SCRUM-AGILE METHODOLOGY

What is Scrum?

- **Scrum**:
  - Is an agile, lightweight process
  - Can manage and control software and product development
  - Uses iterative, incremental practices
  - Has a simple implementation
  - Increases productivity
  - Reduces time to benefits
  - Embraces adaptive, empirical systems development
  - Is not restricted to software development projects

Scrum Origins

- Jeff Sutherland
  - Initial scrums at Easel Corp in 1993
  - IDX and 500+ people doing Scrum
- Ken Schwaber
  - ADM
  - Scrum presented at OOPSLA 96 with Sutherland
  - Author of three books on Scrum
- Mike Beedle
  - Scrum patterns in PLOPD4
- Ken Schwaber and Mike Cohn
  - Co-founded Scrum Alliance in 2002, initially within Agile Allia

Scrum Framework

Roles

- Product owner
- Scrum Master
- Team

Ceremonies

- Sprint planning
- Sprint review meeting
- Sprint retrospective
- Daily scrum meeting

Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

Scrum Roles

- Product Owner
  - Possibly a Project Sponsor
  - Decides features, release date, prioritization, $$$

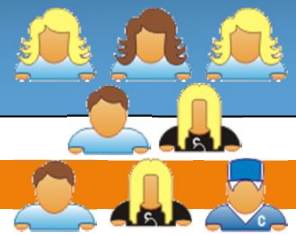
- Scrum Master
  - Typically a Project Manager or Team Leader
  - Responsible for enacting Scrum values and practices
  - Remove impediments / politics, keeps everyone productive

- Project Team
  - 5-10 members; Teams are self-organizing
  - Cross-functional: QA, Programmers, UI Designers, etc.
  - Membership should change only between sprints

Scrum Master

- Represents management to the project
- Typically filled by a Project Manager or Team Leader
- Responsible for enacting scrum values and practices
- Main job is to remove impediments

The Scrum Team

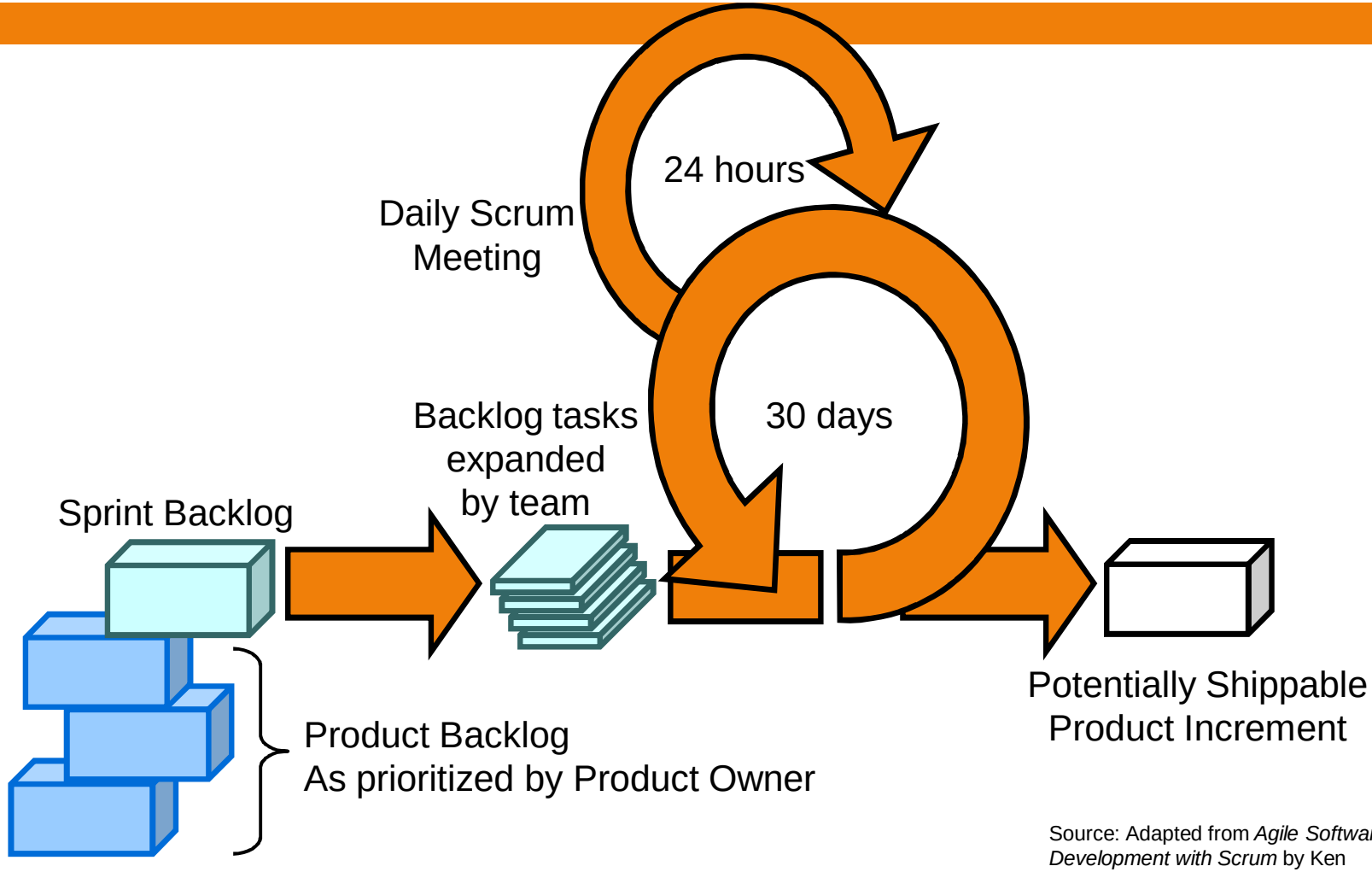


- Typically 5-10 people
- Cross-functional (QA, Programmers, UI Designers, etc.)
- Members should be full-time
- Team is self-organizing
- Membership can change only between sprints

Product Owner

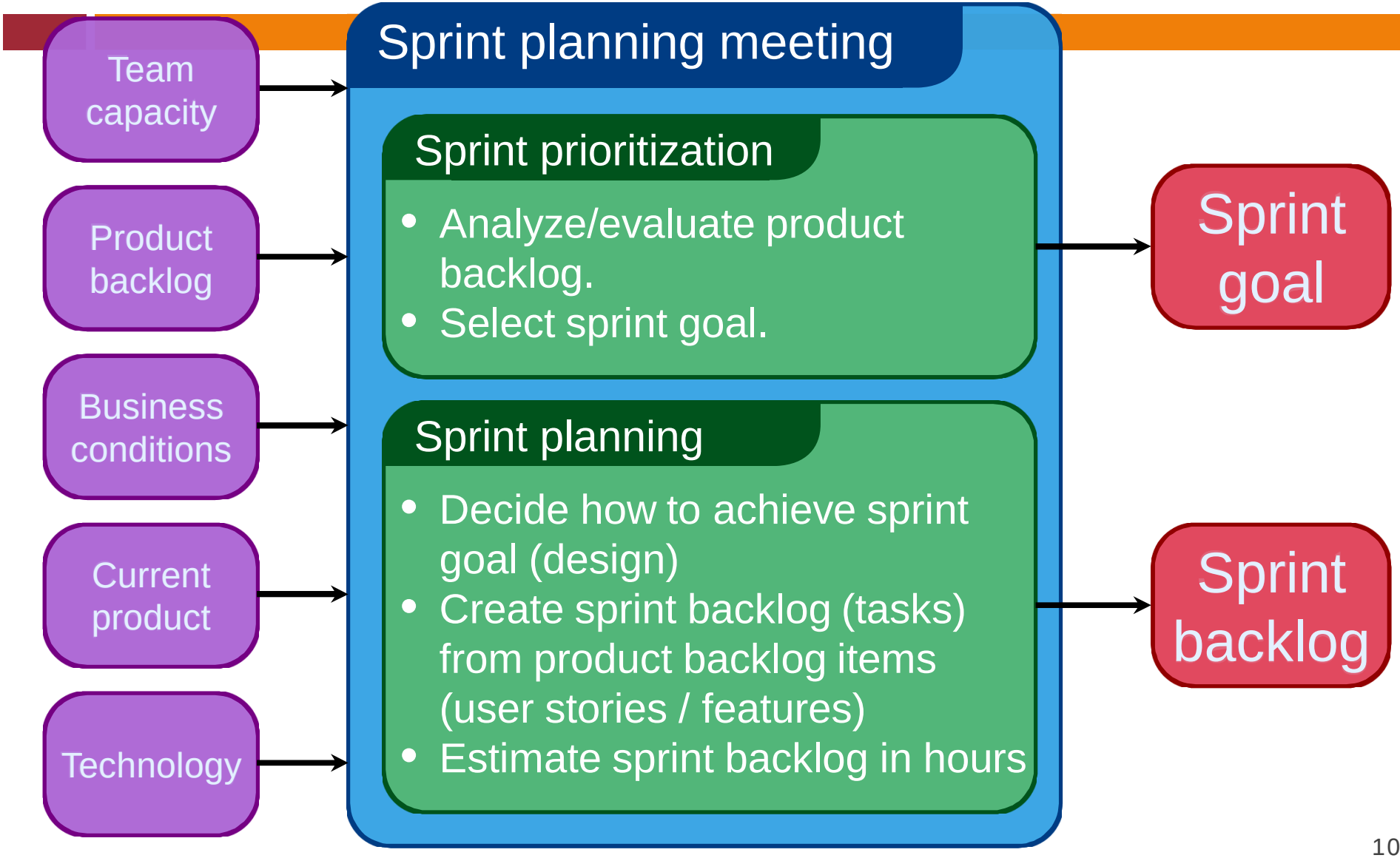
- Acts like one voice (in any case)
- Knows what needs to be build and in what sequence this should be done
- Typically a product manager

Scrum at a Glance



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

Sprint Planning Mtg.



The Process

- Sprint Planning Meeting
- Sprint
- Daily Scrum
- Sprint Review Meeting

Sprint Planning Meeting

- A collaborative meeting in the beginning of each Sprint between the Product Owner, the Scrum Master and the Team.
- Takes 8 hours and consists of 2 parts (“before lunch and after lunch”)

Parts of Sprint Planning Meeting

- 1st Part:
  - Creating Product Backlog
  - Determining the Sprint Goal.
  - Participants: Product Owner, Scrum Master, Scrum Team
- 2nd Part:
  - Participants: Scrum Master, Scrum Team
  - Creating Sprint Backlog

Pre-Project/Kickoff Meeting

- A special form of Sprint Planning Meeting
- Meeting before the begin of the Project

Sprint

- A month-long iteration, during which is incremented a product functionality
- NO outside influence can interference with the Scrum team during the Sprint
- Each Sprint begins with the Daily Scrum Meeting

Daily Scrum

- Is a short (15 minutes long) meeting, which is held every day before the Team starts working
- Participants: Scrum Master (which is the chairman), Scrum Team
- Every Team member should answer on 3 questions

Questions

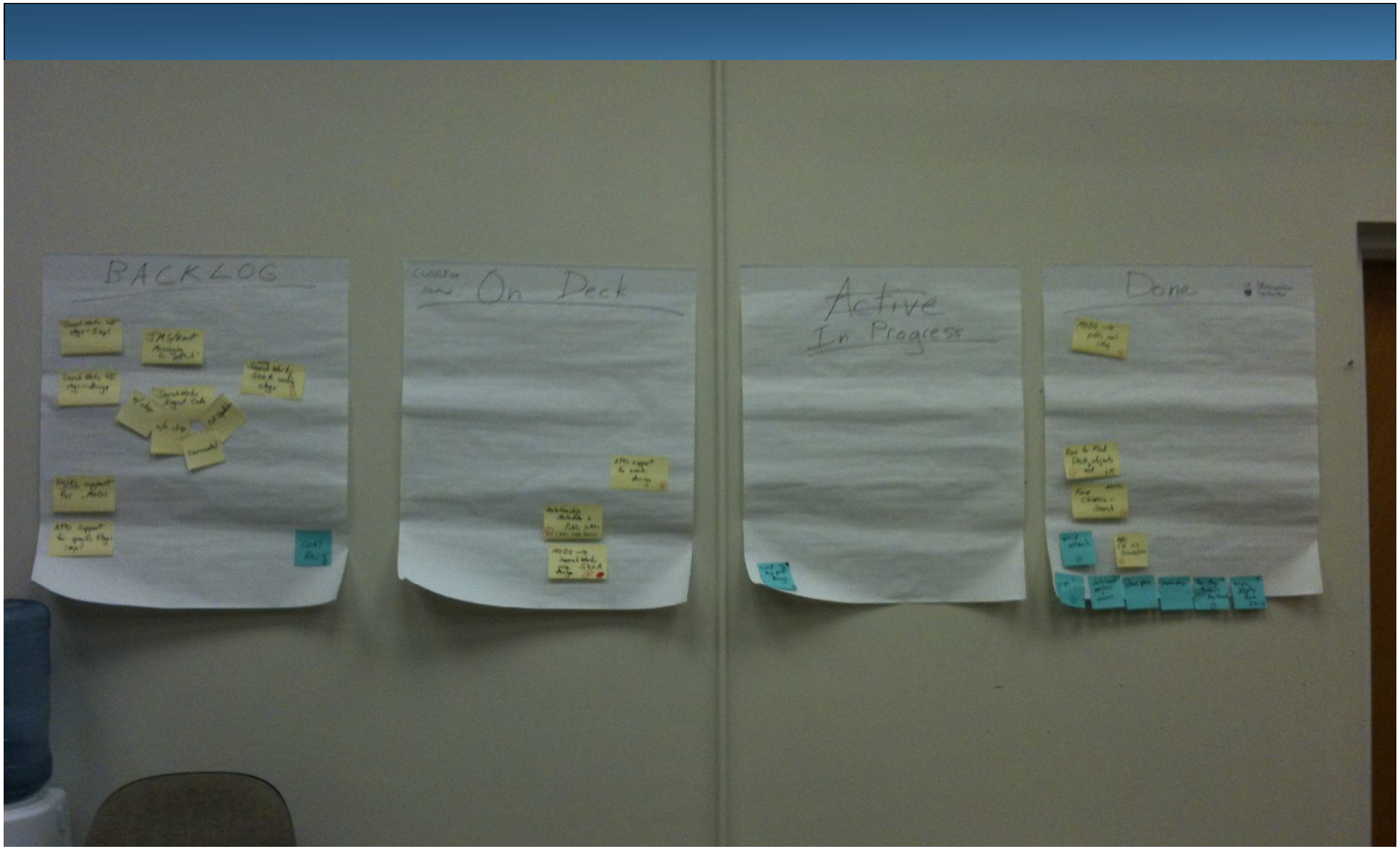
- What did you do since the last Scrum?
- What are you doing until the next Scrum?
- What is stopping you getting on with the work?

Daily Scrum

- Is NOT a problem solving session
- Is NOT a way to collect information about WHO is behind the schedule
- Is a meeting in which team members make commitments to each other and to the Scrum Master
- Is a good way for a Scrum Master to track the progress of the Team

Sprint Review Meeting

- Is held at the end of each Sprint
- Business functionality which was created during the Sprint is demonstrated to the Product Owner
- Informal, should not distract Team members of doing their work


BACKLOG
On Deck
Active
In Progress
Done

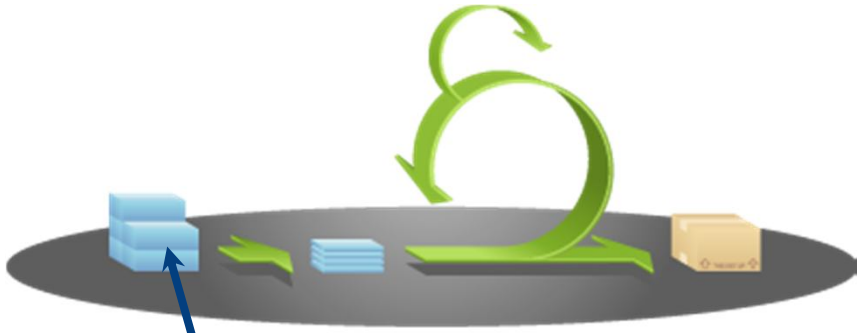
Scrum's Artifacts

- Scrum has remarkably few artifacts
  - Product Backlog
  - Sprint Backlog
  - Burndown Charts

- Can be managed using just an Excel spreadsheet
  - More advanced / complicated tools exist:
    - Expensive
    - Web-based – no good for Scrum Master/project manager who travels
    - Still under development

Product Backlog

- The requirements
- A list of all desired work on project
- Ideally expressed as a list of user stories along with "story points", such that each item has value to users or customers of the product
- Prioritized by the product owner
- Reprioritized at start of each sprint



This is the product backlog

User Stories

- Instead of Use Cases, Agile project owners do "user stories"
  - **Who** (user role) – Is this a customer, employee, admin, etc.?
  - **What** (goal) – What functionality must be achieved/developed?
  - **Why** (reason) – Why does user want to accomplish this goal?

As a [user role], I want to [goal], so I can [reason].

- Example:
  - "As a user, I want to log in, so I can access subscriber content."

- **story points**: Rating of effort needed to implement this story
  - common scales: 1-10

Scrum Artifacts

- Product Backlog
- Sprint Backlog
- Burn down Charts

Product Backlog

- Requirements for a system, expressed as a prioritized list of Backlog Items
- Is managed and owned by a Product Owner
- Spreadsheet (typically)
- Usually is created during the Sprint Planning Meeting
- Can be changed and re-prioritized before each PM

This is the product backlog

Estimation of Product Backlog Items

- Establishes team's velocity (how much Effort a Team can handle in one Sprint)
- Determining units of complexity.
  - Size-category ("T-Shirt size")
  - Story points
  - Work days/work hours
- Methods of estimation:
  - Expert Review
  - Creating a Work Breakdown Structure (WBS)

Sample Product Backlog

Backlog item	Estimate
Allow a guest to make a reservation	3 (story points)
As a guest, I want to cancel a reservation.	5
As a guest, I want to change the dates of a reservation.	3
As a hotel employee, I can run RevPAR reports (revenue-per-available-room)	8
Improve exception handling	8
...	30
...	50

Sprint Backlog

- A subset of Product Backlog Items, which define the work for a Sprint
- Is created ONLY by Team members
- Each Item has it’s own status
- Should be updated every day

Sprint Backlog

- Is a FORECAST!
- Is a good warning monitor

Sprint Backlog

- Individuals sign up for work of their own choosing
  - Work is never assigned
- Estimated work remaining is updated daily

- Any team member can add, delete change sprint backlog
- 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

Sprint Backlog

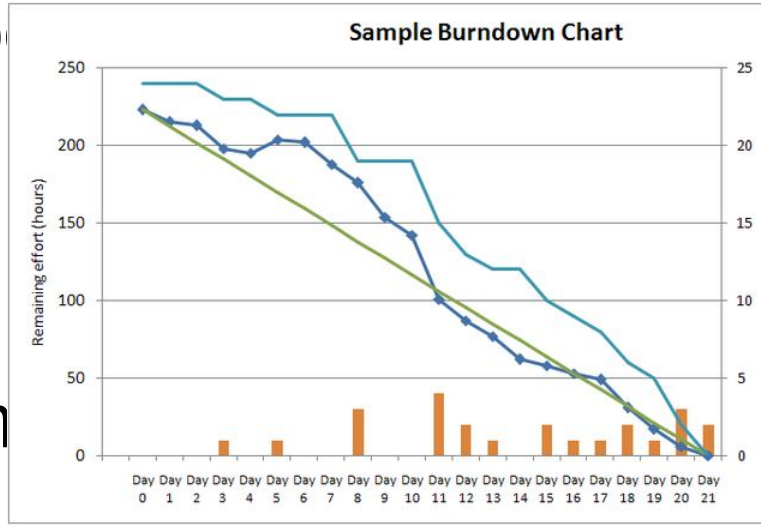
	Task Description	Originator	Responsible	Status	Hours of work remaining				
					6	7	8	9	10
					362	322	317	317	306
5	Meet to discuss the goals and	JM	JM/SR	Completed	20	10	0	0	0
6	Move Calculations out of	TL	AW	Not Started	8	8	8	8	8
7	Get GEK Data		TN	Completed	12	0	0	0	0
8	Analyse GEK Data - Title		GP	In Progress	24	20	30	25	20
9	Analyse GEK Data - Parcel		TK	Completed	12	12	12	12	12
10	Define & build Database		BR/DS	In Progress	80	80	75	60	52

Burn down Charts

- Are used to represent “work done”.
- Are wonderful Information Radiators
- 3 Types:
  - Sprint Burn down Chart (progress of the Sprint)
  - Release Burn down Chart (progress of release)
  - Product Burn down chart (progress of the Product)

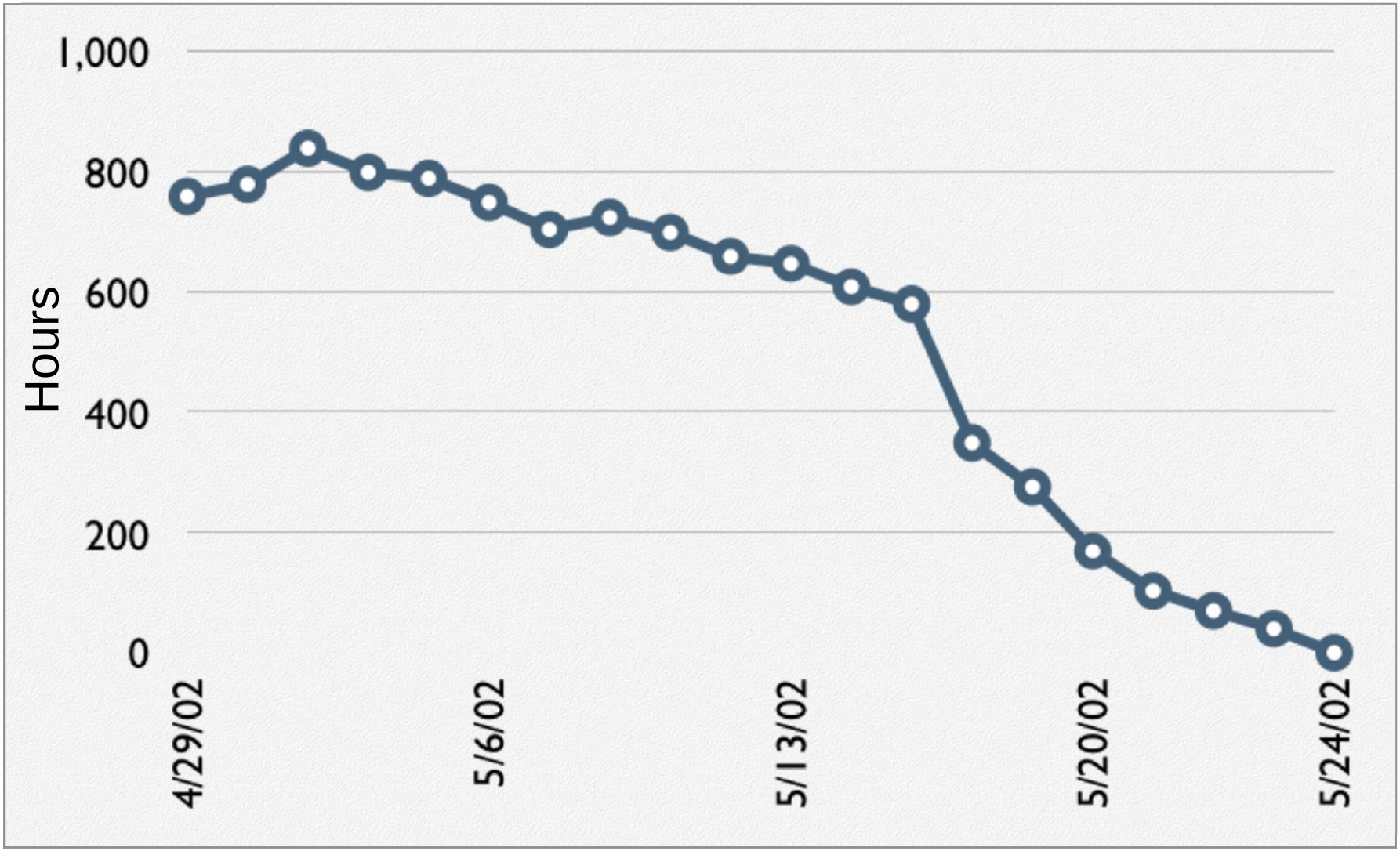
Sprint Burndown Chart

- A display of what work has been completed and what is left to complete
  - one for each developer or work item
  - updated every day
  - (make best guess about hours/p day)

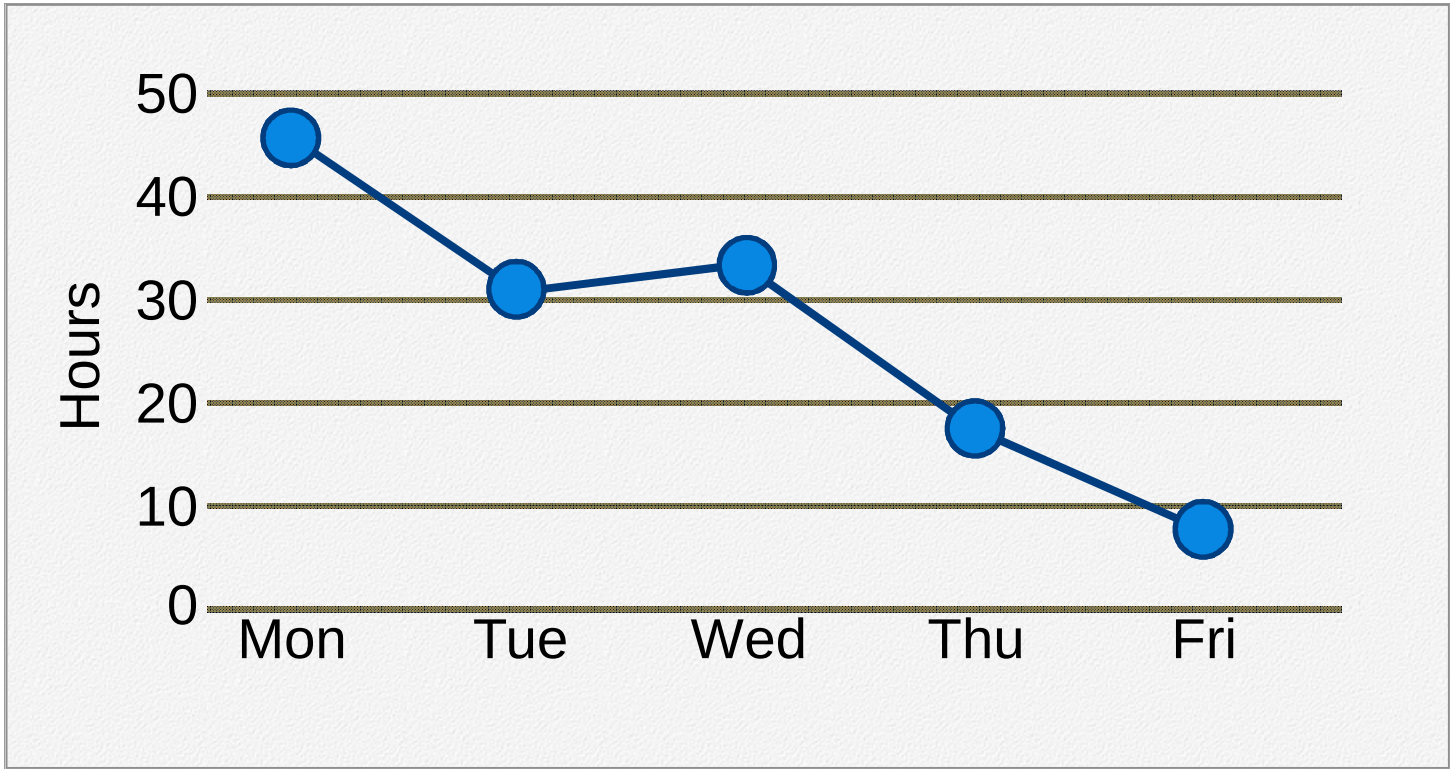


- *variation:* Release burndown ch
  - shows overall progress
  - updated at end of each sprint

Sample Burndown Chart

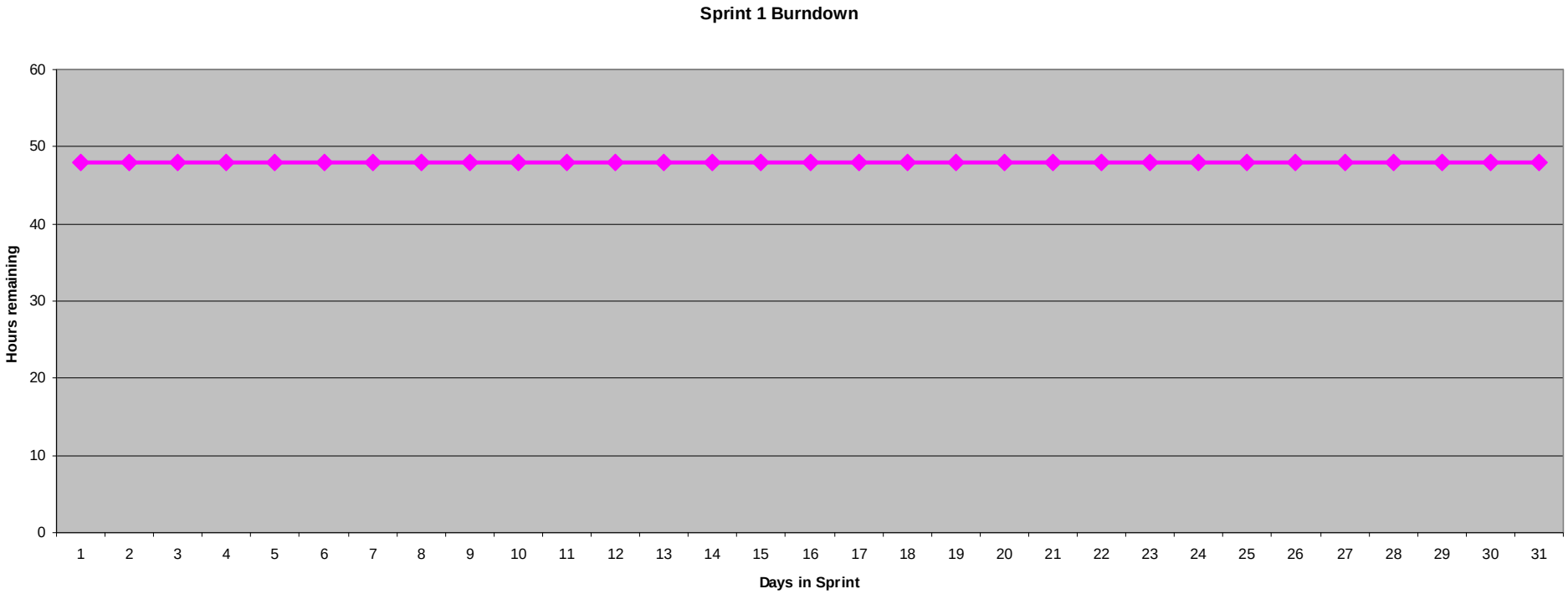


Tasks	Mon	Tue	Wed	Thu	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	7	
Test the middle tier	8	16	16	11	8
Write online help	12				



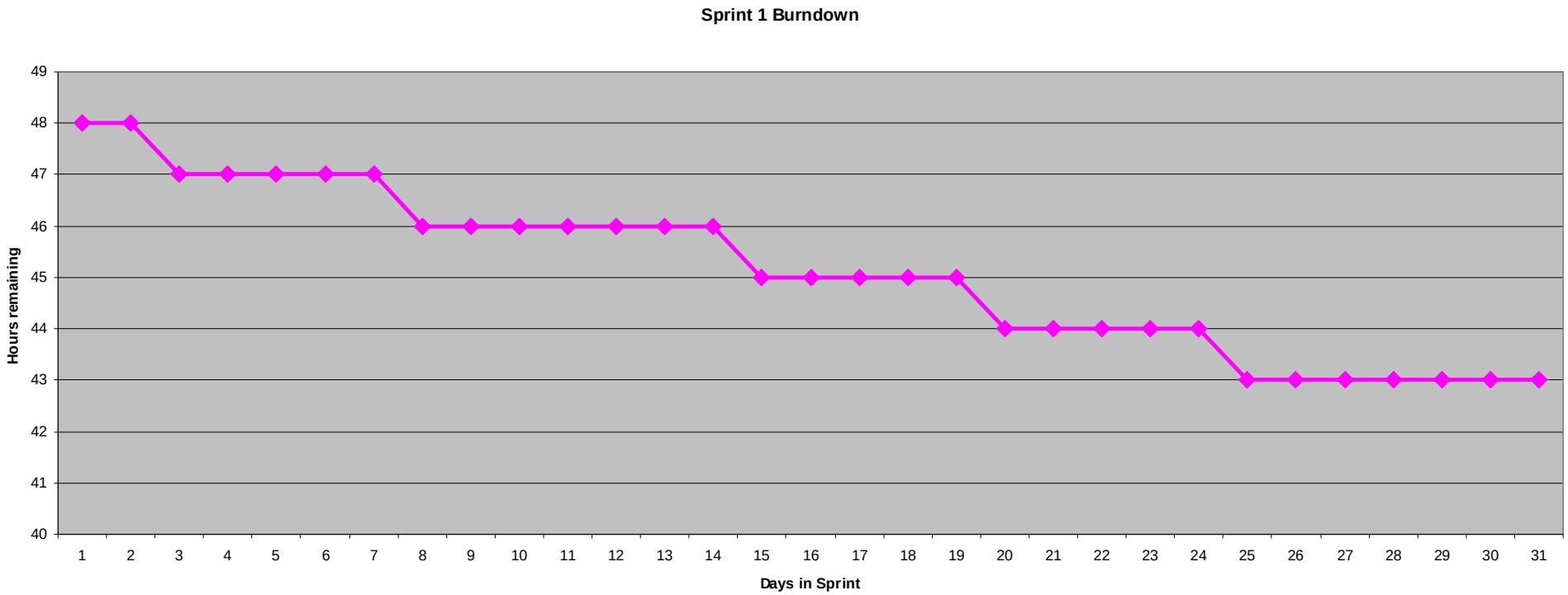
Burndown Example 1

No work being performed



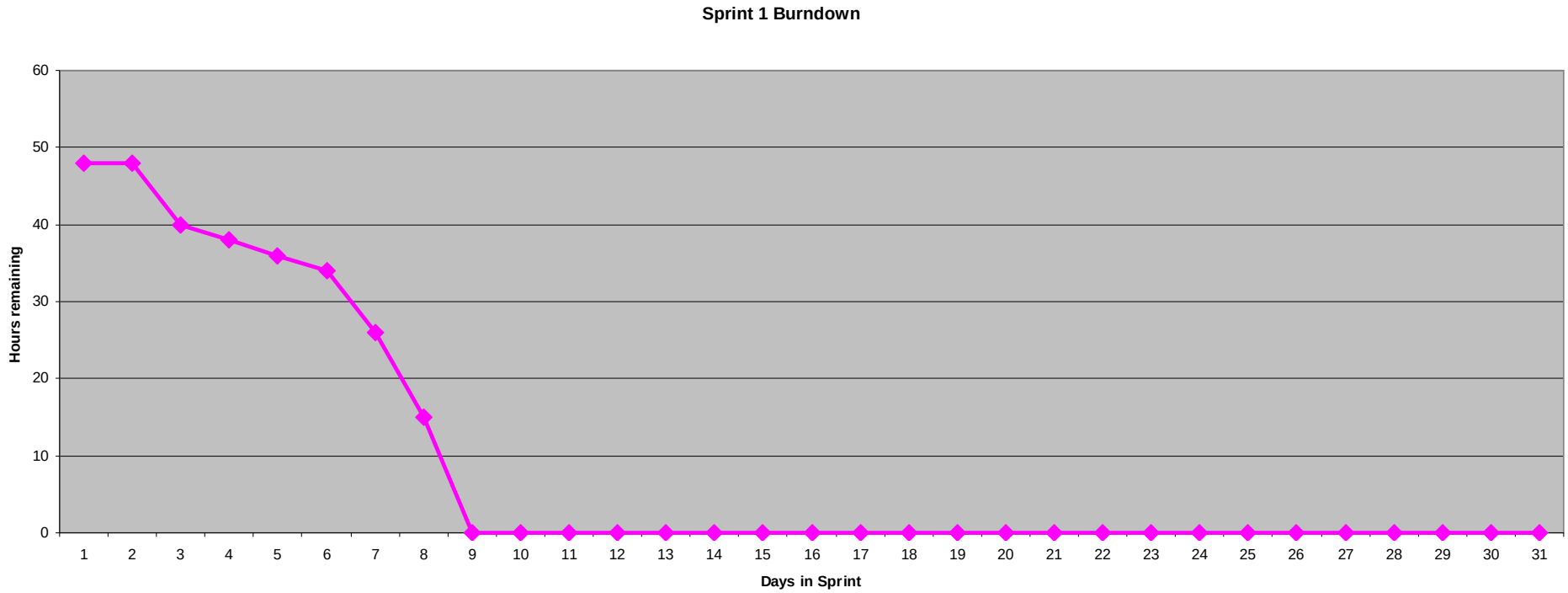
Burndown Example 2

Work being performed, but not fast enough



Burndown Example 3

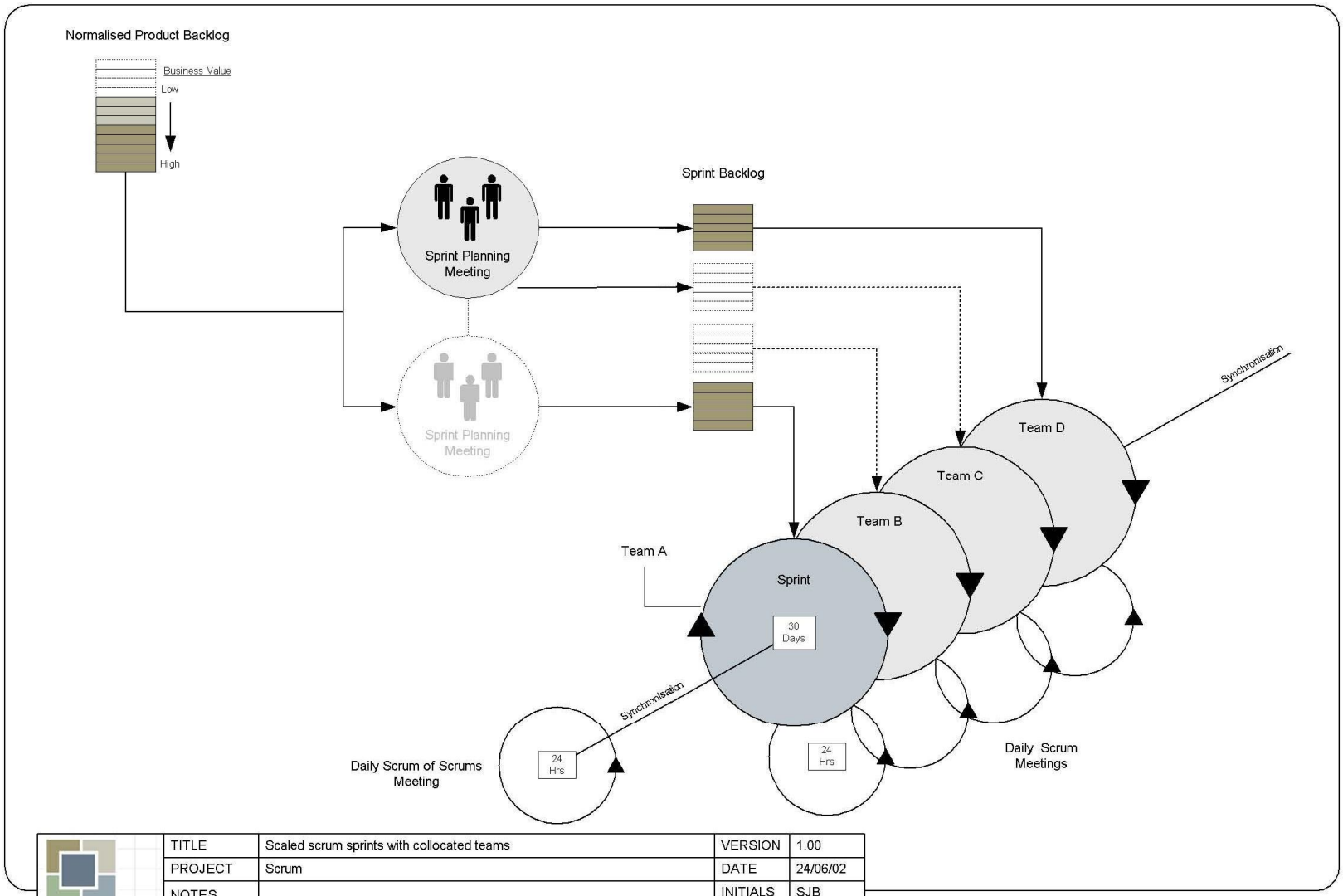
- Work being performed, but too fast!



Daily Scrum Meeting

- Parameters
  - Daily, ~15 minutes, Stand-up
  - Anyone late pays a $1 fee
- Not for problem solving
  - Whole world is invited
  - Only team members, Scrum Master, product owner, can talk
  - Helps avoid other unnecessary meetings
- Three questions answered by each team member:
  1. What did you do yesterday?
  2. What will you do today?

Scalability of Scrum



Scrum vs. Other Models

Process Comparison

	Waterfall	Spiral	Iterative	SCRUM
Defined processes	Required	Required	Required	Planning & Closure only
Final product	Determined during planning	Determined during planning	Set during project	Set during project
Project cost	Determined during planning	Partially variable	Set during project	Set during project
Completion date	Determined during planning	Partially variable	Set during project	Set during project
Responsiveness to environment	Planning only	Planning primarily	At end of each iteration	**Throughout**
Team flexibility, creativity	Limited - cookbook approach	Limited - cookbook approach	Limited - cookbook approach	**Unlimited during iterations**
Knowledge transfer	Training prior to project	Training prior to project	Training prior to project	**Teamwork during project**
Probability of success	Low	Medium Low	Medium	**High**