TSP[SM] as the Next Step for Scrum Teams

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Outline

- Scrum and TSP Comparison
- Gaps that TSP Fills
- Staged Adoption Model
  - Scrum: building the right product
  - TSP: building the product right

Scrum and TSP

- Both target small, multi-disciplinary teams which produce software[1]
  - TSP supports teams of 3 to 15 people
  - Scrum recommends teams of 7 +/- 2 people
  - Self-directed (teams plan and track their own work, and make their commitments)
- Both address planning, execution, and process improvement via retrospectives.

[1] Scrum and TSP have both been used with non-software teams.

Comparison

	Scrum	TSP
Goals	Product	Business and Product
Roles	Product Owner, Scrum Master, Scrum Development Team	Business leader, product manager, team leader, 8 team roles, team coach
Process Definition	Implicit through Definition of Done	Engineering processes definition
Detailed Plan	Detailed tasks for Sprint (may or may not be assigned)	Detailed tasks for cycle. Process and data-driven task estimates. Assigned and load balanced.
Quality Plan	Implicit through Definition of Done	Explicitly defined and quantitatively managed.
Risk Plan		Defined and managed by team.
Iteration Length	Fixed length	Can vary in length to fit the work to be done in next iteration. Short iterations encouraged.
Metrics	Work remaining (Velocity, Sprint Burndown, Release Burndown, Code Coverage)	Earned value, task hours, defects injected and removed, product size
Operating Mechanisms	Sprint planning, daily Scrum, Sprint review, Sprint retrospective	Launch, Re-Launch, weekly status meeting, cycle PM, project PM, checkpoints
Management Role	Product Owner	Business and Product managers, team leaders

Scrum and TSP Differences

- Scrum focus is more on “are we building the right product”
  - User Stories
  - Product owner role
  - Product retrospective via Sprint reviews
- TSP focus is more on “are we building the product right”
  - Development process
  - Managed and measured quality

User Stories

Traditional requirement

REQ 1.1
The application should automatically save open documents at regular intervals

Describes *what* is wanted.

User Stories add two pieces of information to a typical requirement

1. ***Who* wants the function**
2. ***Why* they want the function**

As a <*role*>,
I want <*some function*>
so that <*some goal*>.

Acceptance Criteria

1. **Auto-saved doc has time stamp in file name.**
2. **User can specify a frequency for auto-saving between 1 minute and 1 hour.**
3. **Auto-save doesn't use more disk space than the user has specified.**

Product Owner Role

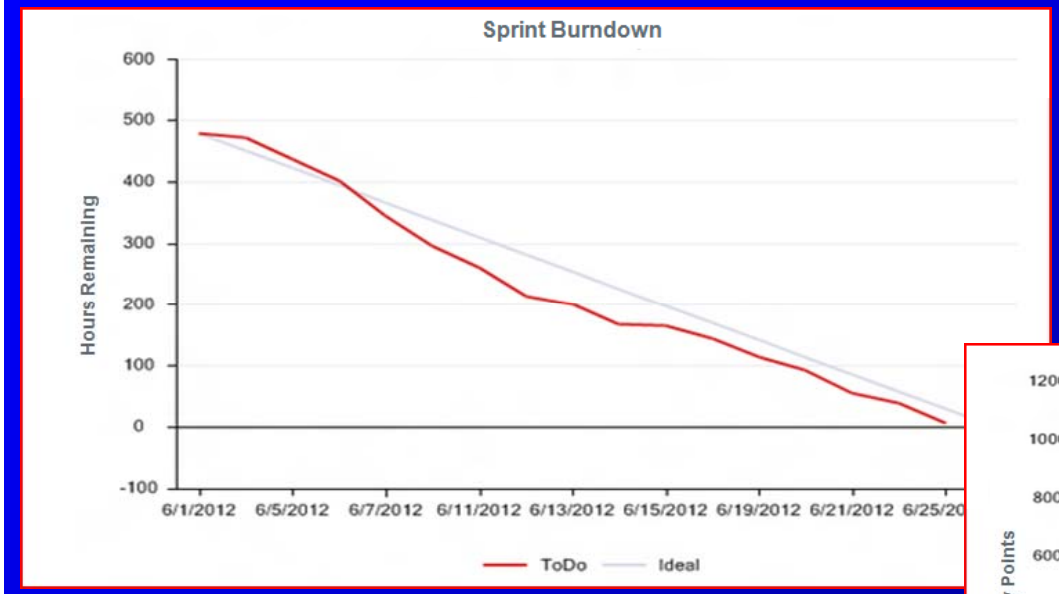
1. **Inspire The Team** with your vision of what the product can become
   - Keep team focused on the Big Picture things like
     - Target users, personas
     - Market opportunities
     - Long term strategy & roadmaps
2. **Build The Product Backlog**
   - Manage all stakeholder requests in a single, frequently updated Product Backlog
   - Present a clear, visible record of the product's current priorities
   - Decompose large user problems into smaller ones as they approach implementation
3. **Provide Frequent Feedback** to the team
   - You represent the users
   - Provide ongoing feedback during sprints and at sprint reviews
   - Answer questions as they arise

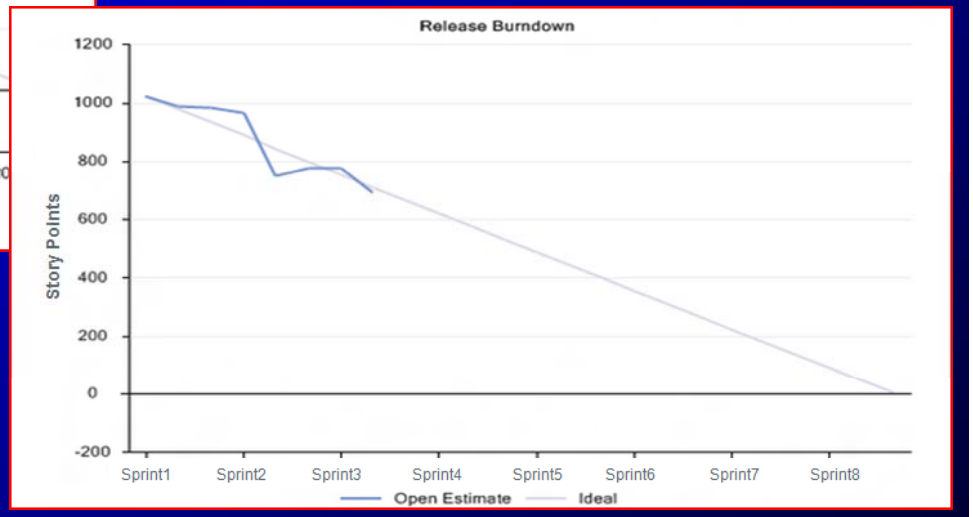
Sprint Review

At the end of the Sprint, the development team

- Demonstrates “Done” work
  - Informal
  - Whole team participates
- Product Owner accepts or rejects work
- Invite the world
- Purpose is to “Inspect” the product
- Product retrospective
  - Possible changes to Product Backlog

Sprint and Release Burndowns





Is this team ahead or behind? Why?

TSP Week Form

	Direct Hours			Earned Value		
	Plan	**Actual**	**Actual/Plan**	**Plan**	**Actual**	**Actual/Plan**
This Weekly Period	306:00	94:57	0.31	3.72%	2.28%	0.61
To Date (through 2/9/12)	2780:00	2083:14	0.75	40.2%	23.6%	0.59
Average per Week To Date	231:40	173:36	0.75	3.35%	1.97%	0.59
Completed Tasks To Date	1428:35	1796:29	1.26			

- If you want to answer questions such as
  - *why* am I ahead or behind?
  - is there a pattern to my estimation error?
- You must track time spent on tasks

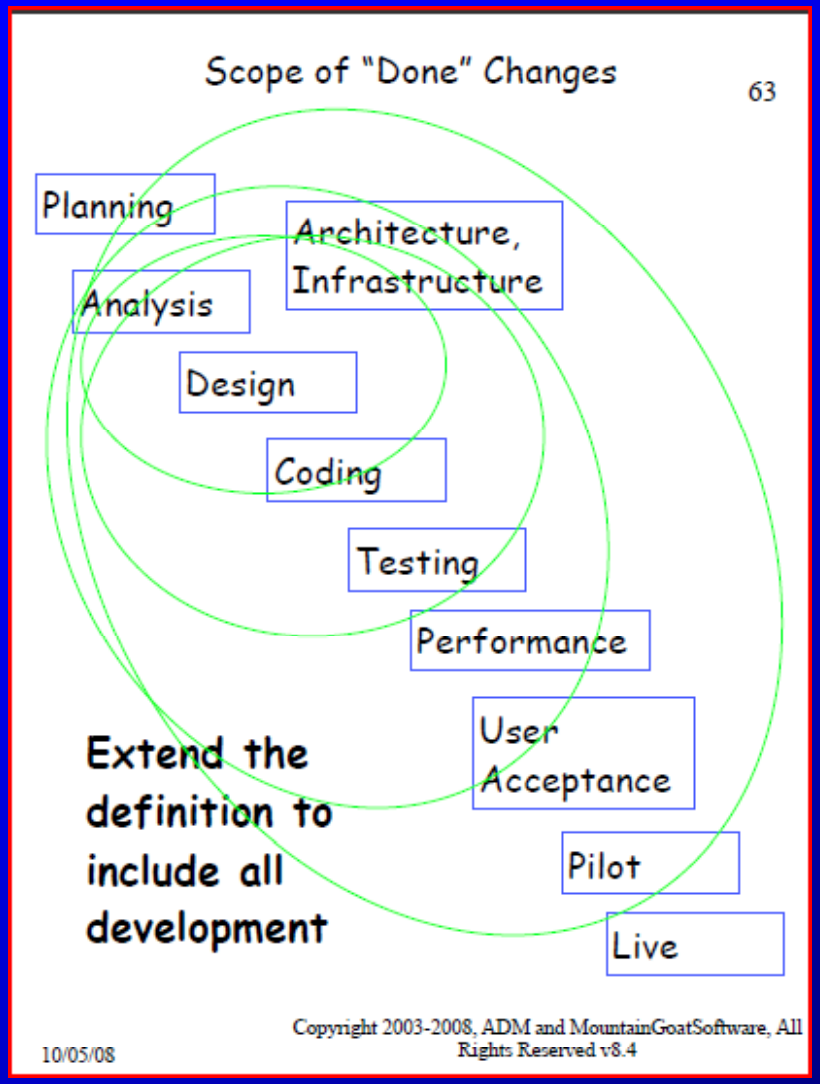
Sprint Review

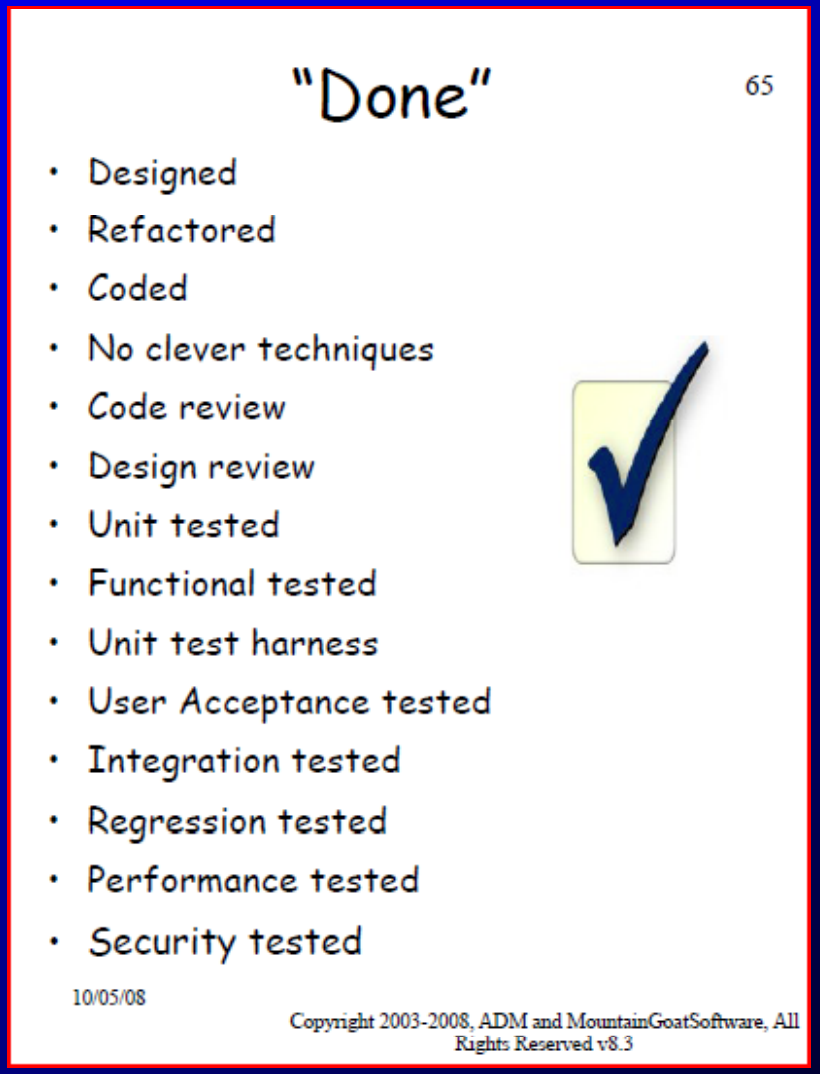
- Only “done” product backlog items are demonstrated
- What does “done” mean? Do all team members and stakeholders agree?
- How do we know we are compliant with company/regulatory policies?

Definition of Done

- When the Product Backlog item is described as *"Done"*, everyone must understand what *"Done"* means
- As Scrum Teams mature, it is expected that their Definition of "Done" will expand to include more stringent criteria for higher quality.

Definition of Done (DoD)





Transition from DoD to TSP Process Definition

- Story DoD
- Sprint DoD
- Release DoD

Example DoD

DoD	Story	Sprint	Release	Notes
Design	X			
Design Review	X			
Code	X			
Unit Test	X			Target: New code ~70%, will be checked via Peer Review or Coverage tool.
Peer Review	X			Includes fixing issues
Acceptance/Functional Test Creation	X			
Automation	X			Minimal - Acceptance Test Automated
Acceptance/Functional Test Peer Review	X			
All high priority defects fixed and closed	X			Open low-priority defects from previous Sprints become high-priority defects at start of new Sprint
Static Analysis		XX		Coverity issues in changed files will be resolved multiple times in a Sprint
Performance Test		X		
Install Updates		X		
Merge Forward		X		Patches/Fixes from Sustainment Team
Localization			X	Docs prepared for Localization drop
Stress Test			XX	Twice a release

Task Planning

	Story	Size
1	As an online shopper, I want ...	5
2	As a registered user, I want ...	8
3	As a Sys Admin, I need a wa...	13
4	As a test engineer, I want to...	13
5	As a discount shopper, I wa...	2
6	As an unregistered user, I ne...	3
7	As a user that never restarts...	8
8	As a developer, I need to ver...	20
9	As a designer, I want perfect...	5
10	As a health conscious consu…	3
11	As a database admin, I need...	2
12	As a novice user, I want a be...	20
13	As an editor, I wish I could ta...	8

DoD

	Tasks	Hours
1	Code and Unit Test	5
2	Peer Review	3
3	Test Cases	4
4	Test Case Review	2
5	Functional Test	2

DoD

	Tasks	Hours
1	Code and Unit Test	8
2	Peer Review	4
3	Test Cases	5
4	Test Case Review	3
5	Functional Test	3

Quality – Step 1

Measure	S1	S2	S3	Description
System test defects	21	25	34	System test defects includes all defects found post unit test
High severity system test defects	16	6	8	
Open high severity system test defects	2	1	0	Defects not closed at Sprint end
Open low severity system test defects	3	3	14	
Peer review defects	4	3	7	Major operational defects only
System test defect density – high severity defects	1.14	0.84	0.66	
System test defect density - total defects	1.5	3.5	2.8	
%Early defect removal	16%	11%	17%	Defects found in Peer Reviews/Total Defects found
Net Code Churn (LOC)	13979	7115	12154	Measured by taking snapshots of code at beginning and end of Sprint, and then diffing the snapshots

Quality – Step 2

- Full TSP Quality Plan, with planned vs. actual
  - Defect injection and removal rates
  - Defect densities
  - Phase and process yields
- Personal reviews
- Process Quality Index (PQI)

Roles

- Scrum Master ~ Process + Planning Manager
- Customer Interface Manager performs a small subset of Product Owner role
- Need for additional roles
  - Design, Implementation, Test, Quality, Support
  - Team Leader

Risk Management

- Scrum employs an iterative, incremental approach to optimize predictability and control risk, but…
  - There is no formal risk management process in Scrum
- Introduce TSP-style Risks, Issues, and Dependencies (RIDs) management

Summarize

- Teams using Scrum are using good practices to build the right product.
- TSP can provide the next steps of maturation for these teams
  - Staged adoption by adding specific TSP practices such as team inspections, defined processes, basic quality measurement, quality planning, and risk management
  - One-step adoption

Final Version Availability

- The completed, final version of this presentation will be available at www.DavisSys.com/reldoc.htm.

References

- [Davis] Noopur & Darryl Davis, "*Using Scrum in a TSP Measurement Framework*," SEPG Europe, Munich, Germany, 2008.

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