Agile at Scale - Beyond SAFe

John B Hudson, B.Sc., PMP, ACP, CSM, SPC
EnterpriseAgileCoach1@gmail.com
Waterfall Development

- Successful 11%
- Challenged 60%
- Failed 29%

Standish Group CHAOS Study 2015

+Data compiled from 50,000 Software Development projects of all sizes from around the world
+Successful is defined as on Time, on Budget, on Target(Scope) and (new for 2015) deliver Value and Satisfaction
+Includes all Agile approaches (Kanban, Lean, Scrum, other)
+Projects rated Successful show a 28% improvement over Waterfall
-Challenged projects are down by 8% but remain at a significant level - why?
Path to Business Agility - Essential Ingredients for Agile at Scale

Governance
Risk
Compliance

 Agile Software Development

Scrum
XP
TDD
SAFe
LeSS
DSDM
Metrics
Tracking Tools

DevOps
Continuous Integration/Deployment (CI/CD)

Agile Architecture

SOA
Digital
Automated Test Tools

Roles
Performance
Growth
Mobility
Collaboration

Agile Organization

Structural
Cultural
Skills
Opportunity
Innovation

IDEs
Cloud
Mobile
Agile “Software Development” Manifesto (2001)

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.

[http://agilemanifesto.org/](http://agilemanifesto.org/)
Agile Principles

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

4. Business people and developers must work together daily throughout the project.

5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

7. Working software is the primary measure of progress.

8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

9. Continuous attention to technical excellence and good design enhances agility.

10. Simplicity - the art of maximizing the amount of work not done - is essential.

11. The best architectures, requirements, and designs emerge from self-organizing teams.

12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.
Agile Software Development - *Scrum*

- Product Vision
- Roadmap
- Product Backlog
- Backlog Refinement
- Sprint Planning
- Sprint Backlog
- Daily Scrum
- Sprint Execution
- Sprint Review
- Potentially Shippable Increment
- Sprint Retrospective

02/21/2017
Agile Software Development - **SAFe Roles**

**SAFe® 4.0 for Lean Software and Systems Engineering**

- **Epic Owners**
- **Enterprise Architect**
- **Program Portfolio Mgmt**
- **Enablers**
  - Epic
  - Enabler
  - Value Streams

**Economic Framework**
- MBSE
- Set Based
- Agile Architecture
- VSE
- Solution Arch/Eng
- Solution Mgmt

**Solution Context**
- Vision
- Roadmap
- Metrics
- Milestones
- Releases

**AGILE RELEASE TRAIN**
- Enablers
  - Exploration
  - Architecture
  - Infrastructure

**Agile Team**
- Scrum Master
- SW/ FW/ HW

**Scrum**
- Product Owner
- Scrum Master

**System Arch/Eng**
- *DoD/DoS*
- *Sys Team*
- Shared Services
- User Experience

**Product Mgmt**
- *DoD/DoS*
- *Sys Team*
- Scrum

**Business Owners**
- System Owners
- Enabler

**Release Any Time**
- Program Increment P Planning
- Iterations
- Develop on-Cadence

Provided by Scaled Agile, Inc.
Agile Software Development - *SAFe Core Values*

**Alignment**  
*Individuals and Interactions over processes and tools*

- Based on Enterprise Business Objectives at the Strategy level
- Clear lines of Content Authority
- Program Increment (PI) Objectives / Iteration Goals
- Cadence and Synchronization, Lean / Rolling-Wave prioritization

**Built-In Quality**  
*Working Software over comprehensive documentation*

- Every increment of the solution reflects quality standards
- Continuous attention to technical excellence and good design
- Test-Driven Development (TDD/ATDD), Behavior-Driven Development (BDD)

**Transparency**  
*Customer collaboration over contract negotiation*

- Enabler for Trust
- Portfolio/Program and Team Backlogs are open to all (Visibility)
- Inspect and Adapt; lessons learned are incorporated

**Program Execution**  
*Working Software over comprehensive documentation*

- Continuously deliver value
- Engaged Lean-Agile Leaders
- Focused on systemic approach and customer outcomes
Agile Software Development - SAFe Principles

#1   Take an economic view

#2   Apply systems thinking

#3   Assume variability; preserve options

#4   Build incrementally with fast, integrated learning cycles

#5   Base milestones on objective evaluation of working systems

#6   Visualize and limit WIP, reduce batch sizes and manage queue lengths

#7   Apply cadence, synchronize with cross-domain planning

#8   Unlock the intrinsic motivation of knowledge workers

#9   Decentralize decision making
Agile Architecture - Process Flow and Documents

- Product Vision Statement
- Operational Processes
- Logical Data Model
- Software Services
- Software Components
- Physical Data Model
- Software Platforms
- Hardware Infrastructure
- Use Cases
- Presentation Services
  - Foreground Tasks
  - Background Tasks
- Java, C#, SQL, APIs
- Windows, Linux, iOS, Android
- Architectural Runway
  - Non-Functional Requirements (SOA, Cloud, Mobile, Digital, IDEs, Repository)
- Risk Management Plan
- User Stories
- Architectural Vision Statement
- Test Cases/Scripts
- Test Plans
- 02/21/2017
Data Services
Customer, Product and Process control data accessed from the physical data model and platform specific technologies

Composite (Process) Services
Services request/receive data through APIs based on the logical data model

Broker (Presentation) Services
Device specific Software Services (end-user interaction) and Event Responders

Agile Architecture - Service Oriented Architecture (SOA)
Agile Architecture - Cloud Computing

- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)

+ Business Process and Technology Transformation to an Agile Model
+ Public, Private and Hybrid Clouds
+ Self-Service Provisioning, On-Demand Computing, Scalability
+ Operational Considerations: Performance, Security, Recoverability, Governance, Privacy and Protection
+ Economic goal - Reduced TCO (Total Cost of Ownership)
A key part of the Standish Group analysis over the last 21 years has been the identification and ranking of the factors which work together to make projects more successful. 2015 results show the following list and ranking of factors:

<table>
<thead>
<tr>
<th>FACTORS OF SUCCESS</th>
<th>POINTS</th>
<th>INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Sponsorship</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>Emotional Maturity</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>User Involvement</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>Optimization</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>Skilled Resources</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Standard Architecture</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Agile Process</td>
<td>7</td>
<td>7%</td>
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<tr>
<td>Modest Execution</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>Project Management Expertise</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Clear Business Objectives</td>
<td>4</td>
<td>4%</td>
</tr>
</tbody>
</table>
"It doesn’t make sense to hire smart people and then tell them what to do; we need to hire smart people so they can tell us what to do”

- Steve Jobs
EPMO identifies the EPICs for delivery and creates an initial launch (Scrum) team by assigning resources from the required functional **Centers of Excellence** (CoEs) in collaboration with the Senior Leadership team of CoE.

**Communities of Practice** (CoPs) within CoE’s define professional qualifications appropriate to the roles in the CoE and identify training needed to achieve them.

EPMO assesses the capabilities and capacity of existing Agile teams to handle current workflow and creates or reorganizes current teams as needed.
Agile Organization - Personnel Management

Culture - create an empathetic high-trust environment focused on the growth and retention of high value personnel

Promote collaboration and respect for individuals (both individual and team contributions are critical to success)

Distributed teams are a reality - make the investment in audio and video collaboration spaces and tools

Compensation based on performance, experience and professional qualifications (ideally with a lower fixed base salary, higher bonus)

Each individual contributes to the performance appraisal of their team members (peer evaluation, no longer written and edited by your boss)
Thank You

Q&A?
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Credits and Recommended Reading

The material in this presentation and the slides are original work, except as explicitly noted and accredited on specific detail slides. Much of this is drawn from my 35+ years practical experience in Software Development and Project and Program Management.

The work presented here is inspired in large part by the published work of numerous individuals (including most of the original signatories of the Agile Manifesto) some of whom I have met with personally and many I have not; and, of course, all those I have worked with over the years. I thank them all for their contributions to my personal intellectual capital and directly or indirectly to this presentation.

Some notable publications, not directly credited on specific slides, inspired or focused this work and are identified below:

Agile Software Requirements, Dean Leffingwell
Continuous Delivery, Jez Humble and David Farley
Lean Enterprise, Jez Humble, Joanne Molesky and Barry O’Reilly
Transforming IT Culture, Frank Wander
Kotter International - 8 Steps/Accelerate

Contact: EnterpriseAgileCoach1@gmail.com