Large Scale Agile Transformation @ Danske Bank

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Innovate 2013
Application Development and Systems Engineering

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Case Study: Danske Bank
A large-scale distributed Agile improvement effort

Danske Bank IT Group
2000+ developers
6 business units
Global SW Dev Teams (20% India and increasing)

DKK 59 billion income
DKK 29 billion cost

4.5 m personal and 350,000 business customers

22,000 employees

How Agile at Danske Bank helps deliver their improvement strategy

Scope
Projects (50%)
System management areas (90%)

Flexible development model & organisation
Adding another lifecycle, providing approach for system management

Efficiency
Productivity increase 10%

Time-to-market
Produce potentially shippable products after each increment

Quality
Frequent user and acceptance test

Customer and employee satisfaction
Ability to change scope and plans, motivated development team

“We intend to enhance the efficiency of our IT development process by 10% and reduce the time to market from approximately 14 months to an average of nine months. The first business deliveries will even be provided in the course of just four months.”

PETER RASMUSSEN, SENIOR VICE PRESIDENT
IT DEVELOPMENT PROCESSES & TOOLS, DANSE BANK
To shorten delivery .... Improved collaboration is essential
Kotter 8-step framework

1. Establish a Sense of Urgency
2. Create the Guiding Coalition
3. Develop a Vision and Strategy
4. Communicate the Change Vision
5. Empower Employees for Broad-Based Action
6. Generate Short-Term Wins
7. Consolidate Gains and Producing More Change
8. Anchor New Approaches on the Culture
Consider All Elements of a Development “Ecosystem”

Technology focus

Method
Roles, work products, tasks, processes, standards, guidelines

Tools
Development tools & their integrations

Infrastructure
Locations, nodes & connectivity

Enablement
Training curriculum & courses

Organization
Organizational roles & units

Adoption
Adoption plan, organizational change, metrics

Cross-cutting Concerns
Functionality, qualities, constraints

People focus

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Create a Center of Excellence

1. Create the guiding coalition
2. Create a Center of Excellence

- Center of Excellence
  - Creates & Maintains Development Environment
- Development Project
  - Creates & Maintains Software-Intensive System

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Create a Center of Excellence

#2 Create the guiding coalition

#3 Develop a vision and strategy

* "Network of agile practitioners"
Best Practice - Adopt Capabilities Incrementally

- “Deliver in waves, produce in streams”
  - Organize as a sequence of waves of change
Agenda

1. Introduction
2. Approach
3. Key Enablers
   - Method
   - Lifecycle Selection Framework
   - Tools
   - Metrics
   - Enablement
4. Results
5. Summary
Practice summary

<table>
<thead>
<tr>
<th>Traditional</th>
<th>Iterative</th>
<th>Agile</th>
<th>Disciplined Agile</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Multiple Views</td>
<td>• Iterative Development</td>
<td>• Test-Driven Development</td>
<td>• Measured Performance</td>
</tr>
<tr>
<td>• Quality Attribute-Driven Development</td>
<td>• Risk-Value Lifecycle</td>
<td>• Continuous Integration</td>
<td>• Formal Change Management</td>
</tr>
<tr>
<td>• Component-Based Development</td>
<td>• Shared Vision</td>
<td>• Refactoring</td>
<td>• Concurrent Testing</td>
</tr>
<tr>
<td>• Asset Reuse</td>
<td>• Use Case-Driven Development</td>
<td>• Whole Team</td>
<td></td>
</tr>
<tr>
<td>• Decision Capture</td>
<td>• Release Planning</td>
<td>• User Story-Driven Development</td>
<td></td>
</tr>
<tr>
<td>• Architecture Proving</td>
<td></td>
<td>• Team Change Management</td>
<td></td>
</tr>
</tbody>
</table>
Practices by priority

- **Foundation**
  - Iterative Development
  - Two-Level Planning
  - Team Change Management
  - Shared Vision
  - Continuous Integration
  - Whole Team

- **High**
  - Risk-Value Lifecycle
  - Test-driven development
  - Use case-driven development

- **Medium**
  - Evolutionary Architecture
  - Concurrent Testing

- **Low**
  - Business Process Sketching
  - Evolutionary Design

- **Ultra Low**
  - Process authoring and Tailoring
  - Requirements Management
  - Formal Change Management
  - Component Based Software Architecture
  - Design Driven Implementation
  - Test Management
  - Independent Testing
  - Application Vulnerability Assessment
  - Performance Testing
Method = Agile framework + Practices + Enterprise Processes

**Framework**
- Scrum

**Practices**
- Iterative development
- Two-level planning
- Team change management
- Shared vision
- Continuous integration
- Whole Team

**Enterprise processes**
- Idea qualification
- IT governance
- Enterprise architecture
- System portfolio management
- Organizational process
- Competency development
Basic agile (Scrum). The text book version....
...is not aligned with the realities seen in Danske Bank, since...
Seeding the product backlog
The "Understand loop"

- **Sprint planning**
  - Select work items for sprint from product backlog and identify tasks

- **Product backlog**
  - (work items)

- **Sprint backlog**
  - (tasks)

- **Sprint**
  - Daily stand-up meeting
  - Independent test and/or review

- **Develop**
  - Demo

- **Retrospective**
  - Feedback, funding
  - Release and implementation

Every 3-4 months

Results from analysis tasks and unfinished items from sprint backlog (e.g., defects)
The "Release backlog"

Understand Sprint planning
Select work items for sprint from product backlog and identify tasks

Product backlog (work items)

Sprint planning
Select work item for sprint from product backlog and identify tasks

Release backlog (tasks)

Sprint

Understand

Ready

Develop

Demo

Done

Independent test and/or review

Daily stand-up meeting

Feedback, funding

Results from analysis tasks and unfinished items from sprint backlog (e.g., defects)

Release and implementation

Every 3-4 months
"Subcontracting"

Understand Sprint planning
- Select work items for sprint from product backlog and identify tasks

Product backlog (work items)
- Work item sourced to subcontractor

Release backlog (work items)
- Results from sourced work item from subcontractor

Sprint
- Daily stand-up meeting
- Independent test and/or review

Understand

Ready

Develop
- Results from analysis tasks and unfinished items from sprint backlog (e.g., defects)

Demo
- Feedback, funding

Retrospective
- Every 3-4 months

Release and implementation

Results from analysis tasks and unfinished items from sprint backlog (e.g., defects)
"Prepare for implementation"
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Lifecycle selection framework (summary)

- **Management Influences**
  - Business Flexibility
  - Empowered Teams

- **Stakeholder Influences**
  - Acceptance of Agile
  - Number of Stakeholders
  - Stakeholder Responsiveness

- **Project Team Influences**
  - Team Skills
  - Embracing Change
  - Co-located Teams
  - Team Stability
  - Team Roles
  - Agile Disciplines

- **Technology Influences**
  - Development Environment
  - Execution Environment

- **Solution Influences**
  - Requirements Churn
  - Solution Complexity
  - Time-To-Market
  - Dependencies
  - Release Frequency
  - Demonstrability

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Brief Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Management Influences</td>
<td>2.0</td>
</tr>
<tr>
<td>Stakeholder</td>
<td>Stakeholder Influences</td>
<td>4.1</td>
</tr>
<tr>
<td>Project Team</td>
<td>Project Team Influences</td>
<td>3.3</td>
</tr>
<tr>
<td>Technology</td>
<td>Technology Influences</td>
<td>3.0</td>
</tr>
<tr>
<td>Solution</td>
<td>Solution Influences</td>
<td>3.0</td>
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15.4 out of a total of 25 pts in favour of an agile (rather than a traditional) approach (61.6%)
Agenda

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Tools
- Method
- Lifecycle Selection Framework
- Metrics
- Enablement

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Do I need a tool?

- Easier to manager backlogs
- Transparency outside the team room when team is distributed
- “Multiple teams” increases complexity and requires cross team visibility
- Data gathering and reporting
- Integration of test management tool
- Integration of development tools
- Aligning across geographies
Do I need a tool?
Rational Team Concert customized to Danske Bank needs

**Work item types**
- Requirement
- Story
- Impediment
- Retrospective
- Defect
- Finding
- PED
- Risk
- SMBD
- Solution element
- Supplier agreement
- Task

**Plan layout**

**Workflows and permissions**

**Project dashboard**
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<th>Agile-related</th>
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<td>- Time spent from project initiation to delivery of first increment</td>
<td>- Sprint velocity</td>
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<td>- Blocking work items</td>
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<td><strong>Quality</strong></td>
<td>- Defects (severity 1 and 2) in production per 100 FPs</td>
<td>- Defect trend</td>
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<td>- Process maturity level</td>
<td>- Adoption of agile practices</td>
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<td><strong>Productivity</strong></td>
<td>- Function points per man year</td>
<td>- Sprint burndown chart</td>
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<td>- Release burndown chart</td>
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### Objectives
A sprint burndown chart allows the progress of the sprint to be measured.

### Baseline Metric
Slope of the chart. The number of remaining units (such as work items or hours) is shown on the Y-axis, together with the number of planned units, and time is shown on the X-axis. Ideally, the trend of remaining units should go down as time progresses.

### Unit
Chart slope.

### Responsibility
Project Manager

### When to Measure
During project execution.

### Manual/Automated
Automated in Rational Team Concert.

### Data Repository
Available in Rational Team Concert.

### Project Calculation
- Number of planned units during time I for the sprint.
- Number of actioned units during time I for the sprint.

### Example
See over for chart.

### Target
A trend of a decreasing number of remaining units over time.
Sprint burndown example

![Burndown Chart]

- Remaining Work
- Planned Work

16/08/10 to 13/09/10
## Automation

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<th>Manual</th>
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“Gates” and “trains” to ensure successful deployment
Agile project team enablement

**Commitment phase**
- **2 weeks** (SM, BD, SA as primary)
  - Start-up and commitment
  - Training of warm-up resources
  - Business start-up
  - Agile environment
  - 'Real agile' kick-off

**Adoption phase**
- **4 weeks**
  - Agile Readiness Checklist
  - Agile Maturity Checklist
  - Gaps → Action plan
  - Outstanding issues from readiness checklist
  - Outstanding issues from maturity checklist

**Anchoring phase**
- **8 weeks**
  - On-going agile
  - Coaching
  - Support
  - Feedback through PIP
  - Recommitment meetings

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**Preparation**
- DM v.3.0 upgrade training
- Project charter approval

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**Agile Readiness Checklist**
- Commitment meeting
- Coach allocation
- Agile implementation plan
- Introduction to agile - wave 1
- Committed training plan
- Tools and method - wave 1
- DCI agreements
- Scrum master start-up
- Management orientation
- Project manager start-up
- Off-shore DCI enablement*

**Agile Maturity Checklist**
- Product owner training
- PSG start-up
- Business and product owner start-up
- Product owner agreement
- User stories and story points
- Establish initial backlog
- Backlog review
- Establish dashboard
- Tailoring for projects
- Introduction to agile – wave 2
- Tools and method – wave 2

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**Gaps → Action plan**

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The Journey

- 8 pilots done
- 250 people
- 15 FTE (coaches)
- 4 FTE (Tool Experts)

- 1000 people (80/month)
- 15 FTE (coaches)
- 8 FTE (Tool Experts)
  - Requirements Management
  - Collaborative Architect Management

- Agile is BAU
- Exploring Lean principles
- No more process coaching
- 2 FTE (Tool Experts)
  - DevOps

- 15 FTE (coaches)
- Experimenting with Scrumban
- 2 FTE (Tool Experts)
  - Focus on DevOps
  - Strategic Planning
The results so far

- Increased productivity through reduced F2F meetings
- Improved accuracy of status information in less time
- Less volatility in the change profile
- Improved predictability of delivery through agile planning
- Reduced requirement/design volatility through use of small incremental sprints
- Increased productivity through reduced F2F meetings
- Improved accuracy of status information in less time
- Higher quality through use of agile techniques such as test driven development and continuous integration. Reduced defect density
- Rebalancing of onshore:offshore ratios – dramatically reducing cost
- Time to market reduced from 420 days in 2009 to 132 days in 2010
- Average pre-analysis period reduced from 204 to 84 days

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The results so far

The results – so far

- **Average IQ Length**
  - 2009: 420
  - 2010: 132
  - 2011: 84
  - 2012: 3

- **Average Pre analysis length**
  - 2009: 204
  - 2010: 84
  - 2011: 50
  - 2012: 3

- **Average time to market**
  - 2009: 1.99
  - 2010: 2.5

- **Average CMMI Level-3 Score**
  - 2009: 3
  - 2010: 2.5
  - 2011: 2.0
  - 2012: 1.5
Summary

- The general approach is broadly applicable
  - Embracing principles of organizational change
  - Comprehensive consideration of a development environment
  - Coordinating and accelerating adoption via a Center of Excellence
  - Adopting capabilities incrementally
  - Coaching is essential to transform people’s behaviour
  - Tooling facilitates common behaviour

- Tangible (reusable) assets
  - Practice definitions
  - Lifecycle selection framework
  - Metric definitions
Questions
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