SMM202
An Agile Approach to Learning Development

Adam Hadnott & Fabian Zender
The Boeing Company
An Agile Approach to Learning Development

Adam Hadnott – Sr. Learning Program Manager
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Boeing Behavior:
Reach higher, embrace change and learn from failure.
What’s the Problem?
Current State

# of Hours between airplane deliveries
For Commercial Airplanes

# of Days to Develop 1hr e-Learning
Average for internal group
Business Environment

**01 Volatility**
The external environment is unstable and presents challenges that are unexpected at great speed.

**02 Uncertainty**
Unprecedented trends in the external environment mean that long-term trajectories are more difficult to predict.

**03 Complexity**
The external environment has many interconnected parts that can be overwhelming and confounding.

**04 Ambiguity**
The external environment is hazy, with many unknown unknowns, and cause and effects are unclear.

CIPD & Towards Maturity, L&D Evolving roles, enhancing skills, 2015
What this requires of an L&D Organization

**AGILE**
Dynamic capability to change strategic direction and organizational competencies.

**AMBIDEXTROUS**
Able to concurrently exploit current capabilities and be explorative in breaking with the past and be ready for new trajectories of development.

**ADAPTIVE**
High levels of absorptive capacity. Attuned to external environment, awareness for the need and type of change.

CIPD & Towards Maturity, L&D Evolving roles, enhancing skills, 2015
Current Backlog
What work is in the hopper?

- **Planned**
  Work we planned for the fiscal year
  - 13%

- **Emergent**
  Work that is new and unplanned
  - 27%

- **Unknown**
  Work that is unplanned or we are unsure how it relates to the planned work
  - 59%
Ability to Respond to Partner Needs
Ability to meet Partner Goals

Days until Need by Date

Frequency

-150 -120 -90 -60 -30 0 30 60 90 120 150 More
Collaboration within Teams

![Bar Chart]

- Collaboration within Teams:
  - # of Active Projects
  - Team Member

- Bar Chart showing the number of active projects for each team member.
Current Learning Landscape
Learning @ Boeing in 2017
As recorded in the LMS

1. # of ILT's: 5,770
2. # of WBT's: 4,517
3. # of Curricula: 257
4. Hrs. of ILT: 1,873,688
5. Hrs. of WBT: 1,918,635
6. # Of Learners: 158,337
7. Avg. Hrs. / Learner: 23.95
Agile Fundamentals
We can’t solve problems by using the same kinds of thinking we used when we created them.

Albert Einstein
Agile Manifesto

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

2CES LEAP Agile Manifesto

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

Source: http://agilemanifesto.org/
Agile Values

- Practical Learning over a comprehensive set of courses
- Individuals and interactions over processes and tools
- Responding to change over following a plan
- Team collaboration over role separation
## 2CES LEAP Agile Principles

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<thead>
<tr>
<th>Number</th>
<th>Principle</th>
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<tbody>
<tr>
<td>1</td>
<td>Customer satisfaction through early and continuous <strong>learning</strong> delivery</td>
<td>2</td>
<td>Accommodate changing requirements throughout the development process</td>
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<td>3</td>
<td>Frequent delivery of <strong>functional learning objects</strong></td>
<td>4</td>
<td>Collaboration between the business stakeholders and <strong>development team</strong> throughout the project</td>
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<td>5</td>
<td>Support, trust, and motivate the people involved</td>
<td>6</td>
<td>Enable face to face interactions <strong>whenever possible, including virtual</strong></td>
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<td>7</td>
<td><strong>Practical learning</strong> is the primary measure of progress</td>
<td>8</td>
<td>Agile process to support a consistent development pace</td>
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<td>9</td>
<td>Attention to technical detail and design enhances agility</td>
<td>10</td>
<td>Simplicity <strong>where possible, complexity where required</strong></td>
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<td>11</td>
<td>Self organizing teams encourage great architectures, requirements, and design</td>
<td>12</td>
<td>Regular reflections on how to become more effective</td>
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Pilot Agile Project
Team Structure

Product Owner
Adam Hadnott
Fabian Zender

Scrum Team
The Boeing Company
Dassault Systemes
CDG
Siemens

Scrum Master
Cheryl Clark
Eric Ochieng
Deliverance Dockter
Pilot Details
BCA Engineering – Hybrid-Based Model Definition for 777x Program

- **# Tasks**: 113
- **# Objects**: 16
- **% Reuse**: 25%
- **Time to Market**: -75%

- Individual tasks aligned to all impacted job roles
- Learning object reuse across all impacted job roles
- Individual learning objects delivered for all impacted job roles
- Time savings in delivering valuable learning objects
Breaking Down the Work
How to deliver learning objects early and often

Principle #1 – Take an economic view

“Shortest sustainable lead time with best quality and value to people and society”

“Even a technically competent system may cost too much to develop”

“Time to deliver can incur operating costs that cannot economically support efficient value”

Source: http://www.scaledagileframework.com/
“Value is higher early on, producing higher margins over a longer period of time.”

“Products and services delivered to market early are typically more valuable.”

“Over time, features become commoditized.”

Source: http://www.scaledagileframework.com/
Pilot Outcomes

- **75%**
  Reduction in hours to update a course, $130,000

- **70%**
  Reduction in Time to Market with intermittent release possible.

- **25%**
  Reuse of Learning Objects across job roles for 777X.

- **26%**
  Reduction in hours to create new learning objects.
Key Focus Areas
FOUR PILLARS OF BUSINESS VALUE
Keys for Success

01 MINIMUM VIABLE PRODUCT
- Identifying what is truly needed to get things started

02 MINIMUM MARKETABLE FEATURE
- Identifying how individual elements can be packaged

03 PARTNER FEEDBACK
- Participation in sprint reviews every two weeks

04 PRODUCT OWNER
- Single source of truth and focus for the team
Cost of Delay

01. Time Savings
   Assume a 1 min time savings per day

02. Hourly Rate
   Wrapped rate including overhead

03. Delayed Project
   The number of projects past their need date

04. Audience Size
   A conservative estimate of 100 per course

05. Cost of Delay
   $51,000 per day for current past due work
Self Organizing Teams

**Multi-skilled** team that has all the knowledge and skills to do the work and make decisions.

**Trust** in the team to do great work and make good decisions based on available information.

**Purposeful team building** to create trust within the team and complimentary skills.

**Meaningful work** that aligns to customer priorities.
Scaling Agile
Scaled Agile Framework (SAFe)

Source: http://www.scaledagileframework.com/
SAFe Core Values

SAFe is based on both Lean and Agile principles

01 Alignment
“Alignment is needed to keep pace with fast change.”

02 Built in Quality
“Built-in Quality ensures every increment reflects quality standards.”

03 Transparency
“Transparency is an enabler of trust.”

04 Program Execution
“Continuously deliver value.”
Decentralize Decision-Making

SAFe Lean-Agile Principles

- Take an Economic View
- Apply Systems Thinking
- Assume Variability, Preserve Options
- Build Incrementally

- Base Milestones on Objective Evaluation
- Limit WIP
- Apply Cadence, Synchronize Planning
- Unlock Intrinsic Motivation

- Decentralize Decision-Making
Challenges
Leadership Challenges

What may be some common issues that could occur as you are looking to implement agile or SAFe?

01
Don’t expect everything to stay the same.

02
Have trust in the agile/SAFe implementation team and decentralize as many decisions as possible.

03
There will be different roles, requiring new skills.

04
Planning work enabling success takes time and commitment.

05
Support teams in failure and learning from it.
Mindset Shifts

Analysis
Minimum analysis to take next step in providing value

Backlog
Maximize the amount of work not done

Act
Act on good enough information or die in the details

Swarm
Sharpen and accelerate to provide value
Our strong culture helped us achieve success in our first 100 years, but going forward we must adopt new and better ways of working together to inspire even higher individual and team performance.

**TEAM**
The team comes before the individual

**DELIVERY**
Focus on continuous delivery of value

**ACTION**
Decisive action taken at the lowest possible level

**LEADERSHIP**
Opportunities for everybody to assume a leadership role