Agile Software Development
Tailor It To Work For You!

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imagination at work

Barometer

There are many ways to achieve the same goal.

- Pressure
- Shadow
- Count
- Drop
- Trade

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Alexander Calandra https://en.wikipedia.org/wiki/Barometer_question

Background

- We thought we knew what Agile was
- We had a poor track record of on time delivery
- We need to scale-up to a larger team
- We needed to do multi-site development

The Agile

Attracted to the benefits…

- Better use of our resources
- Fewer surprises
- Continuous test and refinement
- Continuous improvement
- Scalable, self-organized and self-directed small teams

Coaching and Training

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Realization

Agile is *fundamental* transformation in how we develop software

- New roles
- New responsibilities
- New vocabulary
- New tools
- New processes
- New expectations
- New *culture*

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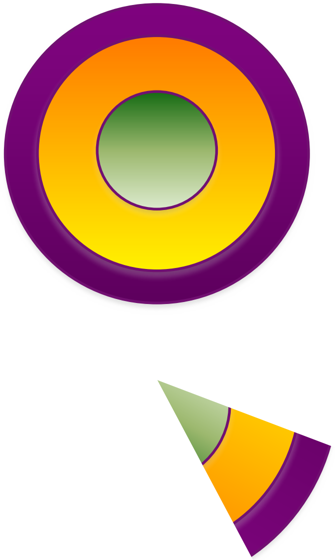
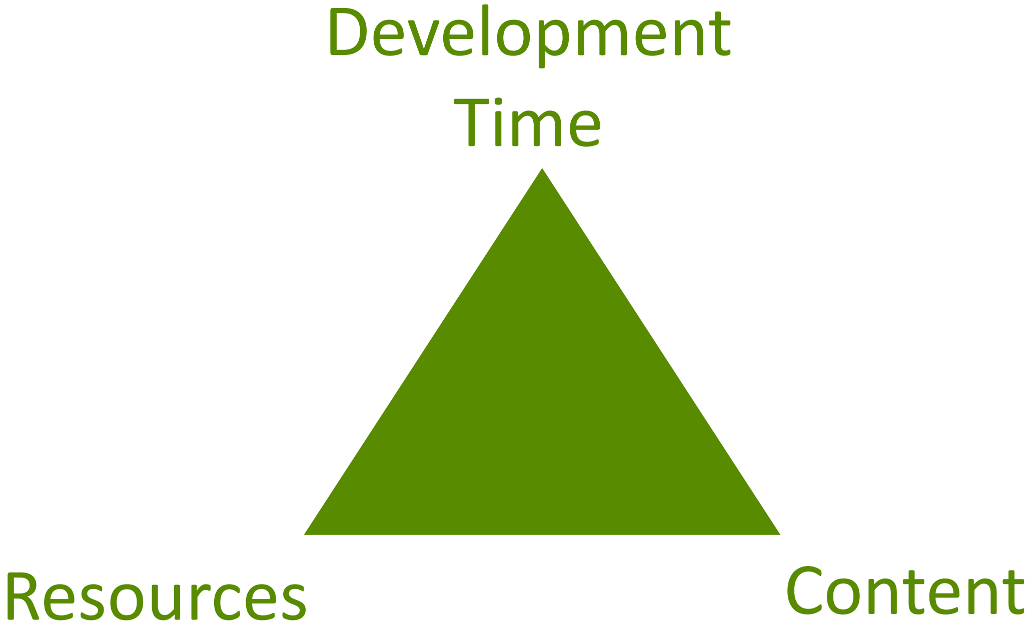
Constraints

- New product, not incremental – slice model creates issues
- Product is hardware intensive - launch is complex and must be planned with suppliers, regulatory agencies, factories – end date must be known.
- ROI must be known!
- SW effort is capitalized – scope must be known and fixed



Agile fixes development intervals and allows content to scale…



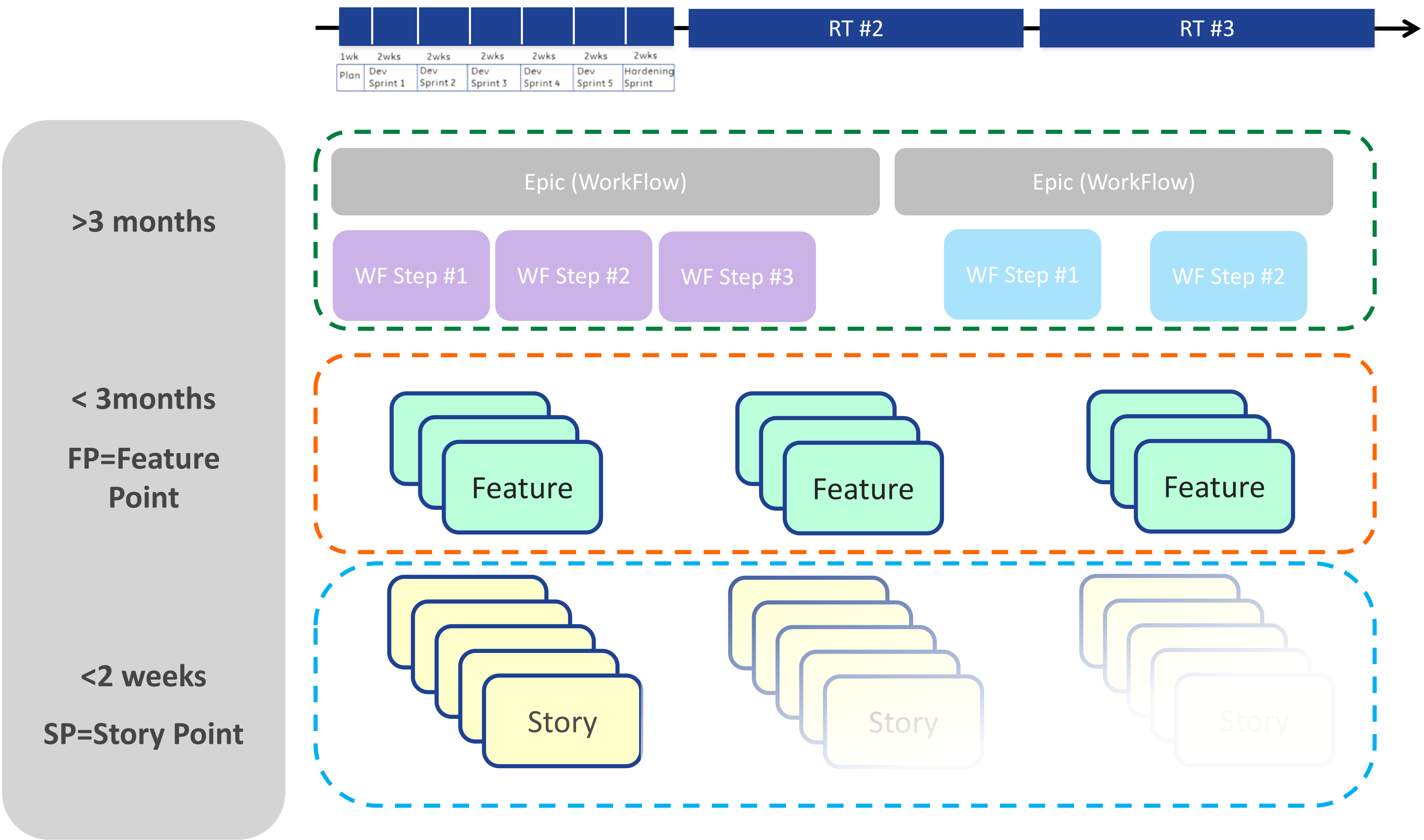
Development Time

Resources

Content

Fixed end-date and fixed content is not Agile!

Agile Software Development Timeline



1wk	2wks	2wks	2wks	2wks	2wks	2wks
Plan	Dev Sprint 1	Dev Sprint 2	Dev Sprint 3	Dev Sprint 4	Dev Sprint 5	Hardening Sprint

RT #2

RT #3

>3 months

Epic (WorkFlow)

WF Step #1

WF Step #2

WF Step #3

Epic (WorkFlow)

WF Step #1

WF Step #2

< 3months

FP=Feature Point

Feature

Feature

Feature

<2 weeks

SP=Story Point

Story

Story

Story

Hardware is Traditional Gantt Approach with SW Integration Points

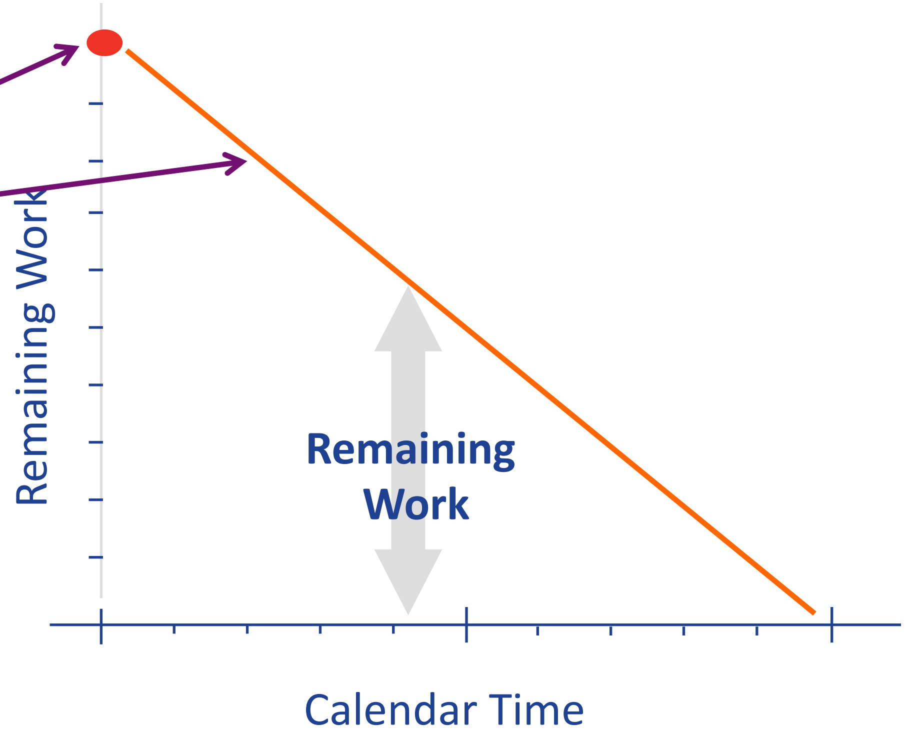
Calendar-driven vs Effort Driven

Tracking

To predict the end date, we need…

1. Size of the Total Effort
2. Velocity

- Find the right granularity to make estimates (FP)
- Spend one quarter to measure velocity
- Extrapolate velocity over remaining work
- Integrate with larger program plan



Total Effort = MVP

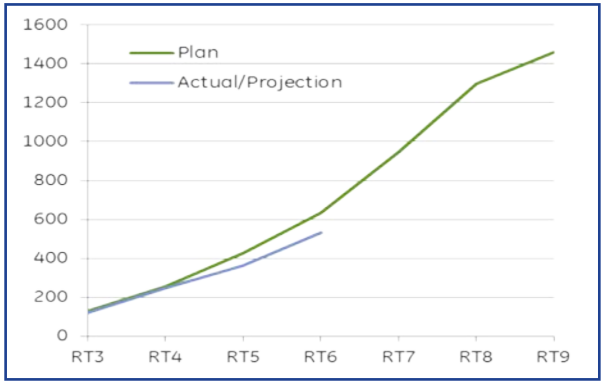
MVP Minimum Viable Product

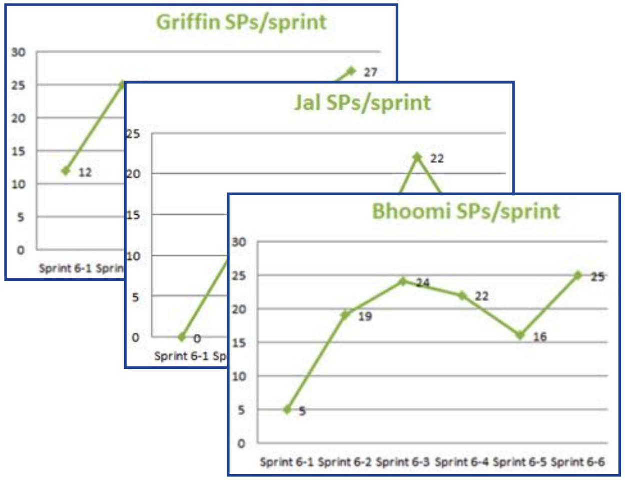
Program Tracking

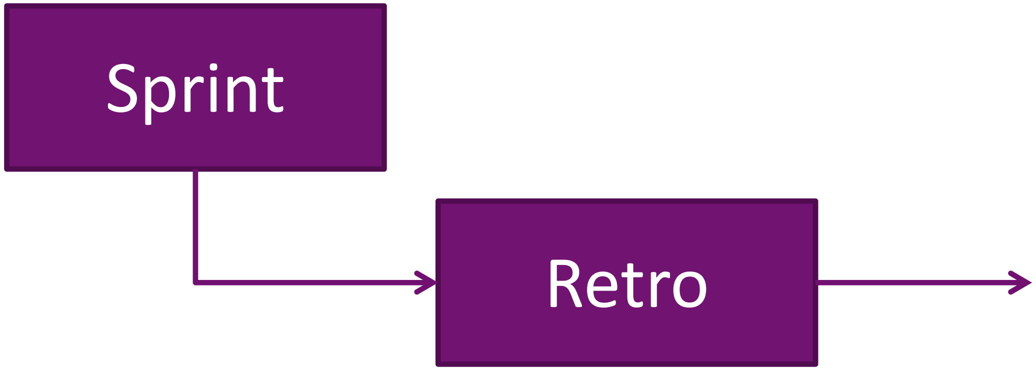
- Progress against plan burn-up at FP level

- SP tracking at scrum team/sprint level

- Retros and feedback loop







Sprint

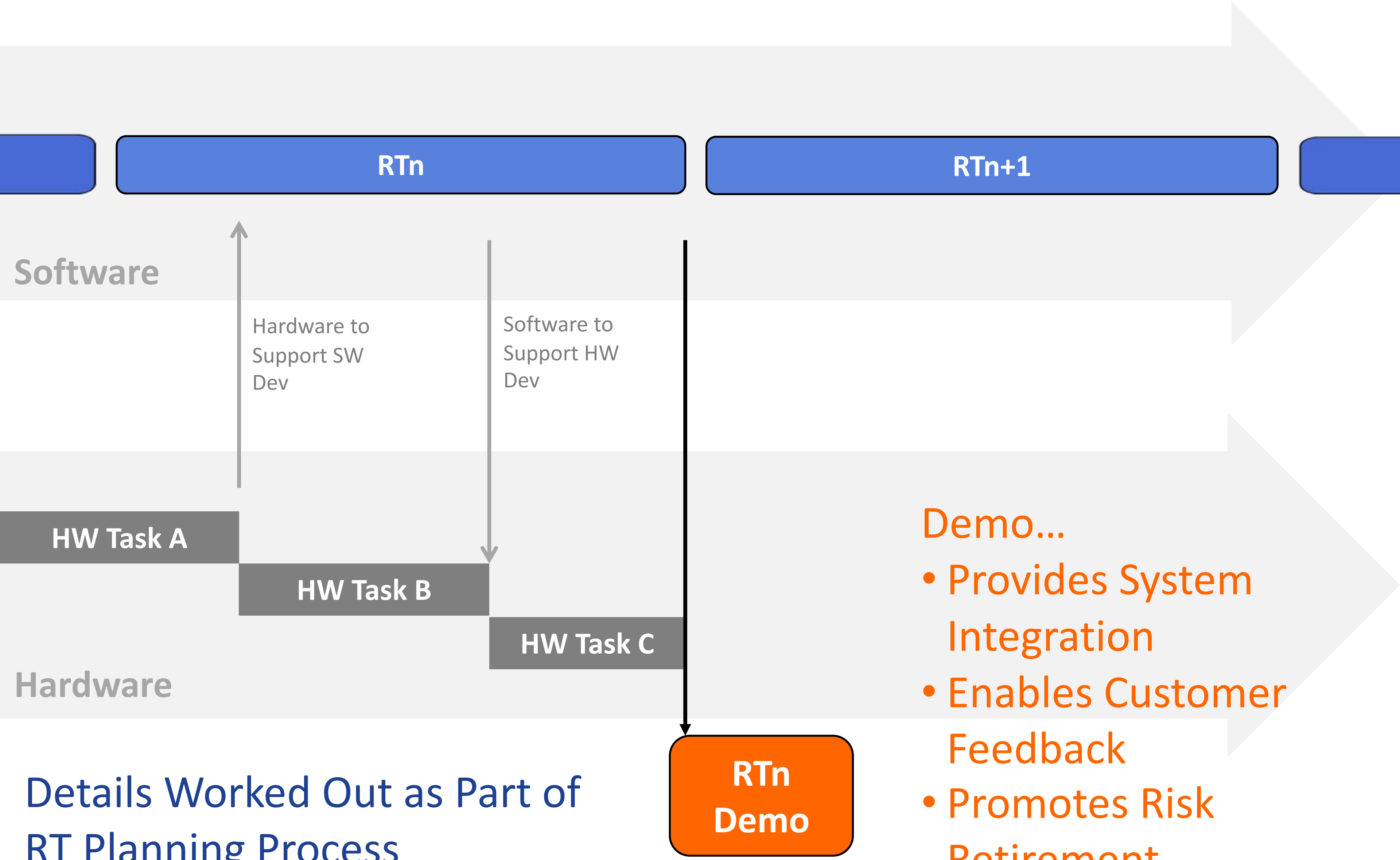
Retro

<u>Root Cause</u>: Changes to Processes, Roles, & Op Mechs

Insights from the Data

- Velocity measure can be translated to $/FP for outsourcing
- Compare internal/external team costs
- Burn up charts are early warning signs that something is wrong
- Improved credibility
- Improved Scope control
- Not punitive!

RT Planning



Demo…

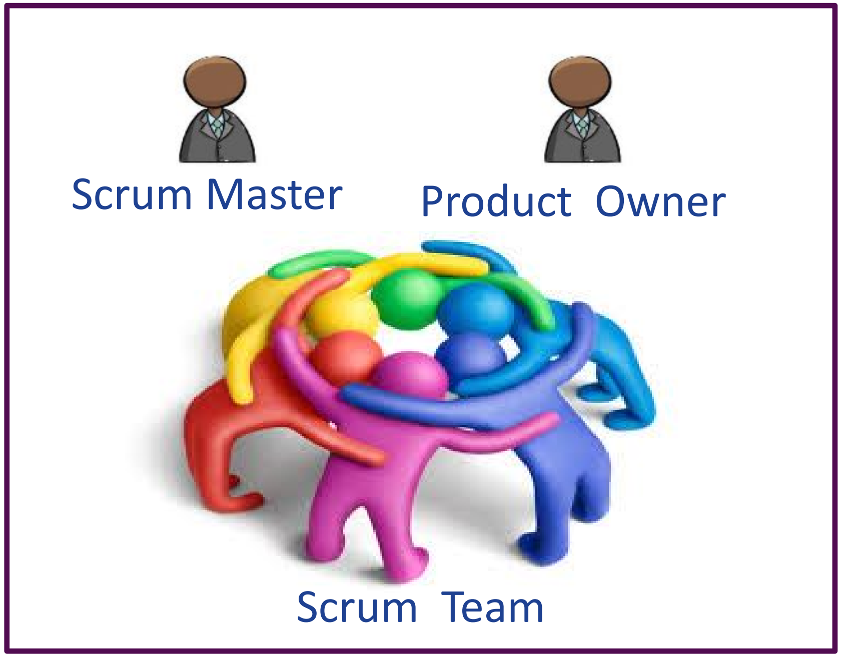
- Provides System Integration
- Enables Customer Feedback
- Promotes Risk Retirement

Details Worked Out as Part of RT Planning Process

Roles / Responsibilities

Scrum Master *drives execution, identifies blocking*
Product Owners *proxy for the user, helps with definition*
Release Train Eng *aggregates metrics, escalates issues*

- Dedicated roles
- 10 day sprint window is short!
- Escalate quickly

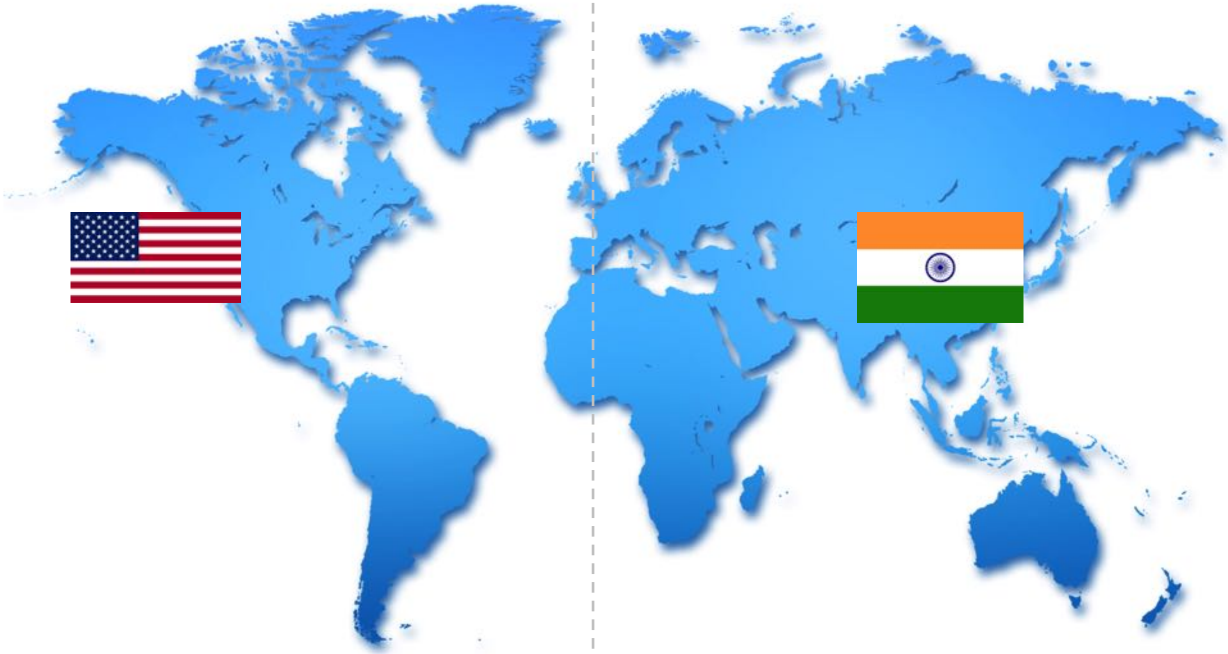


Scrum Master

Product Owner

Scrum Team

Global Team



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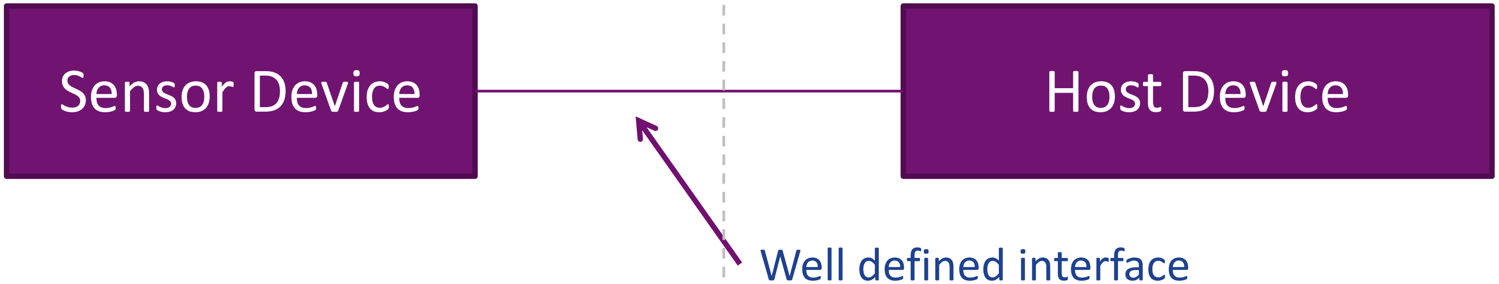

Sensor Device

Host Device

Well defined interface

Software Factory

Software Factory Concept

- 2 week sprint window
- No time for definition
- Grooming, grooming, grooming!

Global team – time zone issues mean questions take 2 or 3 days to answer – 30% of a sprint!

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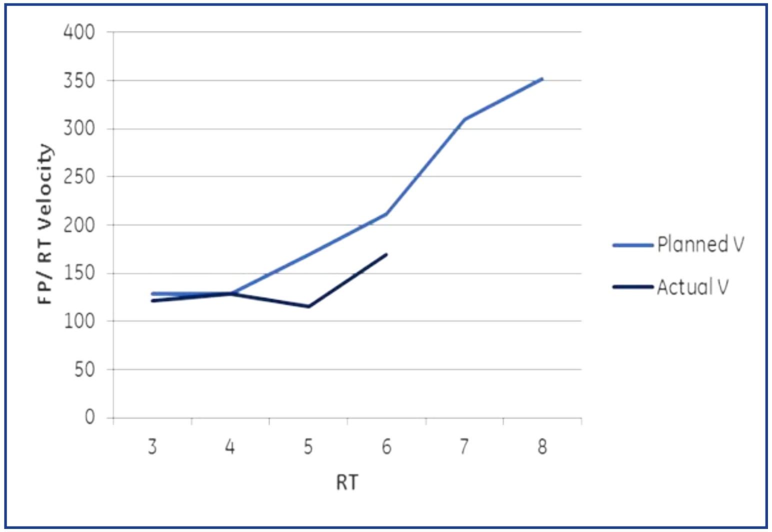
Ramp-up Time

New team members

- Add to existing teams rather than form new teams
- New teams dilute efforts of existing teams
- Allow 1Q ramp up – processes, tool chains, etc



Agile Benefit Recap

- Find right planning granularity – detailed view of full program (diminishing returns) or too high level view (schedule surprises).
- Measure your velocity, use it as a gage.
- Don’t change original estimates!

Agile maximizes your software development team’s effort through..

  - Continuous Improvement
  - Metrics
  - Grooming

Fundamental Transformations Take Time

Agile – tailor it to work for you!

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