Aurora Turnaround & Agile Adoption

March 9, 2017

Presented By:
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Justine Winkelman, Project Manager & Scrum Master

Agenda

• Why Aurora?
• Aurora Project History
• Keys to Successful Turnaround
• Application of Scrum/Agile
• Success in Agile - Approach & Examples
Legacy System - ASPeRIN

- Manual Re-key
- PeopleSoft
- ASPeRIN
  - Lookup
  - Transactions
  - Position Mgmt
  - Salary Increase
  - Faculty Affairs
  - Authorization
  - Reporting

PeopleSoft Updates
Harvard Data Warehouse

Why Aurora?

- Approval Workflow
- Position Management
- Storage of non-PeopleSoft data
- Appointments vs. Job Records
- Access to Historical FAS data
Two Steps Forward...

- Contractors hired to augment Harvard staff
- Project plan and schedule created
- Recurring user group meetings scheduled
- System architecture and design underway
- Authorization module deployed to production
  - Contractors left the team when contracts expired
  - Team members required to play many project roles
  - Difficult to get consensus from diverse user group
- Small Edgewater technical team augments full-time staff
- Development processes stabilized
- Contract Scrum Master added to team
- Lookup module deployed to production
  - Requirements gathering stalled
  - T-shirt sizing estimate projected an 8 year timeline

One Step Back

- Contractors left the team when contracts expired
- Team members required to play many project roles
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Keys to Success - Governance & Vision

Fall 2014

Aurora Executive Committee

Architecture Steering Committee

Business Steering Committee

Project Leadership Team

Project Delivery Team

Business Working Group

FAS/HUIT Membership Group

HUIT Membership Group
Aurora Vision

Replace the FAS Personnel Information Network, ASPerIN, with a new system that facilitates staff and academic appointment processes while ensuring:

- Existing staff and academic processes continue to be supported after the ASPerIN decommission.
- The new system is user-friendly and supports staff and academic processes in a streamlined way.
- Modern software development technologies and infrastructure are used to produce a sustainable system.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Guiding Principles</th>
<th>Key Performance Indicators</th>
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<tbody>
<tr>
<td>1. Upgrade the system to use streamlined processes, updated business rules, PeopleSoft-focused data model, and an easier and more logical user interface within the allocated budget.</td>
<td>1. The primary goal is to replace ASPerIN. Implementation of new functionality will occur in subsequent releases, assuming prioritization from governance committees.</td>
<td>1. Stable cloud-hosted system(s) in place that successfully manage staff and academic transactions for FAS and SEAS with streamlined processes, updated business rules, accurate PeopleSoft-focused data, etc.</td>
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<td>2. Decommission the ASPerIN application and database, including migrating historical data and remediation of data dependencies on ASPerIN data across FAS applications.</td>
<td>2. Direct system integration will be maximized/optimized across Harvard systems, such as PeopleSoft, Campus Solutions, etc. Deliberate decisions will be made regarding functionality that is in PeopleSoft vs. Aurora.</td>
<td>2. Successful decommission of the ASPerIN application and database without affecting the ongoing performance of other FAS applications.</td>
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<td>3. Create a governance model to ensure adequate resource allocation and continued oversight aligned with the strategic priorities of FAS and HUIT leadership and business owners.</td>
<td>3. System architecture will promote the use of modules to ensure flexibility in managing the lifecycle of different types of functionality, ex. Annual Salary Increase Process (ASIP) module.</td>
<td>3. Governance committees in place and making decisions about resource allocation, application lifecycle planning, changes to the system, and new functionality.</td>
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<td>4. Migrate infrastructure to an off-premise cloud solution. (HUIT Strategic Goal)</td>
<td>4. Agile principles will be used to develop the application(s). Business users and HUIT will partner to complete requirements definition, prioritization, and testing. Functionality will be delivered in iterative releases.</td>
<td>4. Fewer customer support tickets and production bugs as compared to ASPerIN.</td>
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<td>5. Establish a change management program. Create training materials and online help tools. Roll out communication and ongoing training and support to enable a smooth transition of FAS and SEAS staff to Aurora.</td>
<td>5. HUIT will use modern technologies and best practices in software development, with a focus on building a sustainable system for FAS, SEAS, and HUIT.</td>
<td>5. Increased user satisfaction, fewer data errors and decreased action throughput time.</td>
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<td>6. The project will be managed to stay within the allocated budget.</td>
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<td>6. Project is completed within the allocated budget.</td>
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Keys to Success - Project Staffing

Fall 2014

Andrew Mackenzie
System Architect
(Edgewater)

Satya Satyavolu
Sr. Application Developer
(Edgewater)

Sr. Application Developer
(Edgewater)

Business Systems Analyst
(Edgewater)

Katherine MacRostie
Project Director

Greg Roy
Sr. QA Analyst

QA Analyst
Term TBH

Glenn Hichens
Data Analyst

Fall 2014

Gene Sorbo
Scrum Master
(Part-time Contract)

Stephen Karg
Sr. Application Architect

Vrushali Tole
Sr. Application Developer

Lillian Leong
Business Systems Analyst

Paige Duncan
Client Relations

Business Analyst
Term TBH

Teri TBH

Jean Pfeifer
Sr. Project Manager

Sr. Technical Architect

Sr. Product Manager
TBH

Teri TBH

David Faux

Teri TBH

Approved
Fall 2014

Approved
Spring 2015

Alan Rintoul
Lead Apex Developer

Teri TBH
Keys to Success - Product Management

• Formalized strategy of breaking project into modules using different technological skills & tools

• Switched from developing a single transaction for all employee types to developing all transactions to support a single employee type

• Added working groups to the governance structure focused on specific employee types/functionality

ASPerIN Migration to Aurora

Manual Re-key

PeopleSoft Updates

Harvard Data Warehouse

Manual Review of Reconciliation

ASPerIN

Lookup
Transactions
Position Mgmt
Salary Increase
Faculty Affairs
Authorization
Reporting

Aurora

Lookup, Transactions, Position Management
Salary Increase (ASIP)
Faculty Affairs (FROPS)
Authorization Manager (Alseta)
Reporting (Aurora Reporting)
Aurora Governance and Project Delivery Groups - 2017

- Executive Committee
- Business Steering Committee
- Change Management Committee
- Architecture Steering Committee
- Infrastructure Steering Committee/Working Group
- Project Leadership Team
- Project Delivery Team
- Searches Working Group (FROPS)
- Offers Working Group (FROPS)
- Business Working Group
- Staff & Position Management Working Group

Keys to Success - PeopleSoft Partnership
Application of Scrum Framework

• Process & Controls:
  – 3 Week Sprints
  – Deploy “done” increments of work to production after each Sprint
  – Track and evaluate team velocity - rolling 3 Sprint average
  – Adhere to Sprint Ceremonies & Backlog Refinement
  – Transparency, Adaptation & Inspection

• Product Focus:
  – Minimally Viable Product
  – Deliver highest value
  – Engage stakeholders
  – Encourage growth through calculated risk
  – Innovate where possible
  – Never done advancing & improving

The Transactions Team

• The team is upper limit for scrum, but appropriate and functional
  – 5 DEV + 2.5 QA + 2 BAs (9.5 Dev team)
  – 1 Product Owner
  – 1 Scrum Master

• The team seeks consent, rather than consensus

• Agile team, not just Agile development

• Co-located team

• Dedicated team resources on project

• Clear Scrum role ownership - members’ multiple roles require clarification
Application of Scrum/Agile Concepts

- Rigorous adherence to key Agile/Scrum tenants and ceremonies
- Not always Scrum purists, but always growing toward ideal
- Prioritize improvement in most valuable and achievable areas
- Use data to
  - Inform product decisions
  - Manage release planning, inform project health
- Leverage Scrum Values to guide team through challenges
  - Courage
  - Focus
  - Commitment
  - Respect
  - Openness

“Scrum values are the lifeblood of scrum” - Ken Schwaber, co-creator of Scrum and co-author of the official Scrum Guide.

Coaching, Training & Team Building

- Professional development encouraged
- Aurora coach creates materials, provides ongoing training sessions for the team & stakeholders
- Aurora team member coaching (on-demand)
Sprint-over-Sprint Measurements

- At regular inspection points:
  - Track progress
  - Assess metrics & analyze trends
  - Determine & consent to time-boxed actions as a team
  - Execute based on data and additional inputs

![Integration Tests Coverage and Overall Coverage](image)

![Velocity by Sprint](image)

Burnup & Agile Release Planning:

Must & Should Haves

<table>
<thead>
<tr>
<th>Sprint</th>
<th>Sprint 94</th>
<th>Sprint 95</th>
<th>Sprint 96</th>
<th>Sprint 97</th>
<th>Sprint 98</th>
<th>Sprint 99</th>
<th>Sprint 100</th>
<th>Sprint 101</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>9/27/17</td>
<td>10/18/17</td>
<td>11/8/17</td>
<td>11/29/17</td>
<td>12/20/17</td>
<td>1/10/18</td>
<td>1/31/18</td>
<td>2/21/18</td>
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<td>3/14/18</td>
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- 25% technical buffer has been applied to non-committed work.
- 2 additional stabilization sprints beyond feature completion are strongly recommended.
- This Burnup depicts the next major release will hit Feature Freeze near Sprint 94 and be ready for production after Sprint 96.
Effective Use of Spikes & Prototyping

Spikes & Prototyping provide the team with clarity in uncertain conditions:
- Best implementation approach is unclear
- Work too uncertain, and maybe too large, to accurately estimate

Time-boxed investments have allowed the team to remove uncertainty by carving off small, sprint-bound work:

1) Aurora Reporting Spike
   *What can be done using Apex?*

2) Product Style Guide Spike
   *How much effort will minor look and feel changes take?*

3) Snapshotting Actions spike
   *What will it ‘cost’ to snapshot all action information?*

Inspect, Adapt & Improve - Past 12 Months

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<tr>
<th>Challenge</th>
<th>Action Taken</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Dev Team requested reconfiguration of stories and scope of requirements - triggering rework for BAs.</td>
<td>Added weekly Preliminary Grooming meeting (half hour)</td>
<td>Dev team input upstream minimized time reworking tickets and requirements immediately.</td>
</tr>
<tr>
<td>Sprint Planning was lengthy, some team members seemed unfamiliar with stories when committing work.</td>
<td>Added weekly Full Team Grooming (1 hour)</td>
<td>Improved backlog health and transparency - full Dev team has say in size estimates.</td>
</tr>
<tr>
<td>Managing business requirements effectively for full team.</td>
<td>Moved full requirements to ONLY Confluence, synopsis with link to details from JIRA ticket. (Several iterations)</td>
<td>The team has easy and consistent access to the appropriate level of requirements in each tool.</td>
</tr>
<tr>
<td>Addressing ambiguity around expectations of team members during meetings; uneven meeting etiquette expectations.</td>
<td>Team collaborated to craft our Working Team Meeting Agreement. (Reviewed Quarterly)</td>
<td>More productive, punctual meetings.</td>
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</tbody>
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