



Agile Transformation at Scale

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Agile Project Management



Agenda

- **Background**
- **The Culture of Change**
- **Building Innovative Products**
- **Transformation at Scale**

Definition of Agile

“...the ability to both create and respond to change in order to profit in a turbulent business environment.”

- Jim Highsmith

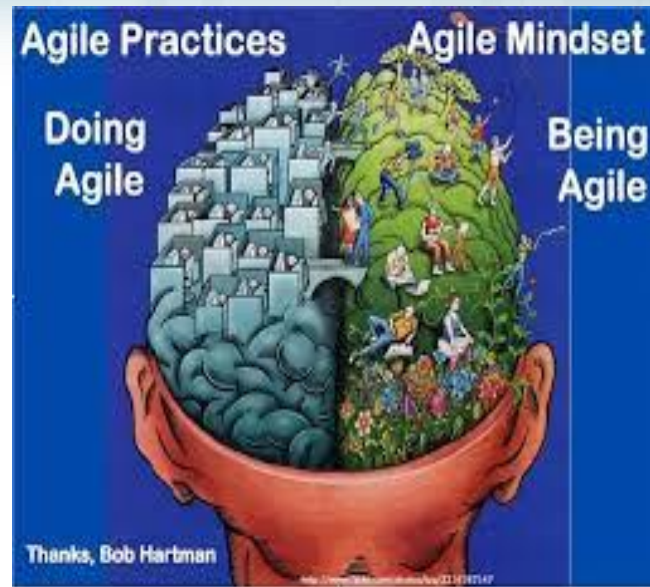
The Culture of Change

1. Organizational structure is about how you create teams and organize them
2. Agile practice is about the methods and tools you choose to introduce
3. People and culture is about changing the hearts and minds of the organization

- All three aspects are essential to sustain agility of any kind within the organization.

The Culture of Transformational Change

Agile Adoption is about the 'Agile Doing' side of the equation.



Transformation is about changing the 'Agile Being' side of the equation.

Long term results require both adoption and transformation to be successful.

Culture is the #1 Challenge with Agile Transformation.

Transformation at Scale

Culture

+

Infrastructure



+



= Agile Transformation at Scale

Three main challenges in scaling teams:

Coordinating work across teams

Integrating work across teams

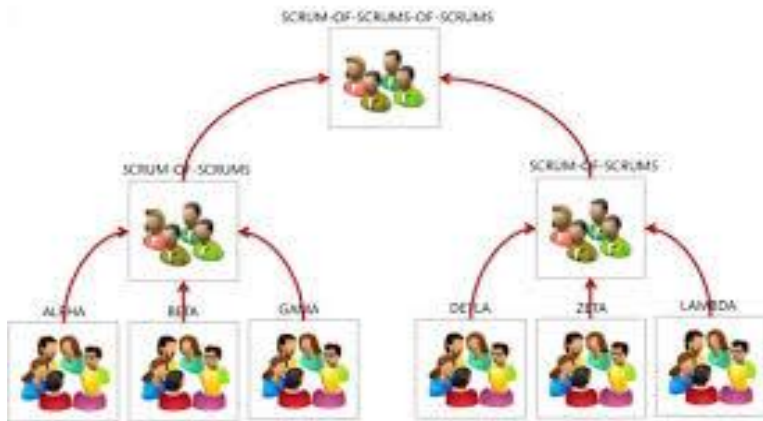
Maintaining technical integrity of the system

Scaling Approaches

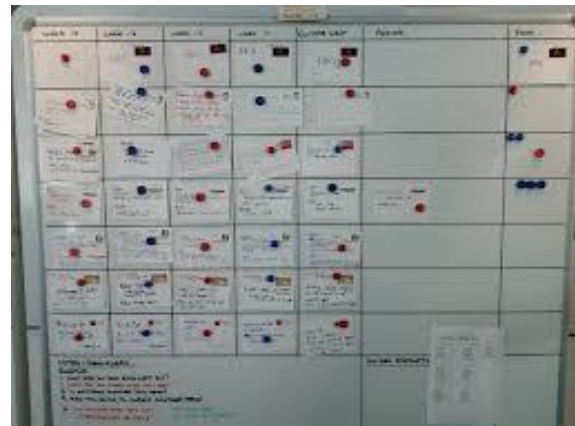
Each of the popular scaling approaches offers a certain value proposition, focus, options for implementation, cost implications and other attributes

- Scrum of Scrums (SoS)
- Large Scale Scrum (LeSS) - Larman/Vodde
- Scaled Agile Framework (SAFe) - Leffingwell
- Spotify “model” (Tribes, Squads, Chapters & Guilds) – Kniberg
- Scrum at Scale – Sutherland/Brown
- Disciplined Agile Delivery (DAD) + Agility at Scale Ambler/Lines

Scrum of Scrums



Scrum of scrums is a technique used to scale Scrum up to large groups (over a dozen people), consisting of dividing the groups into Agile teams of 5-10. Each daily scrum within a sub-team ends by designating one member as "ambassador" to participate in a daily meeting with ambassadors from other teams, called the Scrum of Scrums.



Insights – LeSS (Large Scale Scrum)

Craig Larman characterizes LeSS as:

an organizational design based on ten LeSS Principles:

1. Large Scale Scrum is Scrum
2. Transparency
3. More with Less
4. Whole Product Focus
5. Customer Centric
6. Continuous Improvement
7. Lean Thinking
8. Systems Thinking
9. Empirical Process Control
10. Queueing Theory



More with LeSS

Large-Scale Scrum

Courses & Events

Coaching

Case Studies

Resources

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LEAN THINKING



SYSTEMS THINKING



PRINCIPLES



COACHING



AADOPTION



CONTINUOUS IMPROVEMENT



FEATURE TEAMS



TEAMS



STRUCTURE



ORGANIZATION



COMMUNITIES



CONTINUOUS INTEGRATION



TECHNICAL EXCELLENCE



ARCHITECTURE & DESIGN



ROLE OF MANAGERS



MANAGEMENT



OO SEE



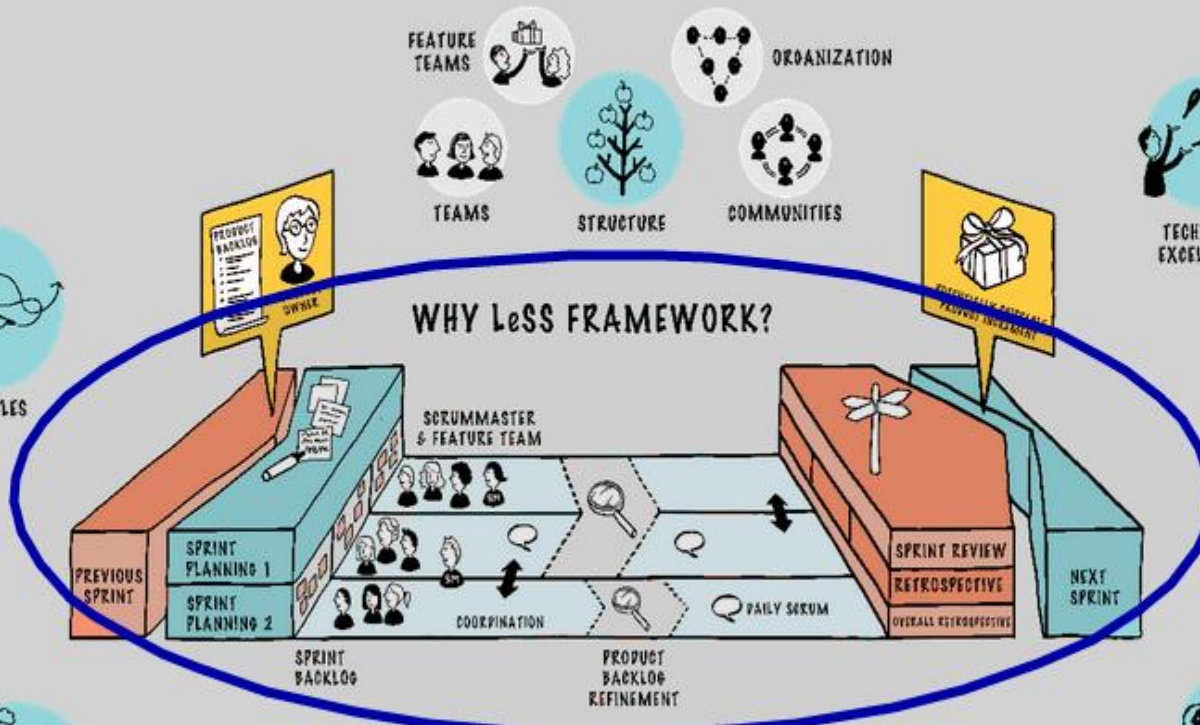
PRODUCT OWNER TEAM



LESS HUGE



REQUIREMENT AREAS

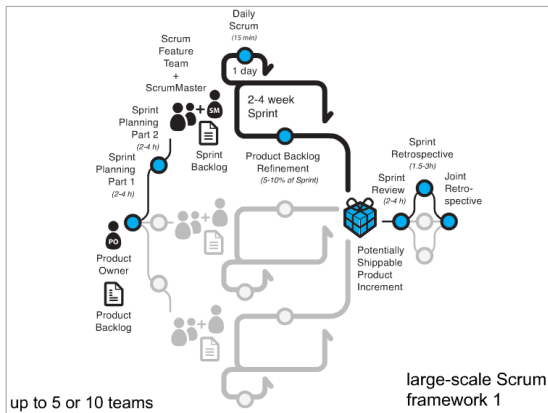


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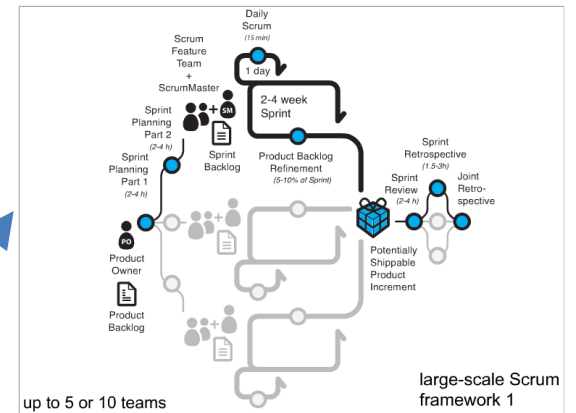
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Example

Requirement Area A

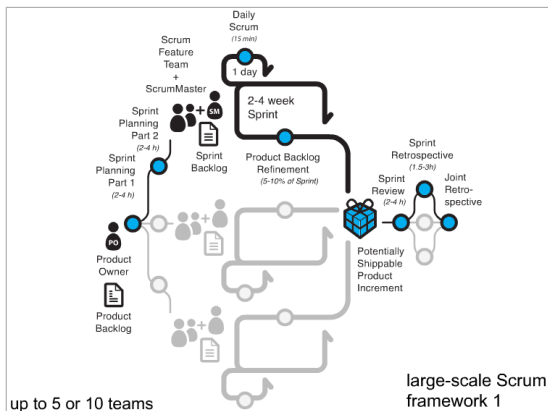


Requirement Area C

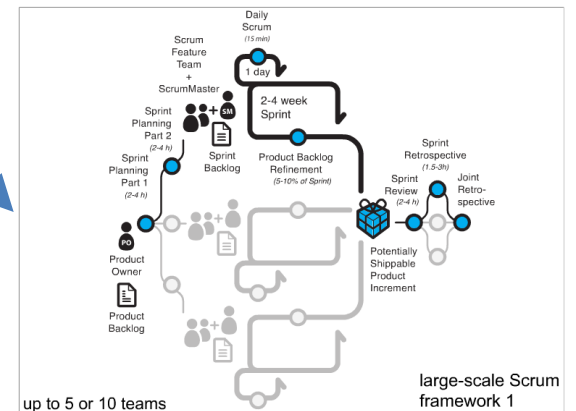


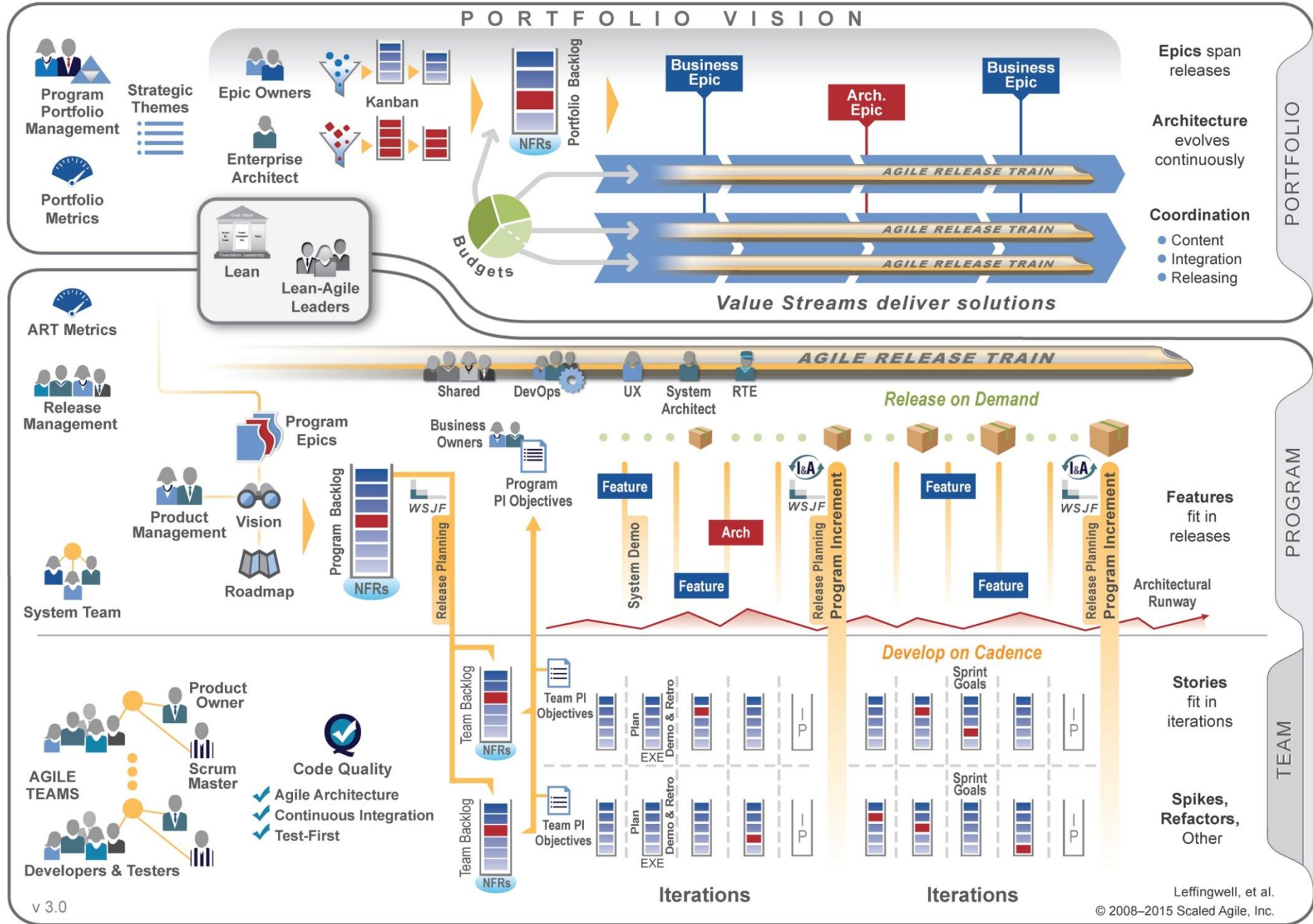
Overall
Product
Owner

Requirement Area B



Requirement Area D





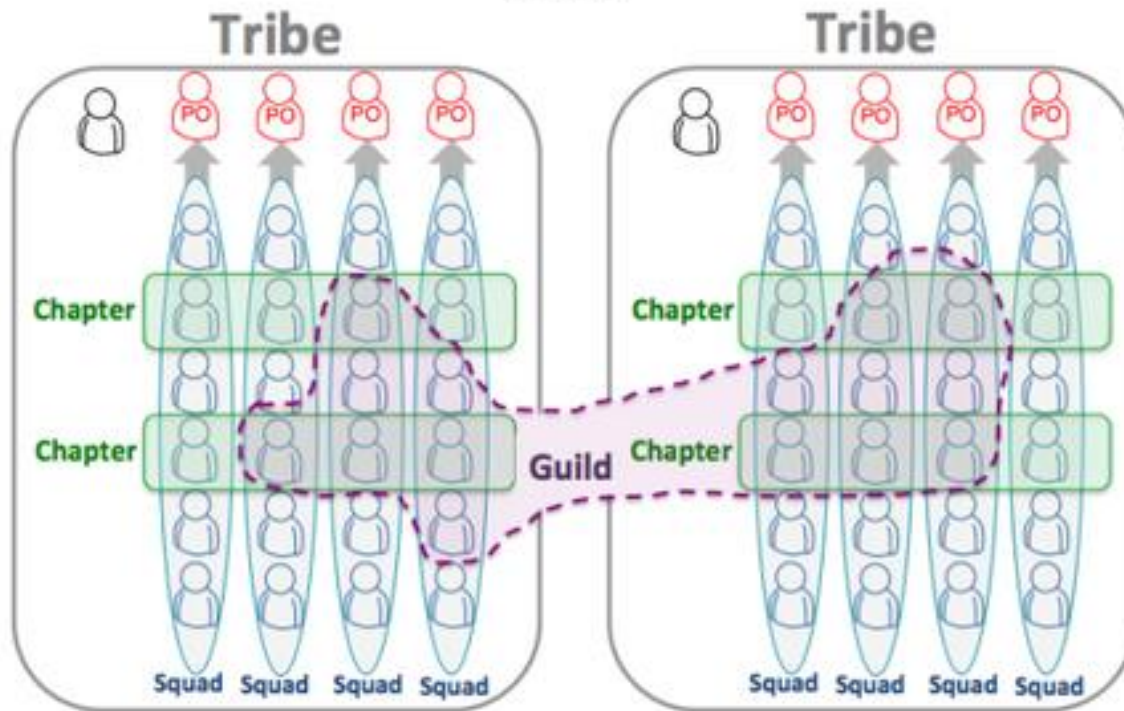
Insights – SAFE

... Scaled Agile Framework

- Is applicable whenever at least a few hundred software practitioners are working cooperatively on related products and solutions
- Has generated great amounts of interest from enterprises
- Is becoming supported by a large number of Agile Tools
- The SAFe “big picture” has 3 levels: portfolio, program, team
- Relatively more prescriptive, pragmatic
- More controversial
- Evolving, growing, doing more types of training
- Release Trains

Spotify Model

Henrik Kniberg & Anders Ivarsson
Oct 2012



Insights – Spotify

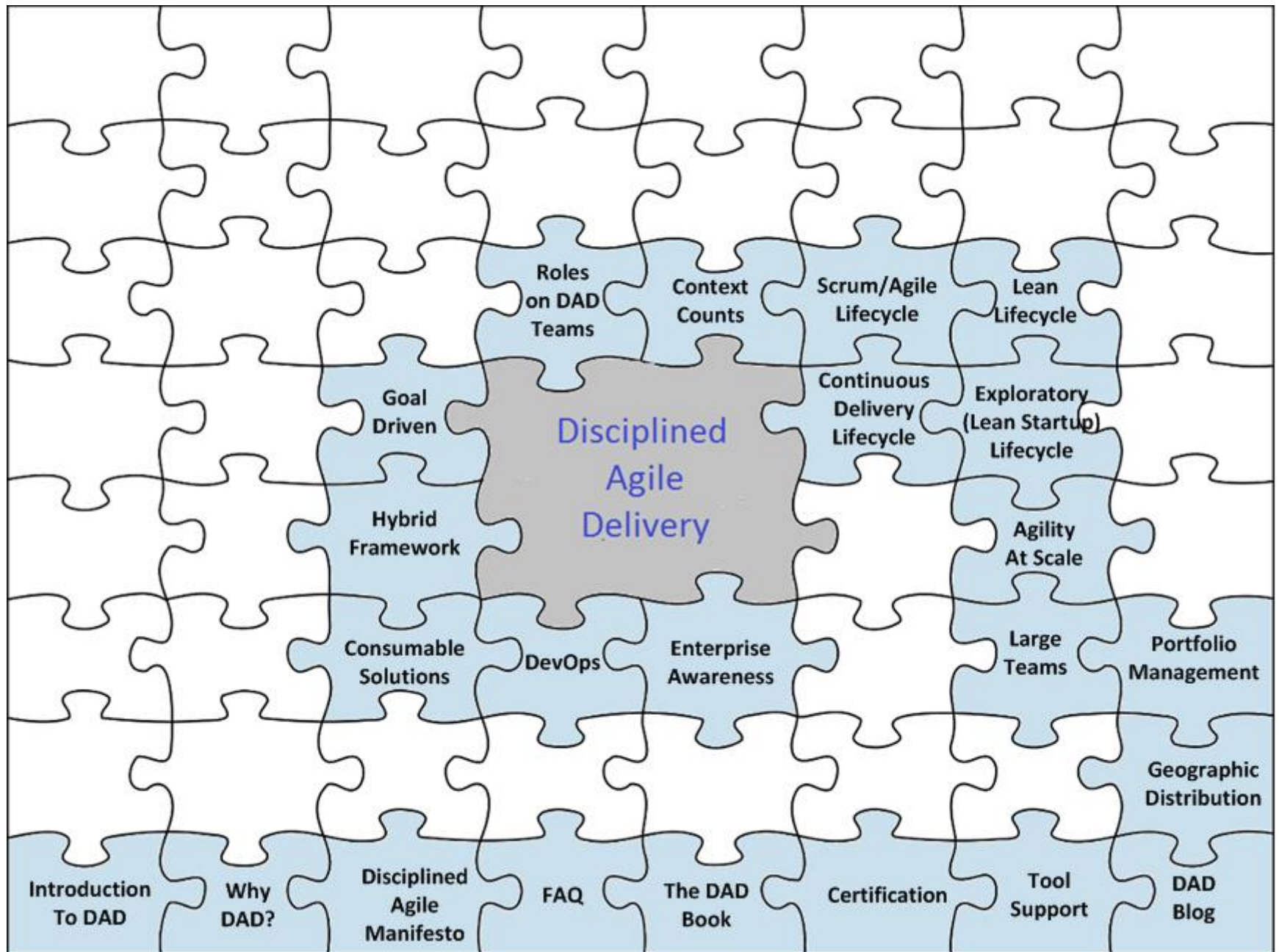
... Spotify offers a culture-centric approach to Scaling Agile

- Squads have end-to-end autonomy over their products
- Loosely coupled, tightly aligned
- Infrastructure
- Client Applications
- Features
- Squads = Scrum Teams
- Chapters = Competency Areas
- Tribes = Lightweight matrix of squads and chapters
- Guilds = Communities of Practice
- Self-service, Open source model
- Focus on enabling each other
- Release Train

Insights – Scrum at Scale

Reproducible Patterns

1. Modularity allows versatility.
2. Scrum is modular.
3. Deploying incrementally is modular.
4. Modularity supports a pattern library.



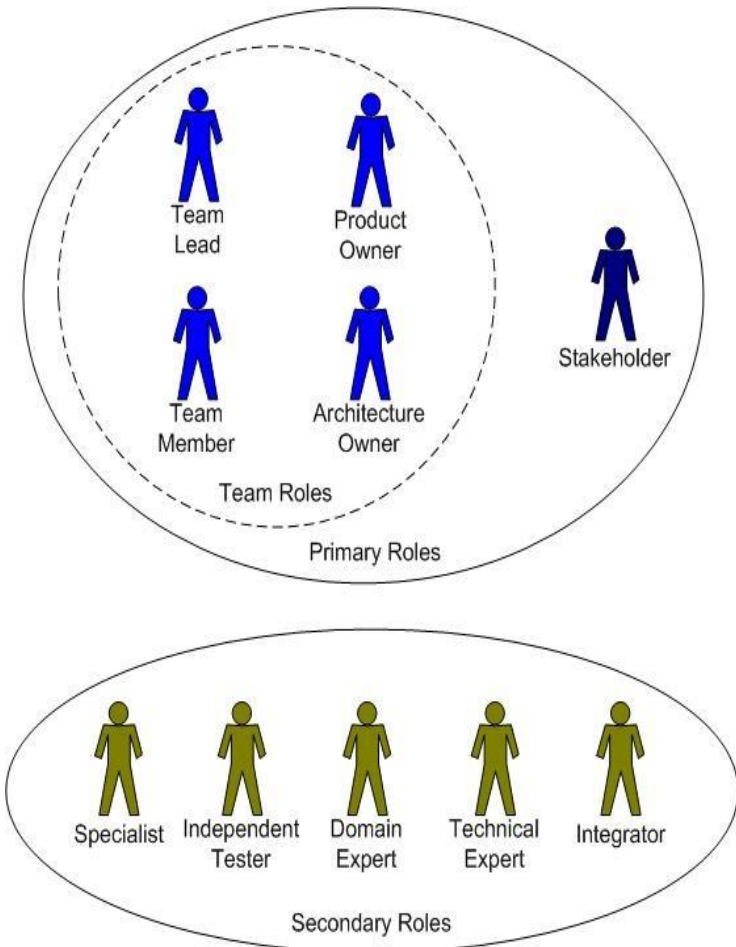
Insights – DAD

DAD seeks to extend Scrum for enterprise scale challenges

- People-first, learning-oriented hybrid agile approach
- Risk-value delivery lifecycle and goal driven
- Agility at scale is about explicitly addressing the challenges teams face in the real world
- Promotes Enterprise Awareness
- Key Differentiator – explicitly recognizes that Agile teams are governed

DAD supports a robust set of roles

- Team Lead
- Product Owner
- Architecture Owner
- Team Member
- Stakeholder





Concept: the Agile 3C rhythm

The coordinate-collaborate-conclude rhythm occurs at several levels on a disciplined agile delivery (DAD) project:

Release rhythm

Inception

Construction

Transition

Iteration rhythm

Inception

Construction

Transition

Daily rhythm

Inception

Construction

Transition

Coordinate - Collaborate - Conclude

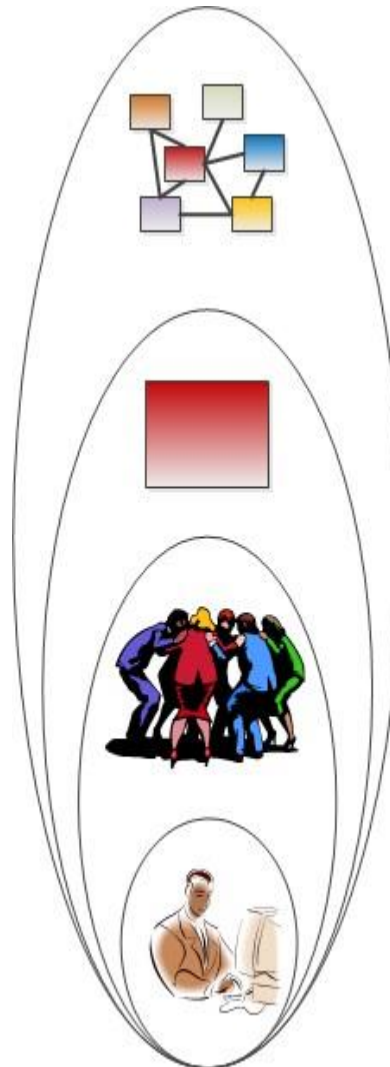
DAD Teams Are Enterprise Aware

Disciplined Agilists:
Work closely with
enterprise groups

Follow existing
roadmaps where
appropriate

Leverage existing
assets

Enhance existing
assets



Enterprise Awareness
“How can I help my organization?”

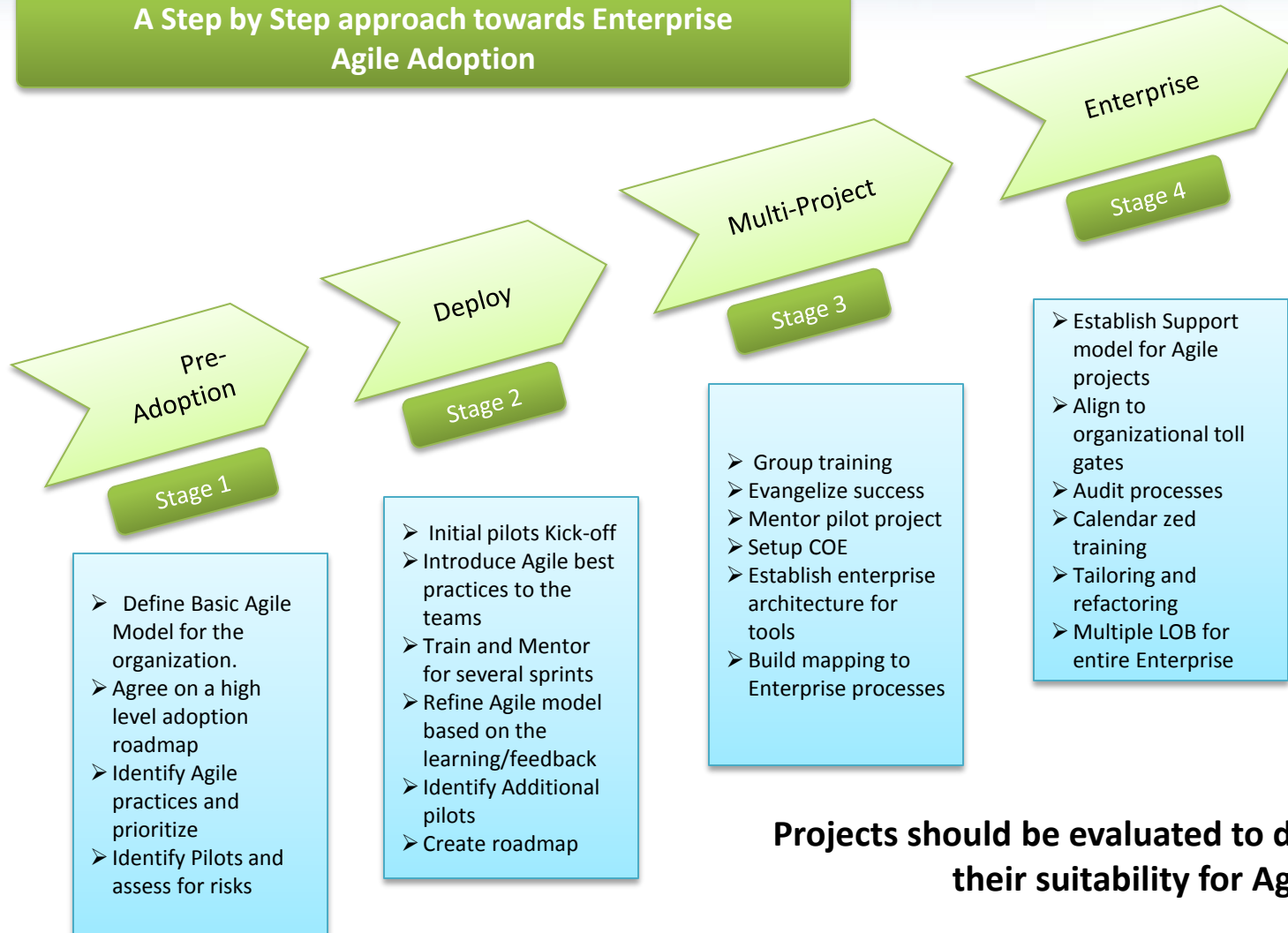
Departmental Awareness
“How can I help my department?”

Team Awareness
“How can I help the team?”

Individual Awareness
“How can I be the best me?”

Transformation at Scale

A Step by Step approach towards Enterprise Agile Adoption



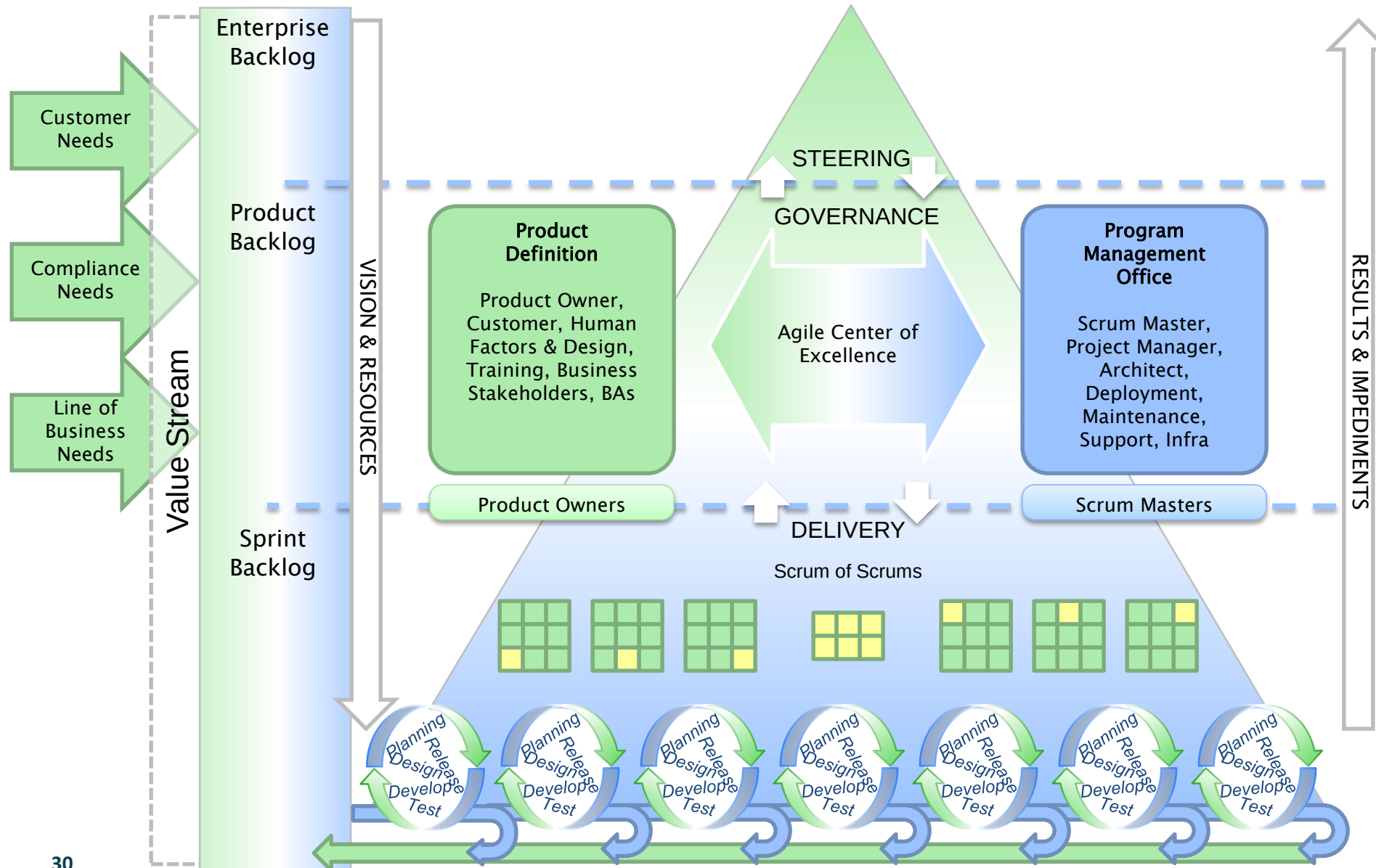
Proposed steps for Rollout – Principles and Practices

- Ensure Executive buy-in
- Implement Scrum as a program / product management framework
- Introduce Continuous Engineering practices
- Small, incremental rollout is proposed
- Identify pilot product to implement the agile principles and practices

Pilot Rollout & Trainings

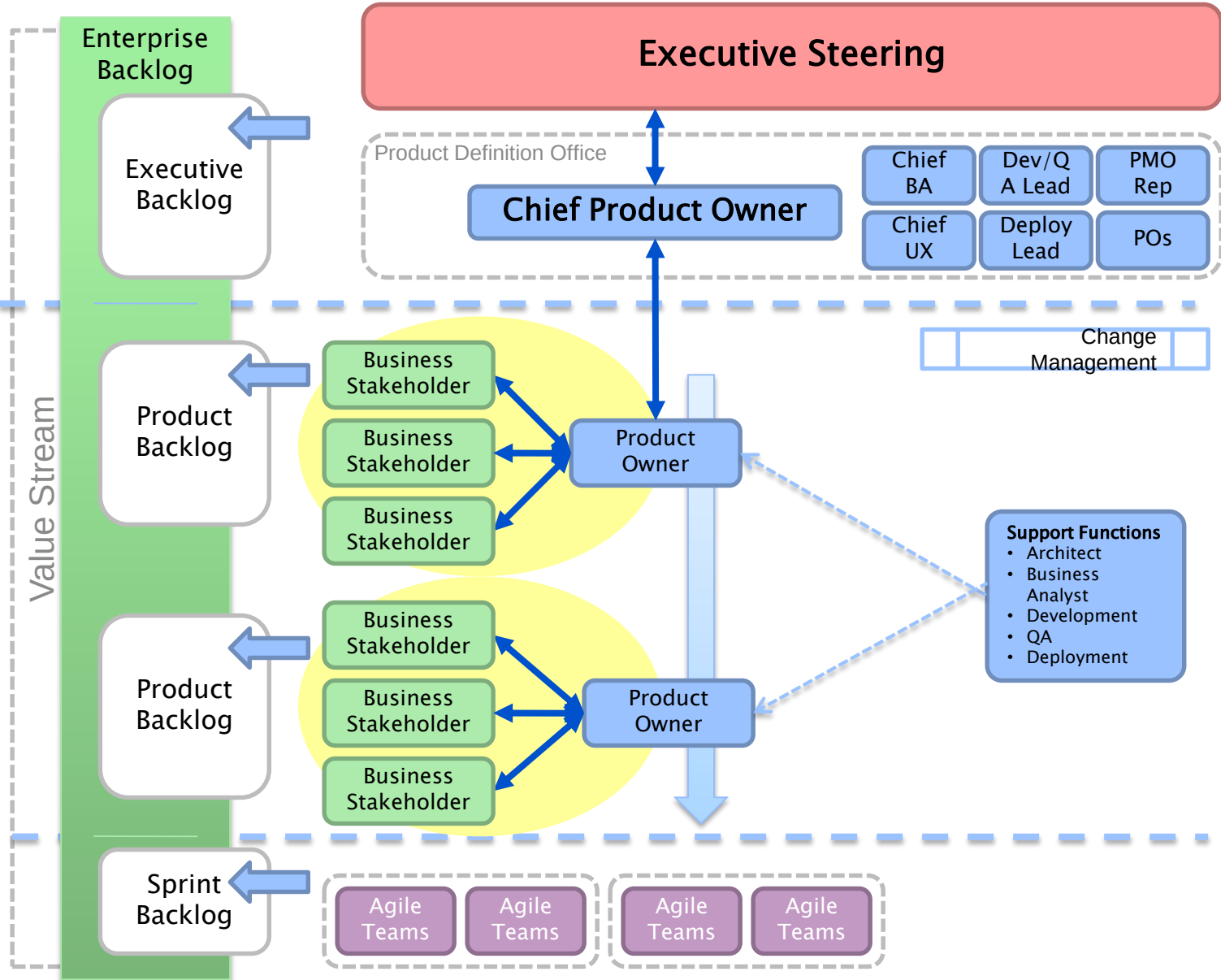
- Agile and Scrum trainings for the entire team
 - Developers
 - Testers
 - Product Owner / Product Manager
 - Scrum Master(s)
 - Requirements writing (Stories, Use Cases)
 - Estimation Techniques
 - Relative Estimation
 - Story points
 - Planning Poker

Integrated & Collaborative Governance

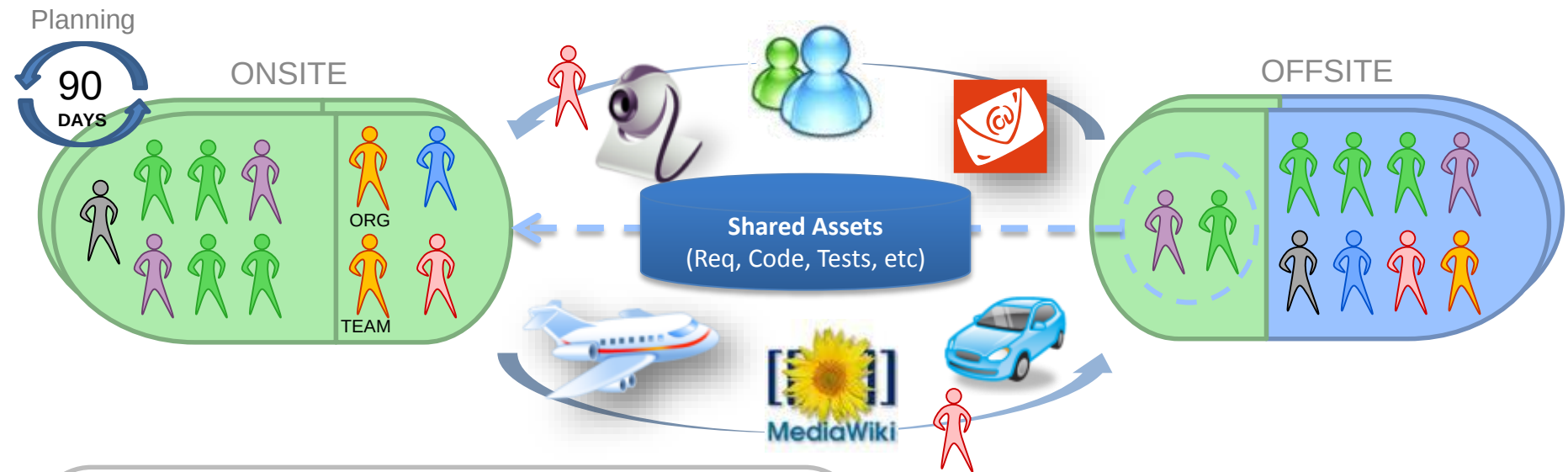


Alignment

- Enable Customer Participation
- Provide Vision
- Resolve Organizational Impediments & Risks
- Provide Resources
- Resolve Priority disputes
- Product Owner able to represent decisions made with Stakeholders
- Stakeholders voice is heard, differences resolved, vision clarified, priorities and value established
- Represent the Customer and Business needs
- Use Change Management
- Deliver Value
- Partner w/Business



Establish Communication & Collaboration Mechanisms



Keys to Effective Distributed Delivery

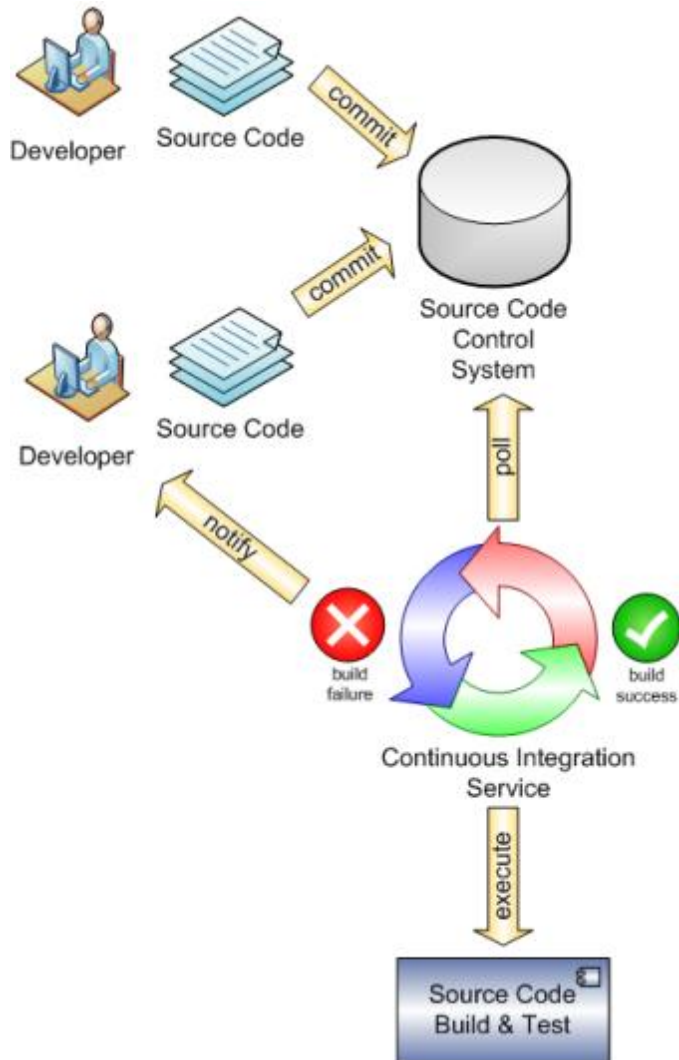
- Onshore & Offshore Tech Leads
- Offshore Customer Representatives
- Periodic travel rotation for offshore resources
- Good Agile PM tools
- Automated Build/Continuous Integration
- Overlapping hours and daily standups
- Leveraging technology maximally
- Leverage Coaching & Common Training
- Whole teams offshore
- Common Planning

Agile PM Tools

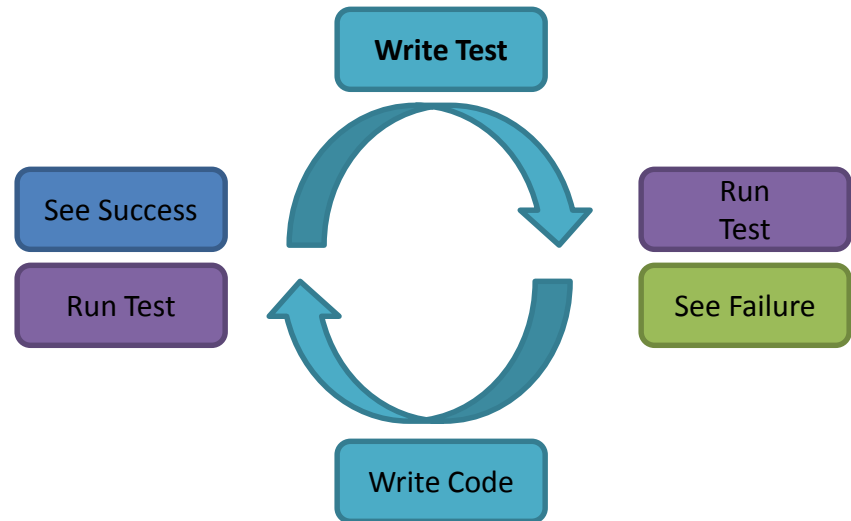


Leverage Continuous Integration & Automation

Continuous Integration



Test First Development



Automation

Automated Builds

Regression Tests

Functional Tests

System/Performance Tests



Measuring Success

How do we measure success of Agile teams?

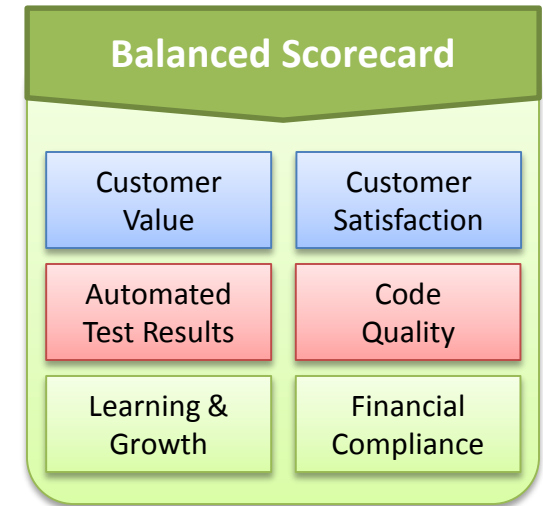
Process Measure	Formula
Process Metric	
Agile Maturity Index	Agile Maturity Index at the end of every Sprint
Customer Satisfaction	Customer rating at the end of every Sprint
Team Satisfaction	Team satisfaction rating at the end of every Sprint
Retrospective Action Items completed	% of Retrospective items completed
Automation capability	% of Automation scripts / test scripts
Requirement Change on Sprint – Discipline	% of Requirement change within the Sprints

Key Agile Metrics – Using IT Balanced Scorecard

Balanced Scorecard	Strategic Objectives	Performance Measures
Financial Compliance	Improve Budget Performance	1. Time to Value 2. Cost of Value 3. Earned value / release
Customer Value	Increase Customer Satisfaction	1. Cycle time. 2. Customer Satisfaction ratings.
Processes	Project Delivery	1. Velocity 2. Avg project cycle time 3. Schedule performance index
	Decrease Defects	1. Defects 2. Unit Test Coverage 3. System Test Coverage 4. UAT Defects Found 5. Running tested features
Learning and Growth	Enable Agile Transformation	1. Increase Agile Utilization. 2. Build community of practice.

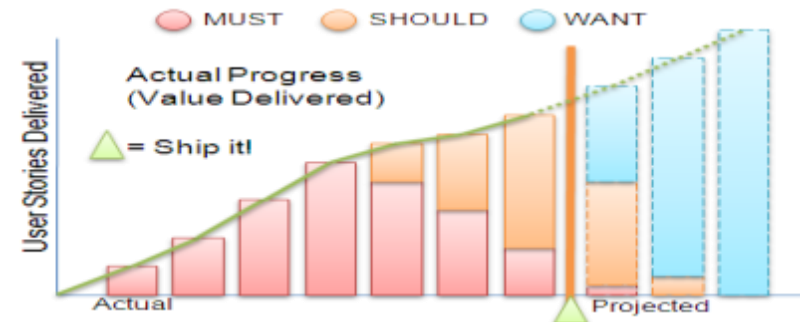
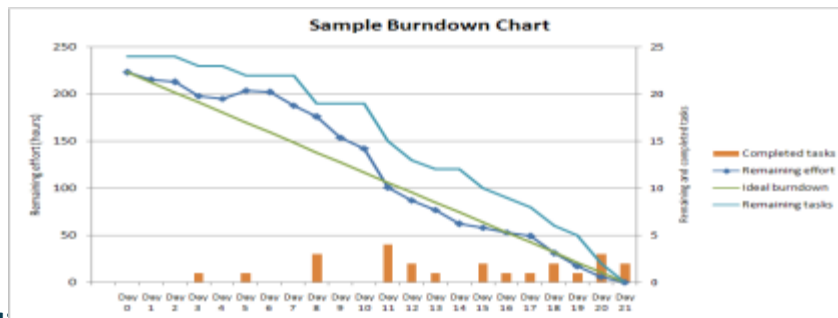
Better Decisions through Frequent Feedback

Sample Metrics	
Process Measure	Formula
Velocity	Actual Number of story points achieved in an iteration
Drag factor	Actual Effort (unplanned) / Capacity
Iteration Defects	No. of defects at the Iteration end / LOC
Story de-scoping index	Stories descope / Stories planned
Effort deviation	(Actual effort – Planned effort) * 100 / Planned effort
Build success rate	Builds passed / Total # of builds
Automation & Test Coverage	Unit test coverage, test case execution, etc



SAMPLE
SCORECARD

Burn Down & Burn Up Charts



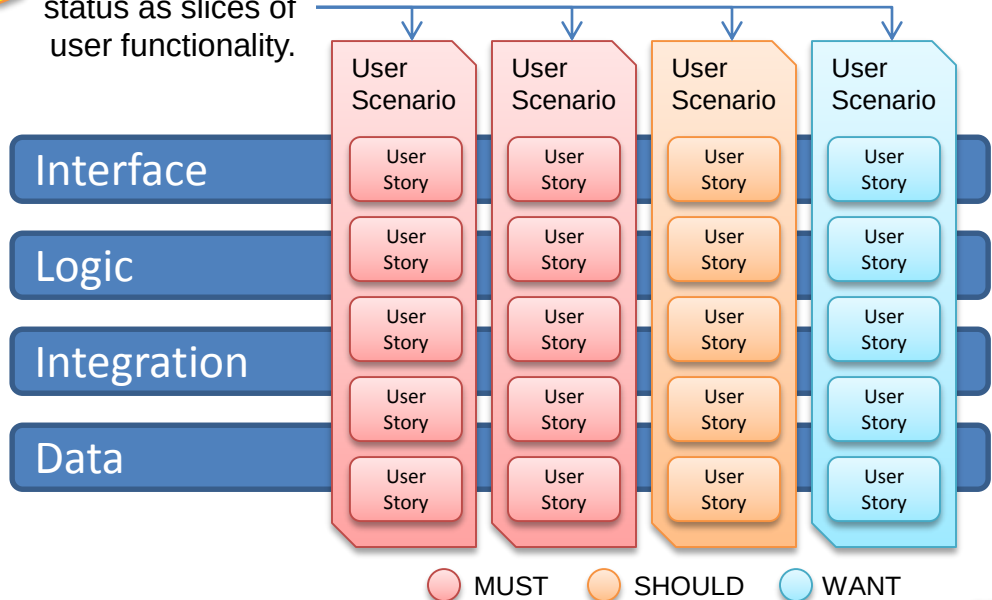
Measurement

Agile PMO Distinctions

- 1 Define progress in terms of business value. Focus on results instead of effort.
- 2 Burn up charts providing actual progress, cost incurred, and value achieved.
3. Meaningful measurement of the code assets
4. Automation for reduced burden and increased accuracy
5. Conduit for clearing impediments, ensuring collaboration, getting resources
6. **Ensure alignment to strategic goals and value.**

1

Outcome based status as slices of user functionality.



3

Balanced Scorecard

- Financial Compliance
- Customer Satisfaction
- Automated Test Results
- User Scenarios
- Code Quality

Code Quality

- Extent of duplication
- Cyclomatic complexity
- Presence of large methods
- Code encapsulation

Qualification via Automation

- Unit Testing
- Integration Testing
- Functional Testing
- Automated regression
- Maximum Coverage
- Non-auto Exploratory

4

Continuous Integration

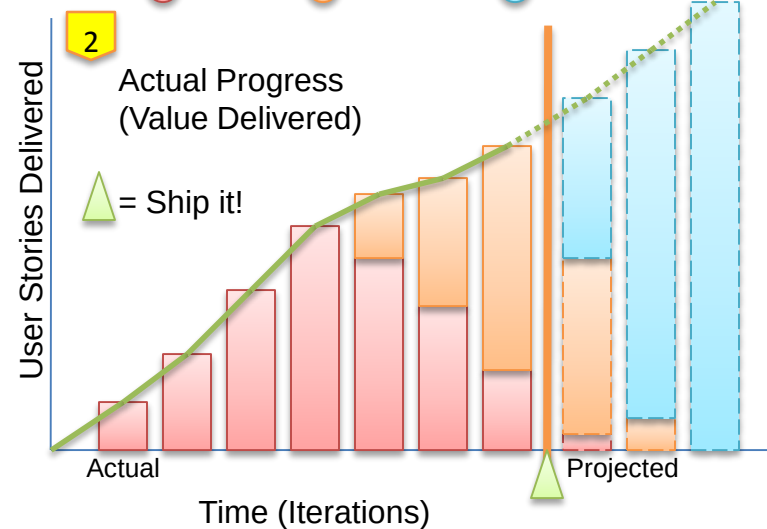
Automation

Integrated Measurement

2

Actual Progress (Value Delivered)

▲ = Ship it!



Case Studies

**Case
Studies**



Single Team / Single Product

Sub 25 person product company and a start-up

- Started with team level practices
- Lots of attention early to team culture
- Began engaging leaders on strategy and portfolio management
- Currently integrating marketing, sales, and support

Methods:

Scrum of Scrums, Spotify

Multi-Team / Single Product

Sub 100 person product company.
10 years old and privately owned.

- Program level first ...established a PO team
- Three tightly integrated Scrum teams
- Defined the portfolio governance layer
- Established the relationship between strategy and support
- Modeled the overall value stream and wrapped up the Scrum process in a two-tiered Kanban

Methods:

LeSS, Scrum of Scrums, Spotify

Multi-Team / Multi-Product

Large multi-national organization. Scope is a 500 person development organization with 55 Scrum teams.

- Started with a basic view of the portfolio layer
- Portfolio level value stream mapping, RACI
- Built out the program management layer with PO teams to develop a requirements management capability
- Program level value stream mapping, RACI, introduced agile tooling
- Introduced Scrum at the team level

Methods:

SAFe, Scrum at Scale, LeSS, DAD

Product of Products

Large multi-national company. Geographically dispersed. Products of products.

- Scrum teams by product / component.
- Product owner teams established.
- Portfolio level governance model.
- Lean/TOC planning model.
- Integration with a traditional PMO for metrics and monitoring.

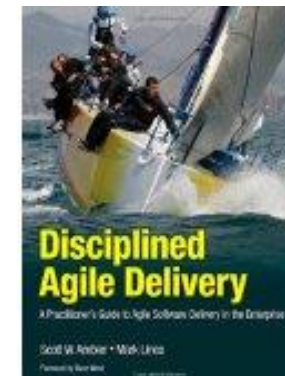
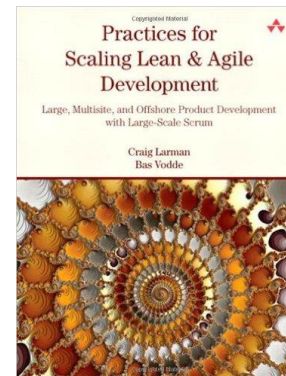
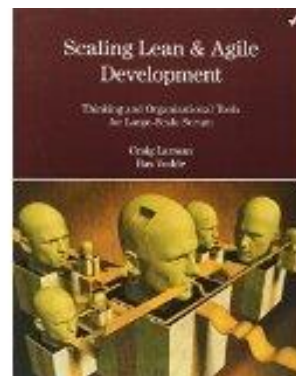
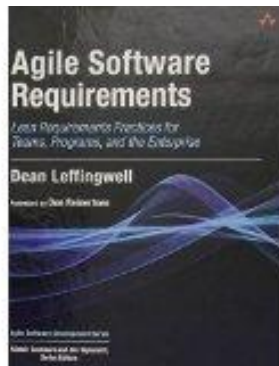
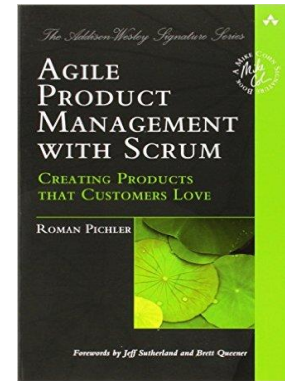
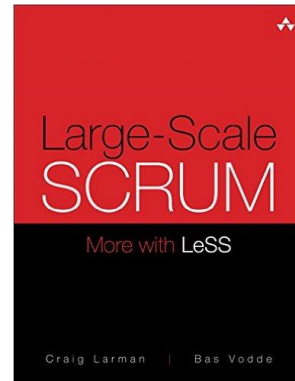
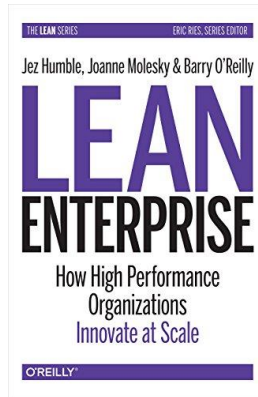
Methods:

SAFe, Scrum at Scale, LeSS, DAD

Questions



A Few Good Resources ...



Links

Disciplined Agile Delivery (DAD) + Agility at Scale – Ambler/Lines

<http://disciplinedagiledelivery.com>

Large Scale Scrum (LeSS) – Larman / Vodde

http://www.craiglarman.com/wiki/index.php?title=Large-Scale_Scrum

Scaled Agile Framework (SAFe) – Leffingwell

<http://scaledagileframework.com>

Scrum at Scale

<http://www.scruminc.com>

Spotify Model

<https://labs.spotify.com/2014/03/27/spotify-engineering-culture-part-1/>

Links

HyperGrowth Done Right - Lessons from the Man who Scaled Dropbox and Facebook

<http://firstround.com/review/Hyper-Growth-Done-Right-Lessons-From-the-Man-Who-Scaled-Engineering-at-Dropbox-and-Facebook/>

Wisdom from Hypergrowth Companies

<http://www.startuplessonslearned.com/2013/10/wisdom-from-hyper-growth-companies.html>

IT Balanced Scorecard – Agile Focus

Strategy Map	Strategic Objectives	Performance Measures	Targets	Initiatives
Financial Compliance	Improve Project Budget Performance	- Margin Contribution (or Revenue, or Cost, etc) - Earned Value/Release - Avg CPI – Cost Performance Index - Time to Value	- TBD - TBD 1 Month	- Measure IT contribution to Revenue - Enable operations to release value every month to production - Reduce cycle time - Use business measures
Customer Value	Increase External CSAT	Customer Satisfaction –CSAT	>6/qtr	Implement CSAT for all branches and end users of software
Internal Process	Increase accuracy of Estimates	E0/E1 Estimate Variance Delta	<20%/spr	Measure and monitor estimates every sprint, take active role in reducing variance
	On Time Project Delivery	- Velocity & Std. Deviation - Drag factor - Avg Project Request Cycle Time - Requested - Avg Project Request Cycle Time - Scheduled - Sprint & Release Burndown performance trend deviation - Customer Satisfaction –CSAT - Avg SPI – Schedule Performance Index	- Varies/spr <5%/spr #prp/days #prs/spr <10% >6/qtr - TBD	- Ensure operational measures are collected and collated every sprint, by every sprint team. - Ensure sprint and release burndowns are posted daily (hours for teams, story points for everyone) - Ensure CSAT surveys are created and part of goals - PM to help teams track SPI during the release
	Decrease Defect RFCs in Production	- Defects/Story Point - Unit Test Coverage - System Test Coverage - UAT Defects Found - Running Tested Features	0 >90% >90% 0 >90%	- Ensure consistent defect management across CRP and INC test teams. - Measure coverage every sprint - Measure running tested features
	Increase Audit Compliance %	PQA Compliance	>90%	Educate teams about compliance, SM to help ensure compliance
	Increase % of agreed scope	- Story de-scoping index - User Story Volatility	<10% <5%	IT and Business measure needed. Indication of partnership. Ensure collection and review.
Learning and Growth	Enable Agile Transformation	Increase Agile Utilization	>25%/qtr	Transformation team proactively working the roadmap to work toward 100% (of goal) participation.
	Enable People & Culture	Increase Ace Participation ((people/events)/month)	>33%	Define and formalize the ACE program and participation opportunities and guidelines.

Key Agile Metrics

Measurement	Frequency	Target	Notes
E0/E1 EV Delta	Sprint	<20%	$(E1 - E0/E1) * 100$
Velocity & Std. Deviation	Sprint, Release	varies	varies by team
Drag factor	Sprint, Release	<5%	(Actual Effort in story pts unplanned / velocity)
Avg Project Request Cycle Time - Requested	Sprint, Release	varies	days, measure end to end time from the time the request was submitted by the business to the time it goes live in production. Alternatively, can measure the "request to scheduled" cycle time and that can be added to the "scheduled to production" cycle time (below). Value range will vary by request type (maint, s/m/l project), but also want average of all.
Avg Project Request Cycle Time - Scheduled	Sprint, Release	varies	days, measure end to end time from the time the request was scheduled by the business to the time it goes live in production. Value range will vary by request type (maint, s/m/l project), but also want average of all.
Sprint & Release Burndown	Daily	varies	varies by team
Customer Satisfaction -CSAT	Sprint	>6	Implement for all groups (dev, support, biz functions, etc). Low CSAT indicate less collaboration and potential increase in cycle time and/or duration. Also apps to Scope
Defects/Story Point	Sprint	varies	
Unit Test Coverage	Sprint	>90%	
System Test Coverage	Sprint	>90%	
UAT Defects Found	Sprint	0	Harder target due to Agile structure and PO involvement. New code going through UAT should have 0 defects.
Running Tested Features	Sprint	100%	Running Tested Features. Cumulative number of tests that are running for tested (non-broken) features. Drives performance to ensure running code and tested code. Should increase steadily on from the first sprint w/tests.
Story de-scoping index	Sprint	>10%	(stories descope / stories planned)
User Story Volatility		<5%	$((\text{Story pts Descoped} + \text{Story pts Added} + \text{Story pts Modified}) / \text{Story pts Originally Planned}) * 100$. This is important for helping track business activities in relation to changing scope. Scope can slip due to development issues, but it also can slip do to a lack of focus and prioritization and changing mindsets on the part of the business. Creates accountability on both sides of the house.
Total Earned Value	Sprint	varies	Sum Total of earned value of stories completed. The pre-requisite of this approach is to have story values assigned as part of the demand and prioritization process. Should be tracked by the business.
Agile Utilization	Month	as per roadmap	Deliver competitive business value, cost optimization, improved compliance, and strategic business alignment. (% Agile hrs/% total hrs)
Get Involved - ACE Participation	Sprint	>30%	(% of people involved in some initiative)