



Integrating Agile and CMMI

Synergy Through Discipline

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Topics

- **Gene** (very high level and possibly inexact)
 - Agile
 - Scrum
 - CMMI/Scrum
- **Lynn**
 - Lockheed Martin experience integrating agile into their CMMI processes

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Kent Beck

Mike Beedle

Arie van Bennekum

Alistair Cockburn

Ward Cunningham

Martin Fowler

James Grenning

Jim Highsmith

Andrew Hunt

Ron Jeffries

Jon Kern

Brian Marick

Robert C. Martin

Steve Mellor

Ken Schwaber

Jeff Sutherland

Dave Thomas

SCRUM Roles



Product Owner

Responsible for R.O.I.
Constantly re-prioritizes the Product Backlog
Synthesizes interests of stakeholders (including Team)
Negotiates Sprint Goals and Backlog Items with Team
Final arbiter of requirements questions
Accepts or rejects each product increment



ScrumMaster

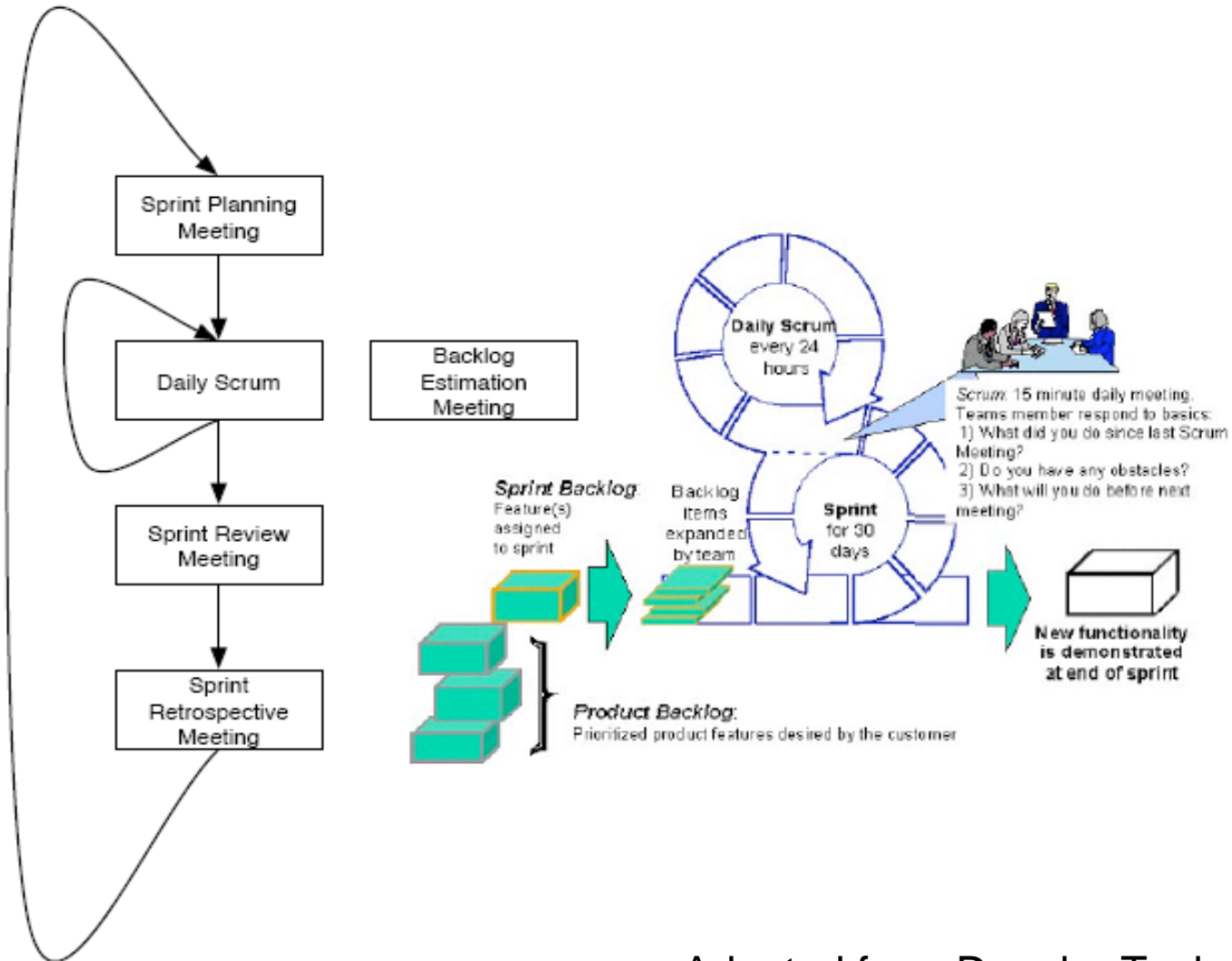
Helps resolve impediments
Facilitates Scrum Process
Facilitates Team self organization
Helps keep team in the "zone"
Helps Product Owner with release planning
Shields Team from external interference
Enforces timeboxes, separation of roles
Keeps Scrum artifacts visible
Advocates improved engineering practices
Has no authority



Team

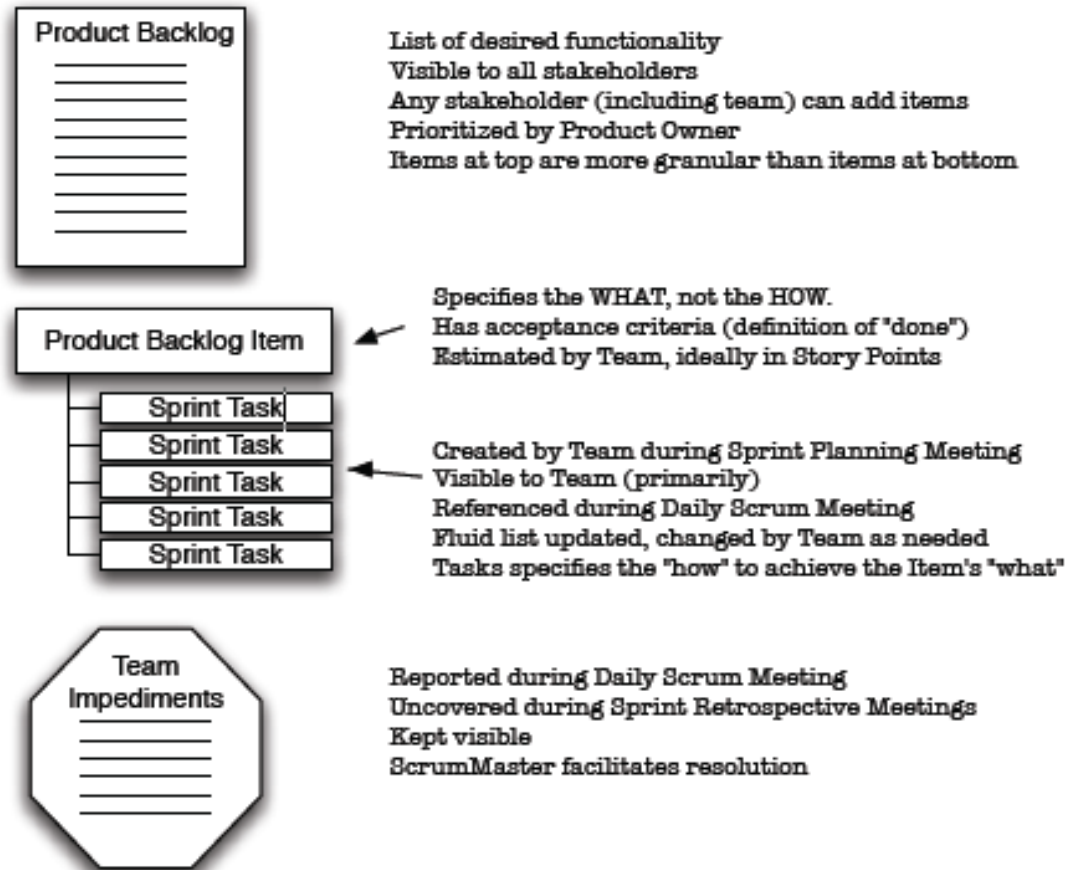
Cross functional
Autonomous
Self organizing
Held responsible for commitments each Sprint
Co-located (ideally in Team Room)
7 ± 2 members

SCRUM Meetings



Adapted from Danube Technologies

SCRUM Artifacts 1



Adapted from Danube Technologies

SCRUM Artifacts 2



In multiple team organizations, multiple ScrumMasters convene regularly to facilitate removal of Organizational Impediments. This involves increasing their visibility and measuring their cost.



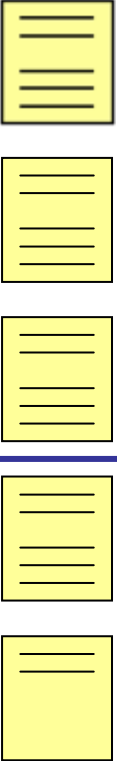
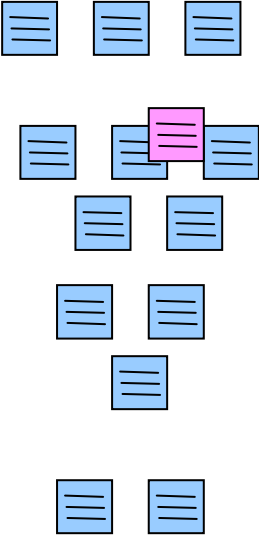
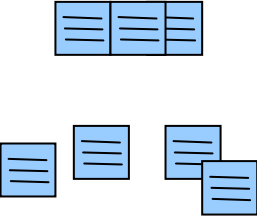
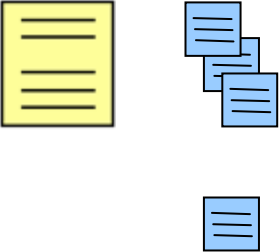
Daily total of remaining hours on all tasks
Tasks in progress updated daily by team
Kept visible to team by ScrumMaster
Some teams count tasks rather than task hours
Usually goes up before it goes down



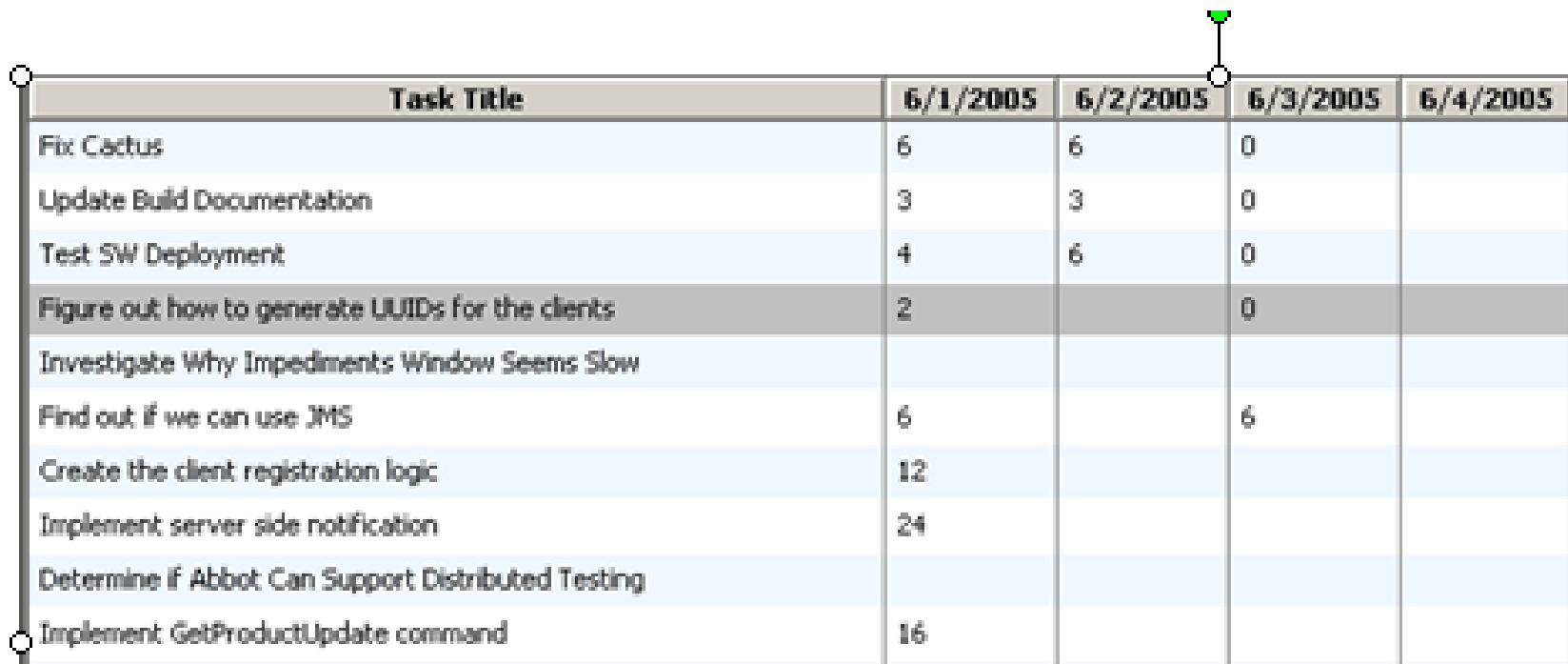
Remaining Product Backlog Effort from Sprint to Sprint
After several Sprints, can measure Velocity
Informs release planning

Adapted from Danube Technologies

Sprint Task Tracking

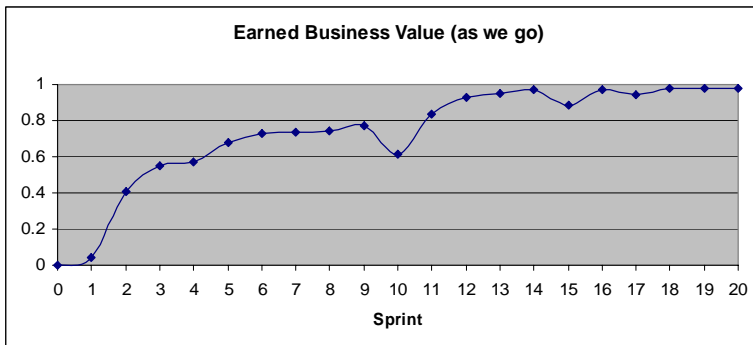
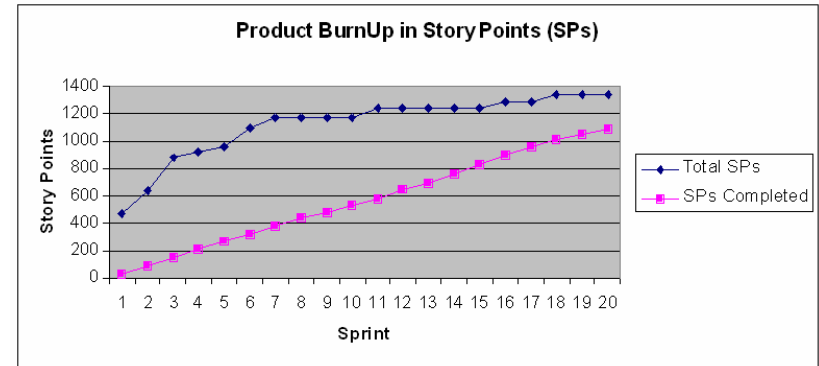
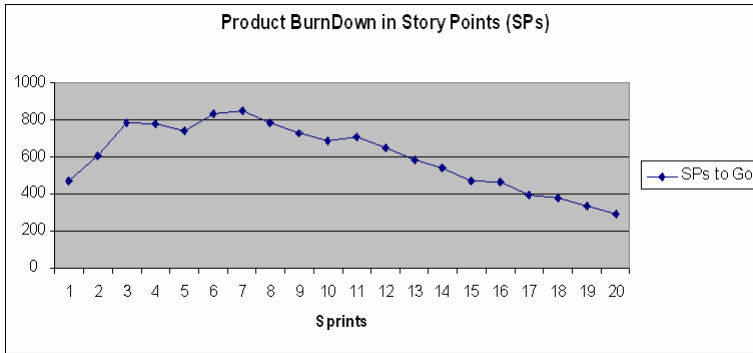
Stories	Tasks	Tasks In Progress	Completed
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Sprint Backlog</p> 			

Tracking Sprint Tasks



Task Title	6/1/2005	6/2/2005	6/3/2005	6/4/2005
Fix Cactus	6	6	0	
Update Build Documentation	3	3	0	
Test SW Deployment	4	6	0	
Figure out how to generate UUIDs for the clients	2		0	
Investigate Why Impediments Window Seems Slow				
Find out if we can use JMS	6		6	
Create the client registration logic	12			
Implement server side notification	24			
Determine if Abbot Can Support Distributed Testing				
Implement GetProductUpdate command	16			

Burn Charts



CMMI-Scrum 1

CMMI (Project Mgt)	Scrum
Project Planning	Sprint Planning, Story Points, , Tasks Velocity Calculations, Product Backlog
Project Monitoring and Control	Daily Scrum, Product Backlog, Burn down Chart, Earned Business Value (EBV) Story Board
Risk Management	Not explicit but can be part of Sprint planning and daily Scrum
Integrated Project Management	Not explicit however daily Scrum meeting with all participants and Scrum planning tools More necessary for Teams of Teams

CMMI-Scrum 2

CMMI (Process Mgt)	Scrum
Org. Process Focus	Retrospective, Scrum Master and Community
Org Process Definition	Not explicit Can be added
Org Training	Not explicit (Sprint Planning) Can be added
Org Process Performance	Velocity, burn charts. Wall charts are taken down. Seems little history recorded
Org Innovation and Deployment	Not explicitly addressed Scrum Master role Project focused not org focused

CMMI-Scrum 3

CMMI (Engineering)	Scrum
Requirements development	Sprint Planning, Stories (grooming), Product manager (EPICs to stories)
Requirements management	Story/task board, Daily Scrum, Product Backlog and priority, Burn down Chart,
Technical Solution	Not explicitly addressed in Scrum. “Agile engineering methods” Incremental design
Product Integration	Not explicitly addressed XP continuous integration More important for team of teams Specific to environment and domain
Verification	Test/ Test Driven Development
Validation	Sprint Planning-Stories review with product manager, daily scrum and sprint demo/review

CMMI-Scrum 4

CMMI (Support)	Scrum
Configuration Management	Engineering Practice
Process and Product Quality Assurance	Scrum Master role Testing ,Bug tracking and Quality is foremost ethic
Measurement and Analysis	Stories , Story points, Story task board, charts
Decision Analysis and Resolution	Not explicit -however Sprint Planning ,daily Scrum meeting with all participants and Scrum planning tools

References

- Agile Organization
<http://agilemanifesto.org/>
- Scrum and XP from the Trenches (Henrik Kniberg)
 - <http://infoq.com/minibooks/scrum-xp-from-the-trenches>
 - Danube Technologies