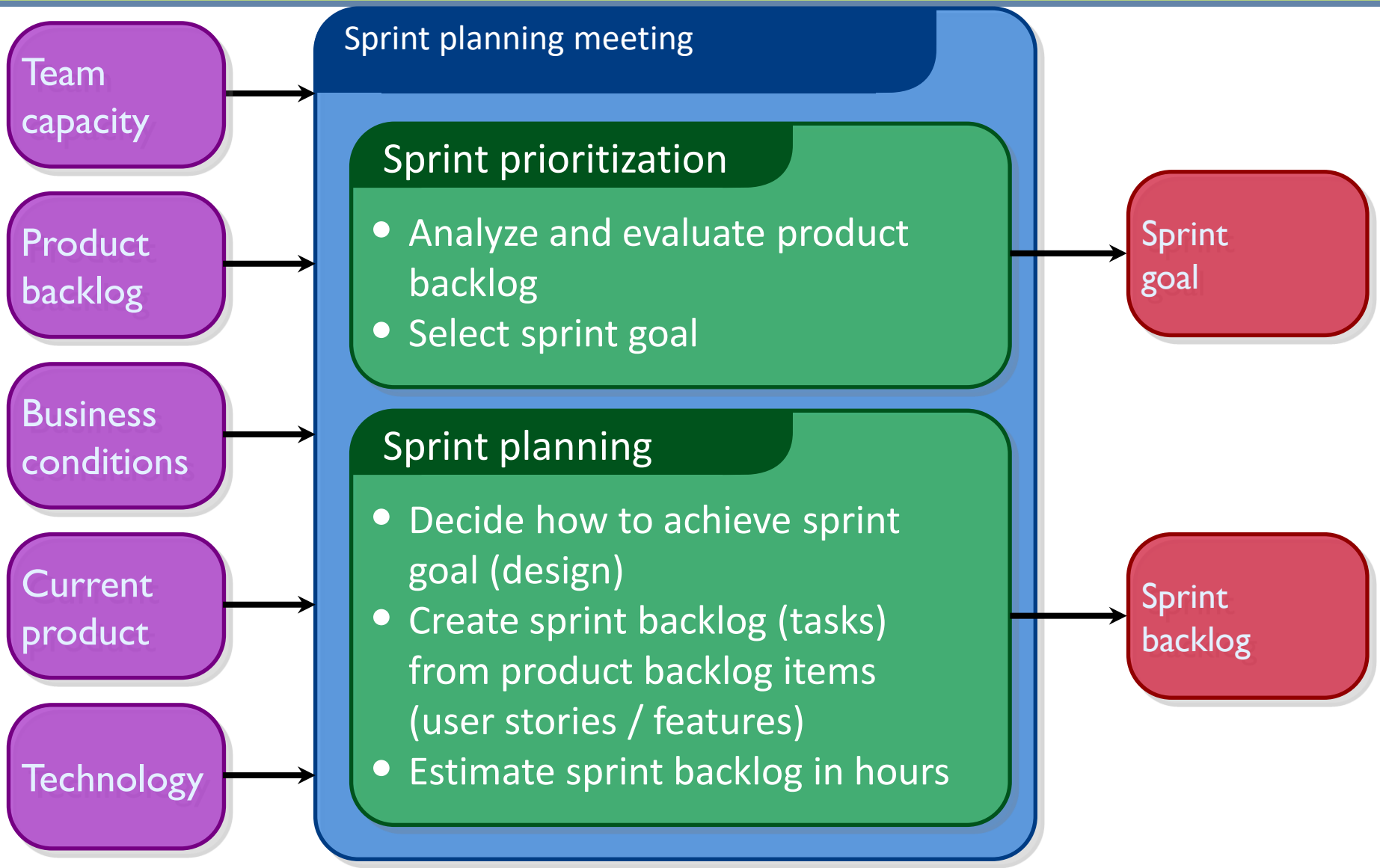
- Product owner
- ScrumMaster
- Team

Ceremonies

- Release planning
- Sprint planning
- Sprint review
- Daily scrum meeting

Artifacts

- Product backlog
- Sprint backlog
- Burnup charts


Team capacity
Product backlog
Business conditions
Current product
Technology
Sprint planning meeting
Sprint prioritization
Analyze and evaluate product backlog
Select sprint goal
Sprint planning
Decide how to achieve sprint goal (design)
Create sprint backlog (tasks) from product backlog items (user stories / features)
Estimate sprint backlog in hours
Sprint goal
Sprint backlog

Multiple Aspects of Value

- Cf. Construx Paper "10 Keys to Successful Scrum Adoption"
  - Steve Mcconnell
  - On Piazza
- Customer value
  - Specific feature of system
- Technical value
  - New infrastructure that will enable or accelerate implementation of features in future sprints
  - Refactoring
    - Clean up code to facilitate future development
- Business value
  - Work necessary to comply with oversight processes or regulations

Sprint planning

- Re-evaluate priority of user stories
  - In product backlog
  - Update release plan if necessary
  - Set high-level sprint goal
- Create Sprint Backlog (collaboratively, as a team)
  - Analyze user stories and create development tasks
  - Give each task a name/identifier
  - Estimate (ideal) working hours for each task (planning poker?)
- Create and capture high-level design

As a vacation planner, I want to see photos of the hotels so I can have a better idea of facilities

Priority 4 [10 Story Points]

→

Code the middle tier (8 hours)
Code the user interface (4)
Write test fixtures (harness) (4)
Code the foo class (6)
Integrate the pieces with system (4)
Update performance tests (4)

Sprint planning (2)

- Task estimation
  - Performed as a group, using Planning Poker - view planning poker
  - Here, units of estimation are "ideal work hours"
    - The amount of work you can get done under ideal conditions
      - Full knowledge, no interruptions
    - Actual hours elapsed will be greater than ideal hours
  - Task estimates are a **commitment** to accomplish a development task in a certain period of time

- How many ideal work hours can each person perform?
  - Good question – so far, your group has no track record on this
  - For now, pick a conservative figure, such as 10-12 ideal hours/week
  - So, each group member can do 30-36 ideal hours of work per Sprint

Sprint planning (3)

- Likely scenario:
  not enough time to implement all user stories in the release
  - In this case, need to re-assess user stories
    - Are the priorities all still the same?
    - If so, return lowest priority user stories to product backlog until estimated work agrees with team's work capacity
      - Can pick these up in later Sprints
  - What if the team finishes too soon (i.e., systemic over-estimation of task length)?
    - Very unlikely to occur – the opposite problem (under-estimation) is far more common
    - If it does happen, the team can add another user story midway through the Sprint

Stating the sprint goal

A short statement of what the work will be focused on during the sprint – supported by the highest priority user stories in the product backlog

Life Sciences

Support Android 'Beep' app for Negotiating Identity sys

Database Application

Make the application run on SQL Server in addition to Oracle.

Financial services

Support more technical indicators than company ABC with real-time, streaming data.

Output of Sprint planning (for CS 115)

- **Task listing** (with time estimate), organized by user story (prioritized)
  - User story 1:
    Task 1 (time estimate)
    Task 2 (time estimate)
    …
  - User story 2:
    Task 1 (time estimate)
    Task 2 (time estimate)
    …
- **Team roles**
  - Team member 1: role (e.g. Product owner)
  - Team member 2: role (e.g. Scrum Master)
  - … (e.g. Team member)
- **Initial task assignments**
  - For each person, what is the first task they are working on?
- Initial task **burn-up chart / burn-down chart**
  - **Please: no burn-out charts**
- Initial **scrum board set up**
- **Schedule of Scrum meetings**
  - When/where for 3 weekly face-to-face scrum meetings

Managing the sprint backlog

- Individuals sign up for work of their own choosing
  - Work is never assigned
- Estimated work remaining in sprint is updated daily by scrum master on chart
- Any team member can add, delete or change the sprint backlog moving it in scrum board
- Work for the sprint emerges
- If work is unclear, define a sprint backlog item with a larger amount of time and break it down later
- Update work remaining as more becomes known

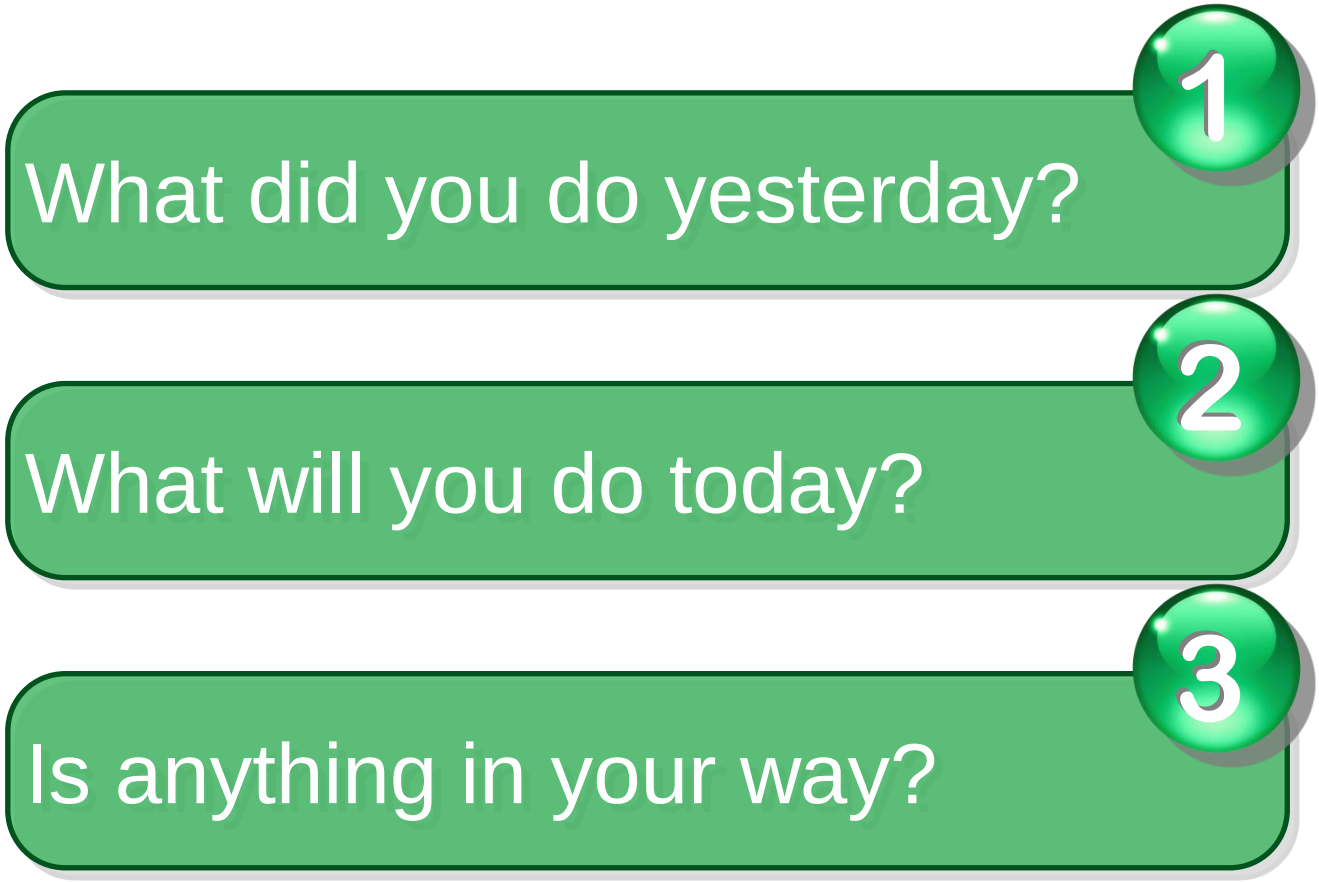
Project Management During Sprints

The Daily Scrum

- Parameters
  - Daily with *Fines*
  - 15-minutes
    - **Strictly** timeboxed
    - Can follow-up after meeting on bigger issues
  - Stand-up

- Not for problem solving
  - Whole world is invited
  - Only team members, ScrumMaster, product owner, can talk (these are the pigs) vs management
- Helps avoid other unnecessary meetings

Everyone answers 3 questions



These are *not* status for the ScrumMaster

- They are commitments in front of peers

Helpful Material: Agile Practices (3)

- Agile in Practice
  - http://www.agileacademy.com.au/agile/KnowledgeHub
- Daily Scrum/Stand-up Meeting
  - https://www.youtube.com/watch?v=42hFGMVszkQ
- Daily Scrum at MicroSoft
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- … many others, including Bad Stand-up meetings …

Scrum pitfalls

- Being late, missing the meeting (team determines penalty)
  - If you're not present, the team doesn't know what you're doing
    - This is demoralizing – people assume nothing is happening
  - If someone needs information from you to move forward, they're stuck
  - Disrespectful of other team members
- Grandstanding
  - Going into excessive levels of detail to make it seem like you've done more that you have (especially in front of tutor or prof)
- Going over time
  - Scrums are strictly 15 minutes, timeboxed.
  - Big issues are discussed by involved parties after the Scrum.
    - The Scrum just identifies the issues
- Failure to commit to work items
- Failure to update Scrum board

www.xqa.com.ar/visualmanagement/2009/04/daily-scrum-against-the-board/

The scrum board

- A visual representation of **all** work that needs to be performed during the sprint
- Allows team members to clearly see tasks remaining
- Either put up on a wall, or put online (using a web-based scrum tool)
- A big chart
  - Rows are user stories and associated tasks
  - Columns are current status of tasks (To Do, In Progress, Done)
  - Tasks written on index cards or post-it notes

joshuahoover.com/2009/03/22/bitter-scrum-a-task-board-gone-wrong/

Updating the Scrum board

- During the scrum meeting, tasks are updated
- If a task is completed, it is moved from "In Progress" to "Done"
- If a task was "In Progress" at the last meeting, and is still "In Progress", the time estimate for the task needs to be updated with remaining time
  - As well, if there is anything preventing completion of the task, this should be the answer to question #3 ("Is anything in your way?")
- If a new task is assigned:
  - The name of the person working on the task is added to the task card
  - The task is moved from "To Do" to "In Progress"
- If a task is blocked (no further progress possible)
  - Move it back to "To Do" but LABEL it as blocked (e.g., change the color of the card, add a sticker, etc.)

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- Burn-up Chart
  - Please, don't make this into a Burn-out chart
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- Sprint Burn-down chart (basic idea)
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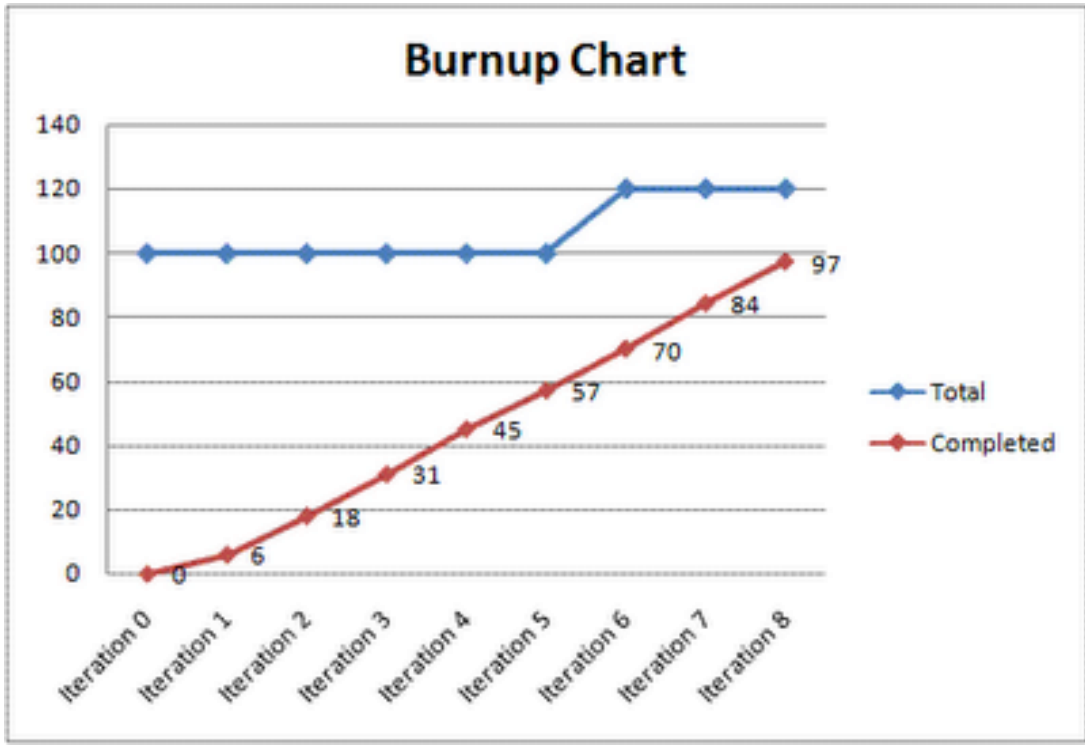
- Sprint Burn-down: some alternatives
  - https://www.youtube.com/watch?v=pqLfs1fdcMI

Keeping Scrum board up to date

- The primary value of the Scrum board comes from it being an accurate, up-to-date representation of the work of the team
- If it is not kept current, its value diminishes quickly
- It is the job of the Scrum Master to ensure the Scrum board is up-to-date
  - The grade they receive for their role performance depends on this
  - If someone misses a Scrum meeting, they need to proactively contact that person to find out what they have been doing, and update the board
  - Scrum master also needs to ensure team updates task cards during daily Scrum

Sprint burnup chart

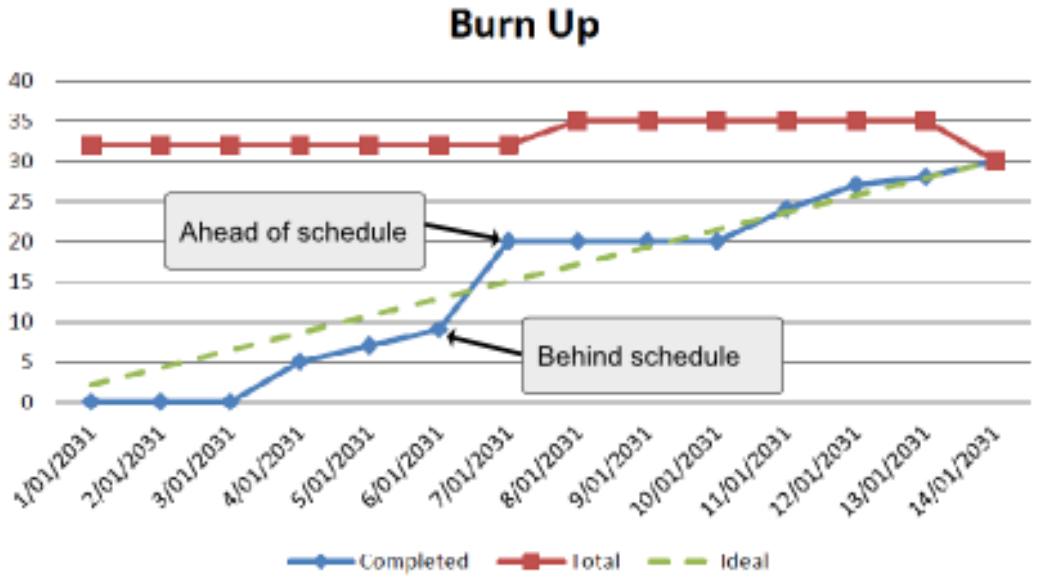
- Burnup chart represents the total amount of work done in the sprint.
- As the sprint progresses, completed work should trend to sprint total
- Typically posted on scrum board
- Scrum Master maintains the burnup chart
  - After each Scrum meeting, a new chart point is created
  - Sum the estimated time for all completed tasks
    - This is the data point (y-value) for that day (x-value)
- Ideal burnup trend
  - Rate at which work is ideally performed so that all tasks are completed in sprint



www.altamiracorp.com

When sprints go bad

- The burnup chart gives you early warning that your sprint will not achieve its objectives
  - Tasks clearly taking too long to complete, consistently
  - Need to take action
- How to adjust
  - Identify root cause
    - Under-estimation?
    - Impediments?
    - Flaky team members?
  - Get help
    - Contact tutor/Professor
  - Reduce scope
    - Reduce number of user stori
    - Re-estimate tasks to ensure estimates reflect reality



http://www.clariostechnology.com/productivity/blog/whatisaburnupchart

Key project management challenges

- Awareness of the work of others
- Awareness of the current status of the project
- Clarity on what is your current task, and what is your next task
- Awareness of whether current sprint activity is completing tasks fast enough to meet sprint goals
- Making mid-course corrections if implementation activity is too fast or too slow.
- Tools for addressing challenges:
  - Scrum meetings
  - Scrum board
  - Burn-up chart/Burn-down chart

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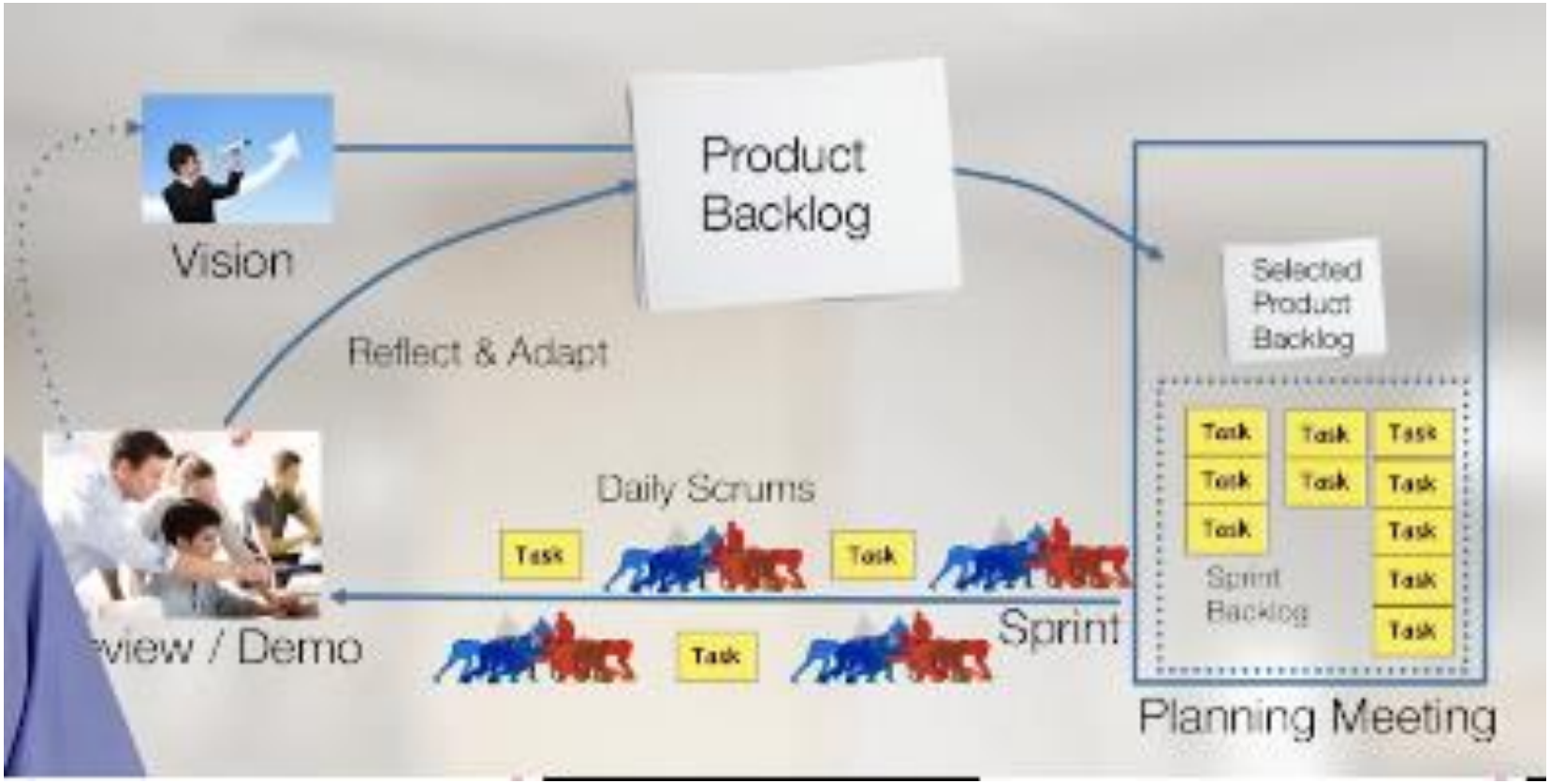
Evaluating the Sprint:

Product and Process

The Sprint Review: Assess/Demo the Product

- When: at the end of a sprint
- What:
  team gives demo of potentially releasable product
  - Result of sprint
- How: Informal
  - 2-hour prep time rule
  - No slides
- Who:
  - Whole team
  - Other stakeholders
  - Anyone interested

The Sprint Review: Assess/Demo the Product



Sprint Retrospective: Assess the Process

- Done after every sprint
- Continuous process improvement
  - take a look at what is and is not working
- Typically 15–30 minutes
- Whole team participates
  - Team
  - ScrumMaster
  - Product owner
  - Possibly other stakeholders

Start / Stop / Continue

- Whole team gathers and discusses what they'd like to:

Start doing

Stop doing

Continue doing

This is just one of many ways to organize a sprint retrospective.

Study questions

- What is a task? How do tasks relate to user stories?
- What is a sprint?
- What are the outputs of sprint planning?
- What is a daily scrum meeting? How long does it last?
- What are the three questions each person answers during the daily scrum?
- What is a scrum board (task board)? What are the rows, and what are the columns? How are tasks represented on the task board?
- What happens to a task board during a daily scrum meeting?
- What is a sprint burnup chart? What is the indicator of a sprint going bad (unable to accomplish goals?)
- What is a sprint review? What is a sprint retrospective?