Fundamentals of Project Planning and Management

Week 4: Ready, Set, Go!

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UNIVERSITY of VIRGINIA
DARDEN SCHOOL OF BUSINESS

Fundamentals of Project Planning and Management

Week 1	Week 2	Week 3	Week 4
Define and Organize	*Plan*	*Improve Plan*	*Execute*
Project Goal The Three Objectives and their Priorities Organization	Project Scoping Dependencies Schedule Trade-Offs	Assessing Risks and Planning for Ambiguity	Modes of Execution And those who execute

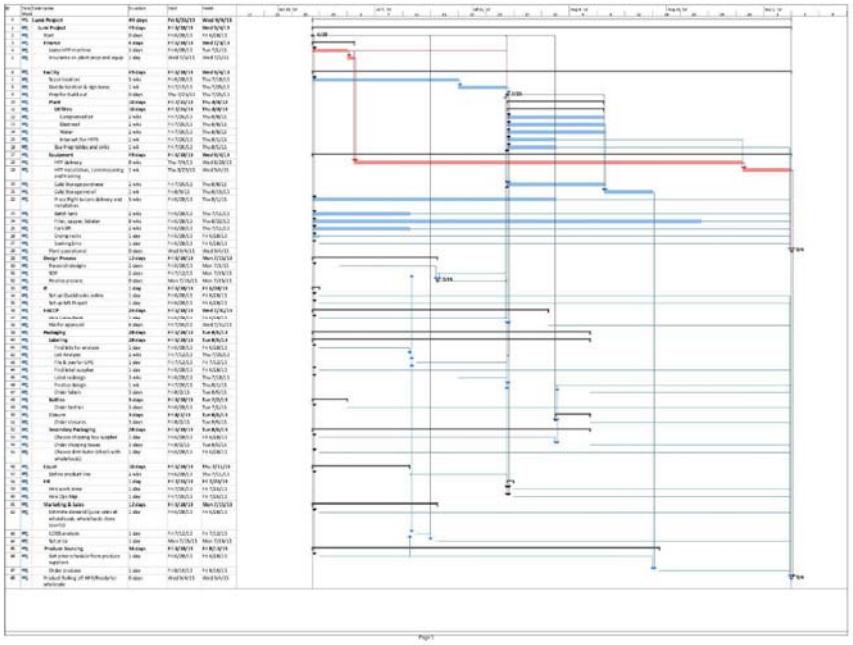
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Project: Launch and Manufacture Lumi Juice



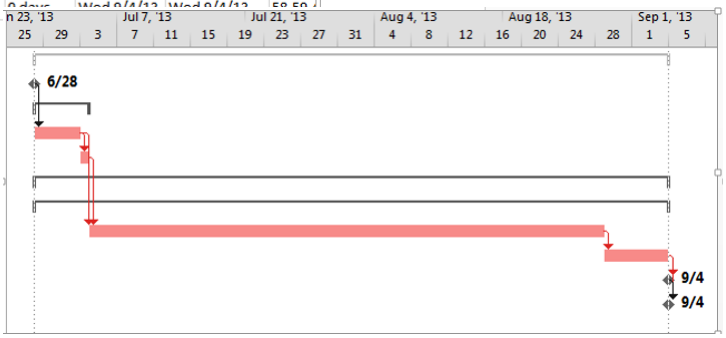


Image Credit:
Hillary Lewis, Lumi



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	Task Name	Duratio	Start	Finish	Predec
0	**Lumi Project**	**49 days**	**Fri 6/28/13**	**Wed 9/4/13**	
1	Start	0 days	Fri 6/28/13	Fri 6/28/13	
2	**Finance**	**4 days**	**Fri 6/28/13**	**Wed 7/3/13**	
3	Lease HPP machine	3 days	Fri 6/28/13	Tue 7/2/13	1
4	Insurance on plant prop and equip	1 day	Wed 7/3/13	Wed 7/3/13	3
5	**Facility**	**49 days**	**Fri 6/28/13**	**Wed 9/4/13**	
16	**Equipment**	**49 days**	**Fri 6/28/13**	**Wed 9/4/13**	
17	HPP delivery	8 wks	Thu 7/4/13	Wed 8/28/13	3,4
18	HPP Installation, commissioning and training	1 wk	Thu 8/29/13	Wed 9/4/13	17,14
27	Plant operational	0 days	Wed 9/4/13	Wed 9/4/13	15,21,2
67	Product Rolling off HPP/Ready for wholesale				



Project Life-Cycle

Initiate
- Establish organization
- Project Charter and Definition

Plan
- Identify Scope
- Identify tasks, dependencies and schedule
- Plan resources
- Clarify trade-offs and decision making principles
- Develop a risk management plan

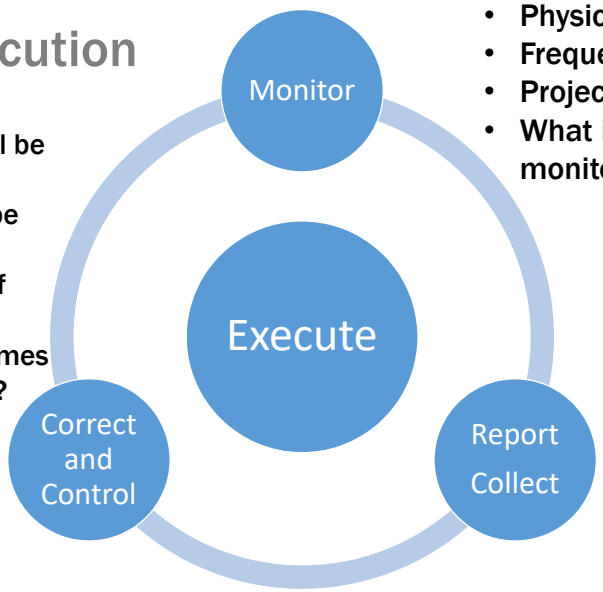
Execute
- Monitor
- Communicate and report
- Correct and control

Close
- Sign off
- Conduct a formal post-mortem

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Project Execution

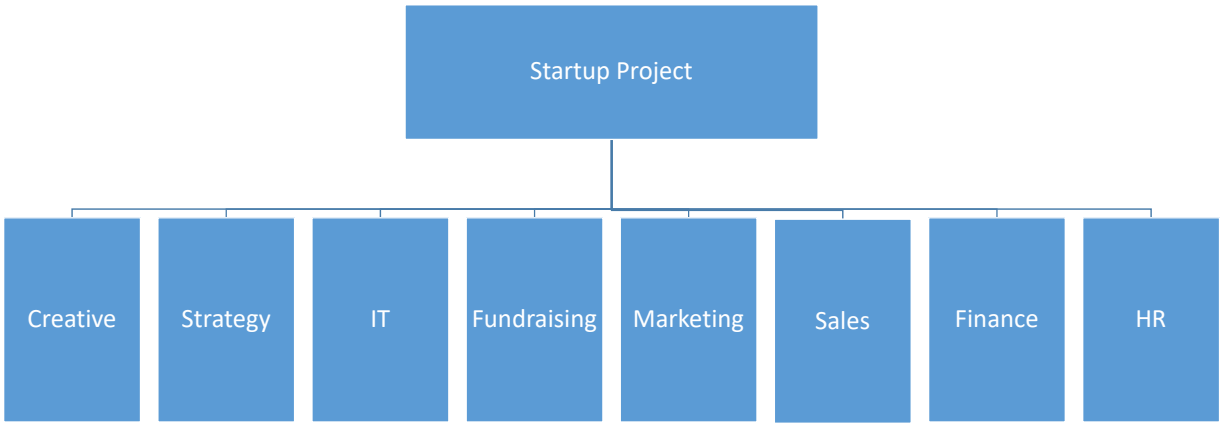
- What decisions will be made?
- What actions will be taken?
- Who is in charge of the execution?
- How will the outcomes be communicated?



- Physical or Virtual?
- Frequency?
- Project Management Office?
- What information will be monitored?

- Frequency?
- By Who?
- To Who?

Startup Project



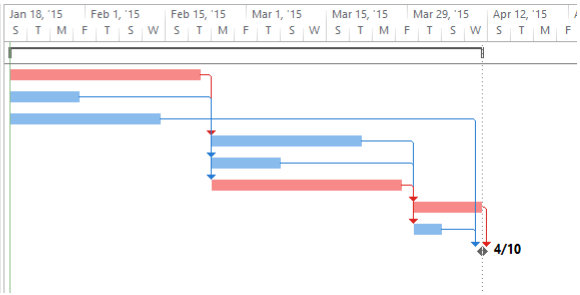
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Startup Project: 12 Weeks, $8500

Activity #	Description	Predecessors	Duration (Weeks)	Cost
1	Creative	-	5	$1000
2	Strategy	-	2	$500
3	IT	-	4	$3000
4	Fundraising	1	4	$500
5	Marketing	1,2	2	$2000
6	Sales	1,2	5	$500
7	Finance	5,6	2	$750
8	HR	4,6	1	$250

Start Date Monday January 19, 2015

	Task Name	Duration	Start	Finish	Predeces	Cost
1	Startup Project	12 wks	Mon 1/19/15	Fri 4/10/15		$8,500.00
2	Creative	5 wks	Mon 1/19/15	Fri 2/20/15		$1,000.00
3	Strategy	2 wks	Mon 1/19/15	Fri 1/30/15		$500.00
4	IT	4 wks	Mon 1/19/15	Fri 2/13/15		$3,000.00
5	Fundraising	4 wks	Mon 2/23/15	Fri 3/20/15	2	$500.00
6	Marketing	2 wks	Mon 2/23/15	Fri 3/6/15	2,3	$2,000.00
7	Sales	5 wks	Mon 2/23/15	Fri 3/27/15	2,3	$500.00
8	Finance	2 wks	Mon 3/30/15	Fri 4/10/15	6,7	$750.00
9	HR	1 wk	Mon 3/30/15	Fri 4/3/15	7,5	$250.00
10	Deliver	0 days	Fri 4/10/15	Fri 4/10/15	9,8,4	$0.00



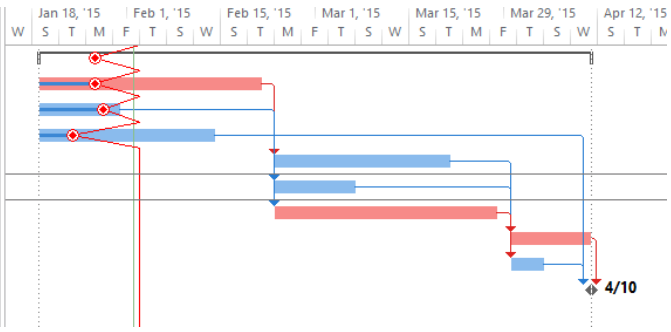
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Status On Monday February 1, 2015

Activity #	Description	Duration (Weeks)	Cost	Work Completed	Money Spent
1	Creative	5	$1000	25%	$500
2	Strategy	2	$500	75%	$300
3	IT	4	$3000	25%	$1000

Status On Monday February 1, 2015

	Task Name	Act. Start	% Complete	Act. Cost
1	**Startup Project**	**Mon 1/19/15**	**0%**	**$1,800.00**
2	Creative	Mon 1/19/15	25%	$500.00
3	Strategy	Mon 1/19/15	75%	$300.00
4	IT	Mon 1/19/15	25%	$1,000.00
5	Fundraising	NA	0%	$0.00
6	Marketing	NA	0%	$0.00
7	Sales	NA	0%	$0.00
8	Finance	NA	0%	$0.00
9	HR	NA	0%	$0.00
10	Deliver	NA	0%	$0.00



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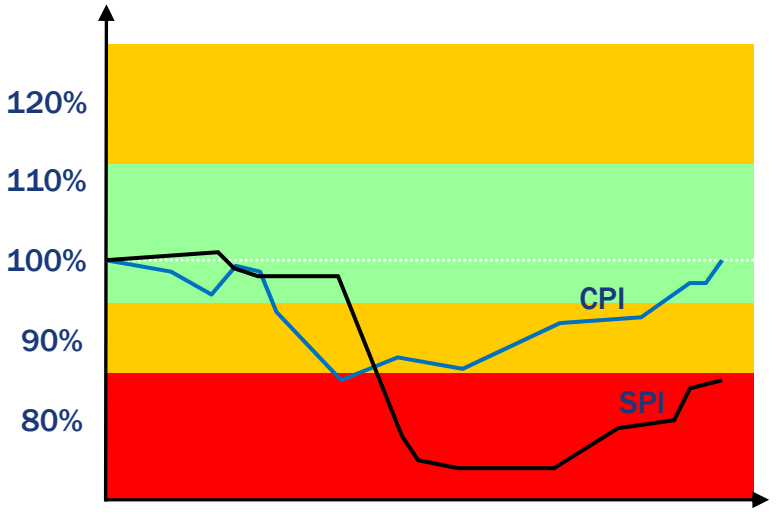
Earned Value Analysis

- Creative: 25% completed, actual cost $ 500

• Scheduled work	= 40% (2w/5w)
• Actual work	= 25% (1.25w/5w)
• Budgeted Cost	= $ 1,000
• Planned Value	= 40% x 1,000 = $400
• Earned Value	= 25% x 1,000 = $250
• Actual Cost	= $500

- Schedule Performance Index (SPI) = Earned Value / Planned = 63%
- Cost Performance Index (CPI) = Earned Value / Actual = 50%

Performance Indices



On track: Schedule Performance Index (SPI) = 1

On track: Cost Performance Index (CPI) = 1

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Earned Value Analysis

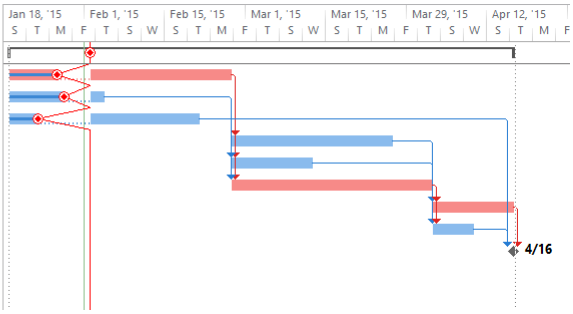
	Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	SV	CV	CPI	SPI
1	**Startup Project**	**$2,400.00**	**$1,375.00**	**$1,800.00**	**($1,025.00)**	**($425.00)**	**0.76**	**0.57**
2	Creative	$400.00	$250.00	$500.00	($150.00)	($250.00)	0.5	0.63
3	Strategy	$500.00	$375.00	$300.00	($125.00)	$75.00	1.25	0.75
4	IT	$1,500.00	$750.00	$1,000.00	($750.00)	($250.00)	0.75	0.5
5	Fundraising	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
6	Marketing	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
7	Sales	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
8	Finance	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
9	HR	$0.00	$0.00	$0.00	$0.00	$0.00	0	0
10	Deliver	$0.00	$0.00	$0.00	$0.00	$0.00	0	0

Measure	Equation	Comment
Earned Value (EV)	EV=% work completed × baseline cost	BCWP, Budgeted cost of work performed
Planned Value (PV)	PV=% work scheduled × baseline cost	BCWS, Budgeted cost of work scheduled
Actual Cost (AC)		ACWP, Actual cost of work performed
Schedule Variance (SV)	SV=EV-PV	
Cost Variance (CV)	CV=EV-AC	
Schedule Performance Index (SPI)	SPI = EV/PV	SPI < 1: Project is behind schedule SPI > 1: Project is ahead of schedule
Cost Performance Index (CPI)	CPI = EV/AC	CPI < 1: Project is over budget CPI > 1: Project is under budget
Cost-Schedule Index (CSI)	CSI = CPI × SPI	CSI < 1: Project is not healthy CSI > 1: Project is healthy

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How Bad is it?

	Task Name	Duration	Start	Finish	Actual Cost	Cost
1	**Startup Project**	**12.75 wks**	**Mon 1/19/15**	**Thu 4/16/15**	**$1,800.00**	**$8,925.00**
2	Creative	5 wks	Mon 1/19/15	Thu 2/26/15	$500.00	$1,250.00
3	Strategy	2 wks	Mon 1/19/15	Wed 2/4/15	$300.00	$425.00
4	IT	4 wks	Mon 1/19/15	Fri 2/20/15	$1,000.00	$3,250.00
5	Fundraising	4 wks	Thu 2/26/15	Thu 3/26/15	$0.00	$500.00
6	Marketing	2 wks	Thu 2/26/15	Thu 3/12/15	$0.00	$2,000.00
7	Sales	5 wks	Thu 2/26/15	Thu 4/2/15	$0.00	$500.00
8	Finance	2 wks	Thu 4/2/15	Thu 4/16/15	$0.00	$750.00
9	HR	1 wk	Thu 4/2/15	Thu 4/9/15	$0.00	$250.00
10	Deliver	0 days	Thu 4/16/15	Thu 4/16/15	$0.00	$0.00



- Critical Path not affected
- Less than a week delay
- $925 over expected budget

Why are Projects still Late? Over Budget?

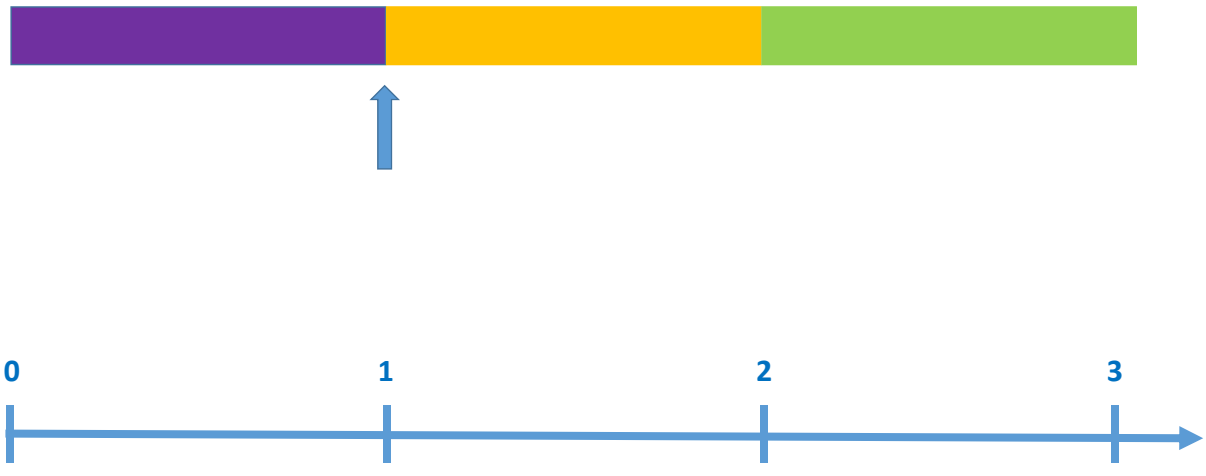
- Technical factors:
  - Internal complexity
  - External complexity

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Why are Projects still Late? Over Budget?

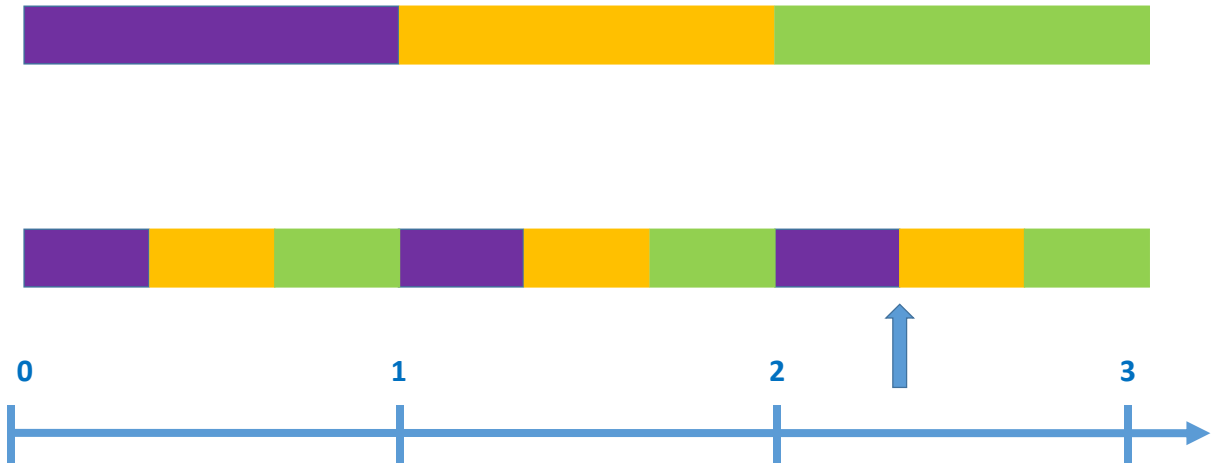
- Technical factors:
  - Internal complexity
  - External complexity
- Human factors:
  - Multi-tasking

Why is Multi-tasking bad?



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Why is Multi-tasking bad?



Why are Projects still Late? Over Budget?

- Technical factors:
  - Internal complexity
  - External complexity
- Human factors:
  - Multi-tasking
  - Parkinson's Law
  - Student Syndrome

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Can We Overcome?

- Project level buffers
- Small dedicated teams
- Specific short tasks
- Team work

Why Agile?

- Technology firms
- Release pace was declining
- Quality was suffering
- Engineer moral
- Padding and no accountability

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Agile Manifesto

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.

Agile Principles and Manifesto

We follow these Twelve Principles of Agile Software:

- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must work together daily throughout the project.
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
- Working software is the primary measure of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.
- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

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Agile Variations

Scrum Sprints

- "An iterative framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value."

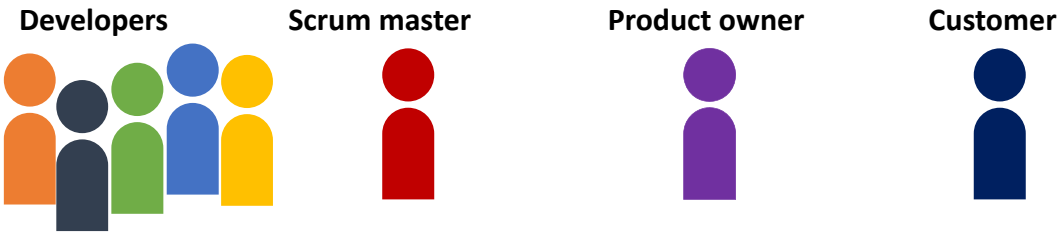
www.scrumguides.org

Kanban

- Continuous flow model with no iterations. Suited for short-cycle deliverables, limiting work in progress.

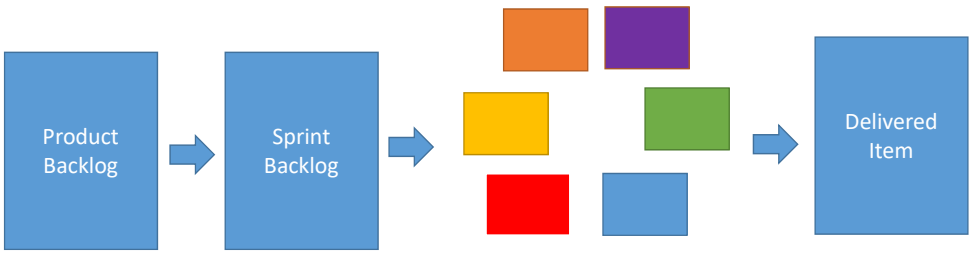
Agile (Scrum) Team

- Cross-functional (programmers, test, design)
- Members should be committed full-time
- Self-organizing team

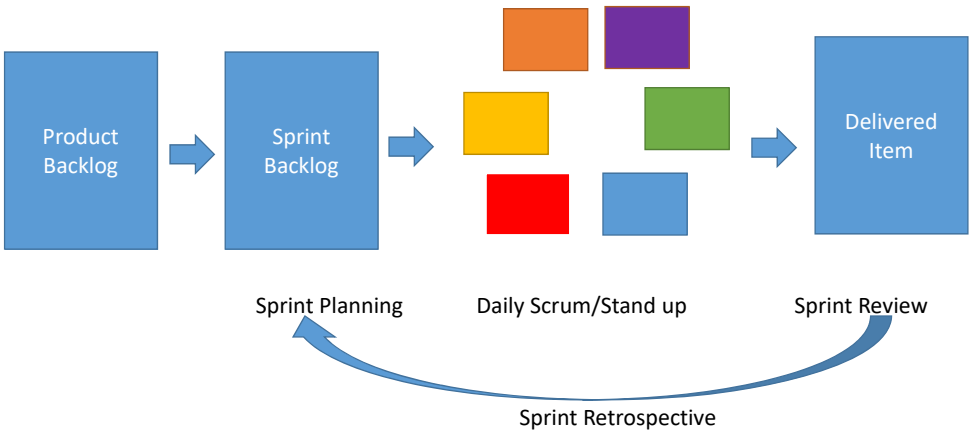


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The Sprint



Critical to Agile success: The Meetings



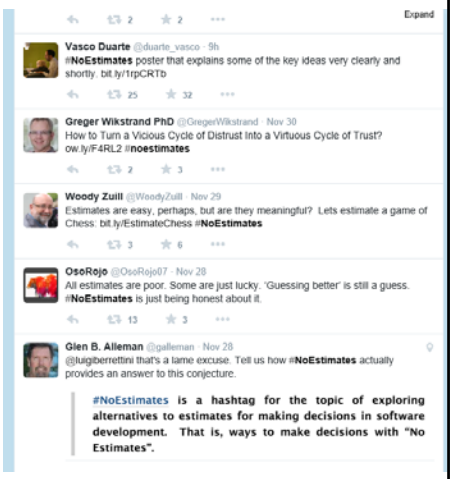
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Benefits to Agile

- Empowers the Development team
  - Independence, autonomous, focused team.
  - Developers want to deliver a product to the client.
- Creates joint incentives and transparency with the client.
- Helps firms build the right thing, at the right time, and build it right!

Contention Around Agile

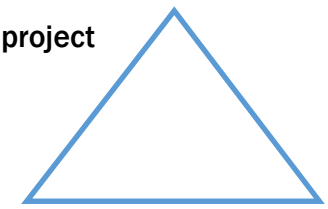
- A "living in the moment" culture
- Less documentation
- #noestimates movement
- Hard to master – requires the right mindset
- Can be challenging with Distributed teams



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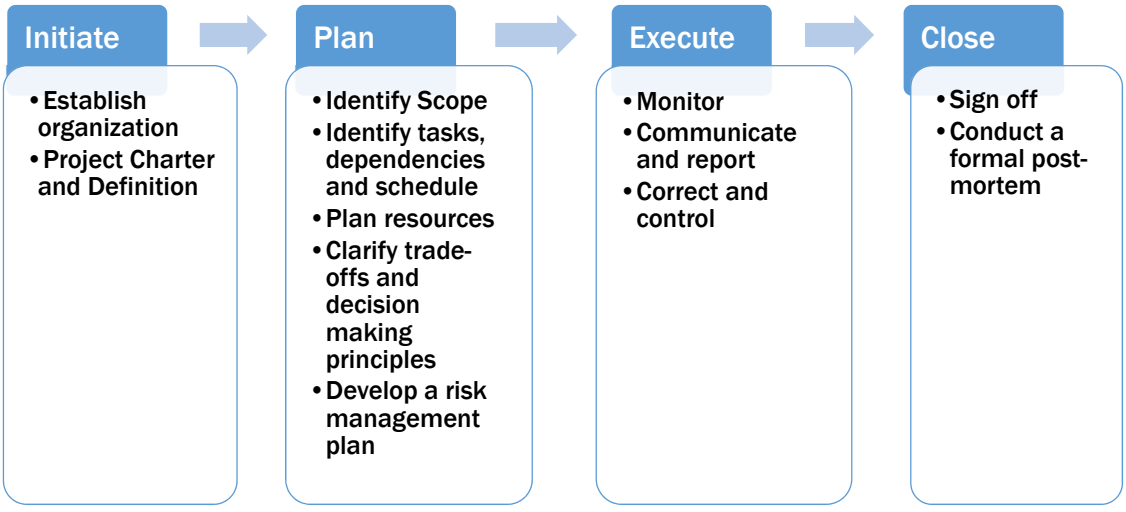
Framework for selecting PM Method

Critical Path
- WBS, task driven
- Critical path
- Complete picture of project



Agile
- Short iterations
- Continuous delivery
- Self guided teams
- Working closely with client for common goal
- When scope is highly uncertain

Project Life-Cycle



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