Software Development Methodologies

Lecturer: Raman Ramsin

Lecture 13

Agile Methodologies: DAD
DAD: Disciplined Agile Delivery

- DAD is an agile process framework with the following characteristics:
  - People first: Supports a tailorable, robust set of roles, rights, and responsibilities.
  - Learning-oriented: Based on the lessons learnt during projects.
  - Hybrid: Integrates great ideas from various methodologies.
  - Full delivery lifecycle: Covers the full delivery lifecycle.
  - Support for multiple lifecycles: Supports six lifecycles.
  - Complete: Fully covers development, modeling, architecture, management, requirements/outcomes, documentation, governance and other strategies.
  - Context-sensitive: Tailored to effectively address the project situation at hand.
  - Consumable solutions over working software: Potentially shippable software is a good start but we need consumable solutions that delight our customers.
  - Self-organization with appropriate governance: Self-organizing teams work in an enterprise-aware manner, governed appropriately by senior leadership.
Generic Agile Project Lifecycle (as seen in DAD)

[Ambler & Lines 2020]
Generic Agile Project Lifecycle: Phases

- DAD sees the generic agile project lifecycle as consisting of three phases:
  - Inception: We do just enough to get organized and go in the right direction.
    - The team will form itself, perform initial requirements/architecture exploration, initial planning, alignment with the organization, and securing funding.
    - This phase should be kept as simple and as short as possible; the average agile/lean team spends 11 work days in Inception activities.
  - Construction: The aim is to produce a consumable solution with sufficient functionality, a Minimal Marketable Release (MMR), to Stakeholders.
    - The team will work closely with Stakeholders to understand their needs, build a quality solution, get feedback regularly, and then act on that feedback.
    - The team will be performing analysis, design, programming, testing, and management activities potentially every single day.
  - Transition: The aim is to successfully release the solution into Production.
    - The average agile/lean team spends 6 to 8.5 work days on Transition activities.
**DAD: Process Goals**

**Inception**
- Get the team going in the right direction.

- Form Team
- Align with Enterprise Direction
- Explore Scope
- Identify Architecture Strategy
- Plan the Release
- Develop Test Strategy
- Develop Common Vision
- Secure Funding

**Construction**
- Incrementally build a consumable solution.

- Prove Architecture Early
- Address Changing Stakeholder Needs
- Produce a Potentially Consumable Solution
- Improve Quality
- Accelerate Value Delivery

**Transition**
- Release the solution into production.

- Ensure Production Readiness
- Deploy the Solution

**Ongoing**
- Improve and work in an enterprise aware manner.

- Grow Team Members
- Evolve WoW
- Coordinate Activities
- Leverage and Enhance Existing Infrastructure
- Address Risk
- Govern Delivery Team

[Ambler & Lines 2020]
DAD: Lifecycles

- DAD supports six lifecycles for teams to choose from:
  - **Agile**: Based on the Scrum lifecycle, teams following this project lifecycle will produce consumable solutions via short iterations (aka sprints or time boxes).
  - **Continuous Delivery - Agile**: Teams work in very short iterations, typically one week or less; at the end of each iteration, the solution is released into production.
  - **Lean**: Based on Kanban, teams visualize their work, reduce work in progress (WIP) to streamline their workflow, and pull work one item at a time.
  - **Continuous Delivery - Lean**: Teams release their work into production whenever possible, typically several times a day.
  - **Exploratory**: Teams explore a business idea by developing one or more Minimal Viable Products (MVPs), to determine what potential customers actually want.
  - **Program**: A program is effectively a large team that is organized into a team of teams.
DAD: Six Lifecycles

<table>
<thead>
<tr>
<th></th>
<th>Project Teams</th>
<th>Long-Standing Teams</th>
<th>Experimental</th>
</tr>
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<tbody>
<tr>
<td>Agile Single Team</td>
<td>Agile</td>
<td>Continuous Delivery: Agile</td>
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<tr>
<td>Lean Single Team</td>
<td>Lean</td>
<td>Continuous Delivery: Lean</td>
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<tr>
<td>Team of Teams</td>
<td>Program</td>
<td>Exploratory</td>
<td></td>
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[Ambler & Lines 2020]
DAD Lifecycles: Agile

- Identify, prioritize, and select projects
- Initial Vision and Funding
- Initial modeling, planning, and organization
- Roadmaps & Guidance
- Envision the future
- Initial Architectural Vision
- Initial Work Items
- Iteration Backlog
- Consumable Solution
- Change Requests
- Iteration wrap-up:
  - Demo to stakeholders
  - Go-forward decision
  - Evolve our WoW
- Daily Work
- Daily Coordination Meeting
- Funding, Feedback & Learnings

<table>
<thead>
<tr>
<th>Inception</th>
<th>Construction</th>
<th>Transition</th>
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</thead>
<tbody>
<tr>
<td>One or more short iterations</td>
<td>Many short iterations producing a potentially consumable solution each iteration</td>
<td>One or more short iterations</td>
</tr>
<tr>
<td>Stakeholder vision</td>
<td>Continued viability (several)</td>
<td>Production ready</td>
</tr>
<tr>
<td>Proven architecture</td>
<td>Sufficient functionality</td>
<td>Delighted stakeholders</td>
</tr>
</tbody>
</table>
DAD Lifecycles: Continuous Delivery – Agile

[Ambler & Lines 2020]
DAD Lifecycles: Lean

[Ambler & Lines 2020]
DAD Lifecycles: Continuous Delivery – Lean

[Ambler & Lines 2020] Sharif University of Technology
DAD Lifecycles: Exploratory (Lean Startup)
DAD Lifecycles: Program

[Ambler & Lines 2020]
DAD: Choosing Your WoW (Way of Working)

[Ambler & Lines 2020]
DAD: Evolving Lifecycles

- **Greater discipline**
  - Broader skills

- **New work arrives often**
  - Drop iterations and increase flexibility of work prioritization
  - Shorten iterations and release cycle

- **Reasonably stable work (for iteration)**
  - Continuous Delivery: Agile

- **Continuous releases**
  - Long-lived stable teams
  - Short feedback cycles
  - Automated regression testing

- **Infrequent releases**
  - Project teams
  - Long feedback cycles
  - Manual regression testing

- **Traditional**

- **Continuous Delivery: Lean**
  - Shorten release cycle

- **Drop iterations and increase flexibility of work prioritization**

[Ambler & Lines 2020]
DAD: Roles

[Ambler & Lines 2012]
DAD: Teams

- DAD teams are typically small-to-medium sized.
  - We consider teams of 15 people or fewer to be small, and teams between 10 and 40 people to be medium-sized.

- DAD teams are also typically collocated or near-located.
  - The definition of collocation is that everyone, including primary stakeholders, is in the same work room.
  - The definition for near-location is that everyone on the team is close enough that they could drive in to attend a coordination meeting.

- DAD’s advice is to reduce the project risk by keeping the teams as small and as geographically close as possible.
DAD: Structure of Small Teams

Small DAD Team

- Team Lead/Architecture Owner
- Team Members
- Product Owner

Supporting Cast

- Technical Expert(s)
- Domain Expert(s)
- Independent Tester

Produces

Consumable Solution

[Ambler & Lines 2012]
DAD: Structure of Medium-Sized Teams

[Ambler & Lines 2012]
DAD: Strengths and Weaknesses

**Strengths**

- Iterative-incremental process
- Based on modeling performed on the problem domain and the system
- Early specification of the physical architecture
- Flexible and configurable process framework
- Design-based development
- Special attention to enterprise issues
DAD: Strengths and Weaknesses

**Strengths (Contd.)**

- Based on careful planning and control
- Scalability addressed
- Early and frequent releases
- Smooth transition from stage to stage
- Active user involvement
DAD: Strengths and Weaknesses

- **Weaknesses**

  - No specific models are prescribed
  - Lack of formalism
References
