AGILE DATA ARCHITECTURE

CHEAPER, FASTER, BETTER

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TODAY’S AGENDA

• Agile MDM (Start with the end in mind)
• Introduce Agile Data Architecture
  • Gather (Understanding)
  • Evolve (Structure)
  • Consume (Implement)

AGILE DATA ARCHITECTURE

• Context: Joint Agile Development (JAD) approach
  • Identify Agile Manifesto application for data
  • Demonstrate JAD sprint pre-zero techniques
  • Make Agile Data work in your environment
• Session: Agile Data Architecture in three phases
  • Gather
  • Evolve
  • Consume
SPRINTS: AGILE vs. JAD

- **Agile**
  - Full time co-location
  - 2-3 week sprints
  - Parallel work efforts
  - Backlog

- **JAD**
  - Periodic co-location
  - 2-3 day biweekly sprints
  - Singular work effort
  - Backlog

ELEMENTS OF JOINT AGILE DATA

- No parallel work streams
- Group-developed, consensual work products
- Session specific roles
- Facilitated, instrumented & structured

GROUP DEVELOPED

- Image of group-developed work
INTELLECTUALLY MANAGEABLE

CONSENSUS

FACILITATED
FACILITATOR

GROUND RULES
- Community Screen
- Single Group Conversation
- Stand Up, Move Around

SESSION WORK
- Making Lists
- Analyzing
- Agile for Data
GATHER

- Agile values
- Agile principles
- Business ownership
- Assess current situation
- Case Study
AGILE PRINCIPLES

• Joint Agile Developed (JAD)
  The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

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

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

  "Principles behind the Agile Manifesto", http://agilemanifesto.org/principles.html

PEOPLE - PROCESS - TECHNOLOGY

BUSINESS OWNERSHIP

• Executive Sponsorship

• Subject Matter Experts
  Empowered to make decisions on behalf of Business Unit/Area
  Key business resource, go-to person
  NOT local tech guru

ANALYTIC FOCUS

HOW IT FIRST LOOKS

Physical

The only perspective that is initially visible/obvious

Facts of Implementation
The way we actually build or do the thing we are studying
ANALYTIC FOCUS
THE CHANGEABLE LAYER

- Logical
  - Facts of Policy
    - Optional guidance or rules that enhance or restrict the thing we are studying.
  - Facts of Implementation
    - The way we actually build or do the thing we are studying.

ANALYTIC FOCUS
THE DURABLE UNDERSTANDING

- Essential
  - Physical
  - Facts of Life
    - The bare minimum required to have one of whatever you are studying.
  - Facts of Policy
    - Optional guidance or rules that enhance or restrict the thing we are studying.
  - Facts of Implementation
    - The way we actually build or do the thing we are studying.

ANALYTIC FOCUS
AN EXAMPLE

- Essential
  - Physical
  - Facts of Life
    - “Without a ball, a bat and some players, you can’t play baseball.”
  - Facts of Policy
    - “We only allow aluminum bats.”
  - Facts of Implementation
    - “We only play baseball on regulation fields in official uniforms.”
RETAIL INDUSTRY
• Mission: Enterprise Conceptual Data Model (ECDM)
  • Executive commitment and resource availability
  • Monthly sprints for three months
• Results: Enterprise Data Model published in fourth month
  • Subject area effort consumed ECDM during month two
  • Reduced planned project time aligned with new enterprise data strategy
• Fired up participants who initiated efforts for the next Agile JAD topics

HEALTH INDUSTRY
• Mission: Claim definition & Data Model
  • Executive “tolerance” and minimal resource availability
  • Sporadic mini-sprints for three months
• Results: Effort cancelled after three months
  • Against all odds, Claim definition was nearly completed
  • Gathering the group ultimately failed as other initiatives demanded their attention

EVOLVE
• Agile values
• Agile principles
• Codify future
• Verify past
• Define bridge
• Case Study
AGILE PRINCIPLES

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

- Patterns, Simplicity
  Simplicity—the art of maximizing the amount of work not done—a essential

- Continuous Improvement
  At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.
**PEOPLE • PROCESS • TECHNOLOGY**

**CODIFY FUTURE**

- Motivation = Trust + Empowerment
- Sustainable Patterns
- Future proof; support strategy over operations
- Remain technology agnostic (for now…)
- Start/continue your Product Backlog

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**FIVE DOMAINS FOR ANALYSIS**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How</strong></td>
<td>How does stuff happen?</td>
</tr>
<tr>
<td><strong>When</strong></td>
<td>When does it happen and what starts and stops it?</td>
</tr>
<tr>
<td><strong>What</strong></td>
<td>What are the things and ideas we care about?</td>
</tr>
<tr>
<td><strong>Who</strong></td>
<td>Who supplies, receives or is involved in what we are studying?</td>
</tr>
<tr>
<td><strong>Where</strong></td>
<td>Where does it all happen?</td>
</tr>
</tbody>
</table>

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**…FOR INFORMATION ANALYSIS**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process</strong></td>
<td>What data supports, enables and documents this Process?</td>
</tr>
<tr>
<td><strong>Event</strong></td>
<td>What data identifies the lifecycle of Events, its triggers and statuses?</td>
</tr>
<tr>
<td><strong>Data</strong></td>
<td>What data do we need to understand and document this?</td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>What do we need to know about the People and Organizations involved?</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>How will Locations affect our analysis?</td>
</tr>
</tbody>
</table>
CODIFY (or CREATE) FUTURE

- Focus on To-Be state analysis
- System/technology-independent perspective
- Embed "What if..." scenarios
- Unless you are a one-person shop, write it down!
  - (If it isn't written down, it never happened…)

FOR ARCHITECTURE

- What Processes act on the Data? What do they need to begin? What do they produce at the end?
- What Events trigger the Processes that act on the Data? How do we know what state the Process is in?
- How will the People and Locations affect our analysis?

FOR ENGINEERING

- Data flow diagramming
- Event Modeling
- Data modeling
- Other models, as needed
VERIFY & SILENCE PAST

- Current state reflection
- Don't build a future that breaks the past...
- Save to your Product Backlog
- Current or future gaps
- Once it is in the Product Backlog, move on

EVOLVE CASE STUDIES

GOV'T AGENCY

- Mission: Re-architect information infrastructure
  - Executive support, dedicated funding, dedicated resources
  - Bi-weekly sprint cadence over two 6-9 month cycles
- Results: Enterprise information framework re-architected
  - Two divisions merged as a result of early JAD Sprints
  - Divisional applications based on new architecture rolled out
- New agency commissioner pulled the plug abandoning the effort
GOVT AGENCY

• Mission: Integrate Agile Data Architecture approach in MIS Bureau
• Executive support, dedicated funding, dedicated resources
• Department by department approach
• Results: Well established across agency
• Multiple efforts successfully completed
• Not all efforts use Agile Data approach, it is applied sparingly

CONSUME

• Agile values
• Agile principles
• Select subject area/domain
• Consume for reuse, refine & redeploy
• Consume for COTS/Cloud solutions
• Consume for institutional knowledge alignment
• Case study

AGILE VALUES - ALL

• Individuals and interaction over process and tools
• Working data over comprehensive documentation
• Customer collaboration over contract negotiation
• Responding to change over following a plan
AGILE PRINCIPLES

• Continuous Delivery
  Deliver working software frequently from a couple of weeks to a couple of months, with a preference to the shorter timescale*

• Working Data = Measure
  Working software is the primary measure of progress

• Welcoming Change
  Welcome changing requirements, even late in development. Agile processes harness change for the customer’s competitive advantage

*“Principles behind the Agile Manifesto”, http://agilemanifesto.org/principles.html

PEOPLE - PROCESS - TECHNOLOGY

BUSINESS IMPACT

• Select impact strategy/domain/discipline, etc.
• Market updated models and metadata
• Measure artifact use, get feedback and adjust
• Welcome change, you’ll get invited back
• Engage Business, engage IT - show up with models

BUILD - BUY - CLOUD

• Information Model
  • Table of Contents
• Data Dictionary
  • Agreed upon Meaning and Structure (how WE think of this)
• Concordance (Where Used) Model
  • Data Context - what touches/integrates with what?
INSTITUTIONAL KNOWLEDGE

- Business process/activity
  - How data is created, read, updated, deleted
- Data in motion, data at rest
  - Why does it move, where is it stored
- Data integration
  - Where does it move, when is it needed

BUSINESS PREDICTIVE

- Event analysis
  - What triggers change
- Key business state transitions
  - What states can the data be in
- Exception (Business) Intelligence
  - When and how should, or did, it change

CONSUME CASE STUDIES
CHEMICAL INDUSTRY

• Mission: Emergency plant notification system
  • Management support, stalled multi-year effort, restarted
  • Business focused JAD without big budget, tech-driven video & fiber to desktop, etc. ‘requirements’
  • Three requirements remained:
    • What happened? Where did it happen? Who should head to the scene?
• Results: Text-based solution in production in two months, staff cost only
  • Still in production 12+ years and counting

FINANCIAL INDUSTRY

• Mission: Establish Enterprise Data Model
  • Upper management support, contract data architects
  • Primarily driven as an IT effort, managers’ bonuses tied to tactical solution delivery
• Results: Resources redirected to tactical initiative
  • Enterprise effort abandoned
  • Contract data architects left to pursue other opportunities

AGILE DA CONTEXT

• Agile Manifesto in Data Architecture Context
  • Agile values
  • Agile principles
  • JAD sprint pre-zero
  • JAD - singular work effort
  • Agile - parallel work efforts
AGILE DA SESSION

• Gather
  • Focus on Facts of Life, prepare for change
• Evolve
  • Focus on perspectives, model the future, bridge to the past
• Consume
  • Drive business impact, with your Agile Data Architecture!

QUESTIONS?

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