Confronting Chaos:
Lessons Learned While Managing Enterprise Integration Projects

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Once upon a time....

There was a company which did all of its bookkeeping by hand...
The Company Grew....

So the CFO got a General Ledger System to help the over worked bookkeepers!

And finally a billing system to collect funds more quickly.

And then a payroll system.
Seeing how great this was....

The COO got an inventory management system!

And supply chain management system!

billing system

payroll system
Now Data Was a Strategic Asset....

Sales added a Customer Relationship Management System!

And eCommerce

General Ledger

payroll system

supply chain management

billing system
Because Everyone Wanted to Know

The CIO added Business Intelligence

- payroll system
- billing system
- supply chain management
- eCommerce
- General Ledger
Each system was fine by itself....
But sharing data between systems was a constant headache!

- Business Intelligence
- payroll system
- General Ledger
- eCommerce
- supply chain management
- billing system
The CTO had the Answer....

Using just one interface, each system sends their data to the bus.

Each interface standardizes data into a common form and format.

The bus publishes data to the systems that need it.
And Life Became Simple....

- Reduce waste across the organization by getting rid of bad data
- Increase Customer Satisfaction
- Recognize strategic risks and opportunities
- Align inventory and production with sales
- Control the business with real time dashboards
- Rapidly adopt new lines of business
- Reduce waste across the organization by getting rid of bad data
That’s the Theory….The REALITY IS:

- 2 out of 3 Enterprise Integration Projects never reach implementation
  - Abandonment is the most common cause
    - Sponsors Lose Patience or Interest
      - Lots of money spent
      - Few tangible benefits
    - Business Conditions Change
      - Need to conserve capital
      - Other investments are now favored
  - Organization Change Makes the Strategy Less Relevant
    - Mergers and Acquisitions
    - Spin offs
- Other failure factors
  - Technology Strategy Change
  - Project is late and over budget
  - Resistance and lack of cooperation across the enterprise
A Roadmap for Success....

Set the stage for effective change

Don’t Boil The Ocean

Build Incrementally & Continuously

Communicate, Communicate, Communicate.
Toto, I've got a feeling we're not in Kansas any more...

Dorothy, in the “Wizard of Oz”
Setting The Stage for Change

An EL Project is Different From Other IT Projects:

- Has stakeholders from across the organization - multiple locations, multiple work cultures and sometimes different languages and laws
- Typically involves new technologies
- Poses data security risks
- Requires specialized domain expertise that the organization doesn’t have
- Involves new processes such as Data Governance and Data Life Cycle Management
- Requires a big upfront cost to yield big savings long term
- Likely to be 1 - 2 years before there is a realized benefit
It’s about Business Change – Not Technology

- Stakeholders across the organization are asked to:
  - Agree to share data and adopt common data standards
  - Change their processes and adopt new ways to do things.
  - Accept new responsibilities and constraints that provide no direct benefit to them
  - Cede control, budget and headcount to the Enterprise Integration Group
  - Change their technology plans and conform to new standards
  - Learn new ways of doing things and drop old familiar ways
### Setting the Stage for Effective Change

<table>
<thead>
<tr>
<th>Step</th>
<th>Task Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Create Urgency (Burning Platform)</td>
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<td>2</td>
<td>Form a guiding coalition</td>
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<td>3</td>
<td>Develop a change Vision</td>
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<td>4</td>
<td>Get Buy in for the Vision</td>
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<td>5</td>
<td>Empower Action</td>
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<td>6</td>
<td>Short Term Wins</td>
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<td>7</td>
<td>Keep Going</td>
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<tr>
<td>8</td>
<td>Make it Stick</td>
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*John Kotter *Leading Change*
The Project Managers View of the Change Process

1. Build a Compelling Business Case
2. Engage a Strong Steering Committee
3. Define Clear Business Objectives
4. Engage Stakeholders – Address Their Concerns
5. Provide Clear Direction
6. Find and Harvest Low Hanging Fruit
7. Build a Sustainable Project Organization
8. Ensure Adoption
Project Initiation for an Enterprise Change Initiatives

- **Inception**
  - Initial Business Case
  - Steering Committee

- **Exploration**
  - Business Objectives
  - Alternative Approaches

- **Definition**
  - Pilot Projects
  - Feasibility Studies
  - Stakeholder Engagement

- **Launch**
  - Refine Objectives
  - Final Business Case
  - Project Charter
  - RACI Chart
If you don’t know where you are going, any road will get you there...

Lewis Carrol
If you think this is where you are going....

Think Again!
You’ve promised this to management....

- Reduce waste across the organization by getting rid of bad data
- Increase Customer Satisfaction
- Control the business with real time dashboards
- Recognize strategic risks and opportunities
- Align inventory and production with sales
- Rapidly adopt new lines of business
- Enterprise Bus
But this is what you are building...

- Legacy Application
- Data Governance
- Operational Data Store
- Master Data Repository
- But this is what you are building...
You are Implementing a Process, not a Product / System

**Data Management**
- Data Stewardship / Integrity Rules
- Contracts for Data Suppliers & Consumers
- Data Management / Integrity Tools
- Reference Data and Enrichment

**Enabling Technology**
- Integration Infrastructure
- Support Services
- Development Services

**Implementation Support**
- Methodology
- Training & Mentoring
- Testing
- Production Support
Plans are worthless. But planning is everything.

Dwight D. Eisenhower
Traditional Project Planning Doesn’t Work for EI Projects

**Schedule Variance**
- Application experts don’t know the tools
- Tools Experts don’t know the application/data
- Known Unknowns & Unknown Unknowns

**Failed Integrations**
- Integration testing uncovers major bugs that require extensive rework
- Many components to integrate – source management challenges

**Testing Delays**
- Many Variables / Extensive Problem Determination
- Multi-step processes need to be debugged on step at a time

**Delayed Implementations**
- Limited time for rehearsals
- Operational Readiness is handled at the end of the project
Pure Agile Isn’t Much Better...

Communication Challenges
- Dispersed Teams
- Diverse Technical and Business Skills
- Known Unknowns & Unknown Unknowns

Complex Dependencies
- Key components require a formal design
- Formal contracts needed between data consumers and providers

Testing Delays
- End to End functionality can only be tested in a development environment
- Critical Enterprise Applications need formal testing

Implementation Challenges
- Need to address Non-Functional Requirements
- No planning for operational readiness
The Alternative - Continuous Incremental Development

- An Agile Approach – Adapted for Complex Projects
  - Implement known and defined requirements in order of their business value, priority and downstream dependencies
  - Use test driven development – test while we build and build a bank of repeatable test cases
  - Continuously promote tested features to an integration environment for live operational testing
  - Address functional gaps by further articulating the requirements and their test cases to implement in next iteration
  - Document what has been built as needed to support operations, business continuity and auditability.
Continuous Incremental Development
Business Requirements Document

- **Business Requirements Document**
  - Living Document – Starts with the Charter and is enhanced and refined in workshops with SMEs & End Users as well as results of testing and development experience.
  - Business requirements get amplified into functional requirements.
  - Periodic Review and Sign Off by Business Sponsor.
  - Signed off requirements are:
    - Prioritized by business value and criticality.
    - Analyzed to identify how they should be implemented, their dependencies and impacts.
    - Broken into subtasks for implementation.
    - Estimated for Effort and Duration.
    - Subtasks are added to the Iteration Plan.
  - Includes applicable Non Functional Requirements.

![Diagram](attachment:diagram.png)

- **SOW, Workshops, SMEs, Etc.**
  - Analyze and Update Requirements
  - Issues, Risks & Defects Log
  - BRD (Living Document)
  - Periodic Signoff
  - Update Iteration Plan
  - Update Weekly Cadence
  - Weekly Cadence
  - Iteration Plan
  - Identify & Log Documentation Issues
  - Documentation Review
  - Test Case Bank
  - Design & Operation Documentation
  - UAT plan
  - Team 4
  - Data Stewards
  - Infrastructure
  - Test Case Bank
Continuous Incremental Development – Iteration Plan

**Iteration Plan**

- Week by week plan that gives target dates for release of key functional components in each environment.
- More flexible than the traditional project plan
- As tasks and their sub-tasks are identified and documented they are mapped to specific iterations
- Used to estimate resource requirements on a weekly basis.
- Updated weekly to reflect changes in priorities, new requirements and resource changes.
- Used to generate a weekly “Cadence”
- Also used to forecast resource requirements
**Weekly Cadence**

- Outlines the execution of tasks for each week - What, Where, Who, When and How
- Includes both development and related support and testing activities.
- Centrally located – Everyone sees the latest version which is continually updated
- Drives status meetings – which focus on resolving roadblocks and coordinating future efforts
- May include ‘Stretch’ goals
- Uncompleted tasks move to next week’s plan
Continuous Incremental Development
User Acceptance Testing Plan

User Acceptance Testing Plan
- Driven by Business Requirements
- Represent actual business use scenarios
- Covers all agreed upon acceptance criteria including operations, performance, supportability and usability

SOW, Workshops, SMEs, Etc.

Analyze and Update Requirements

BRD (Living Document)

Periodic Signoff

Update Iteration Plan

Issues, Risks & Defects Log

Development & Content Teams
- Team 1
- Team 2

Record Test Results & Issues

Weekly Build

Production Build

Design & Operation Documentation

Documentation Review

Identify & Log Documentation Issues
Continuous Incremental Development
Issues, Risks and Defects Log

Issues, Risks and Defects Log
- Central log for Issues, Risks and Defects identified throughout the project
- Risks are analyzed as follows:
  - Impact and likelihood are assessed
  - Mitigation actions are identified
- Issues and Defects that impact requirements are resolved by updating the BRD. Otherwise a Resolution Action is identified.
- Periodic Review and Sign Off by BCBST
- Resolution & Mitigation Actions are:
  - Prioritized by business value and criticality
  - Analyzed to identify how they should be implemented, their dependencies and impacts
  - Broken in to subtasks for implementation
  - Estimated for Effort and Duration
  - Subtasks are added to the Iteration Plan

SOW, Workshops, SMEs, Etc.

Analyze and Update Requirements

BRD (Living Document)

Periodic Signoff

Update Weekly Cadence

Update Iteration Plan

Iteration Plan

Identify & Log Documentation Issues

Weekly Cadence

Data Stewards

Infrastructure

Design & Operation Documentation

Test Case Bank

UAT Plan

Documentation Review
How to make peace with the PMO as you do your thing...

**EPM Tool**
- Iteration Plan
- Budget
- Resource Management

**Defect Tracking**
- Issues
- Risks
- Enhancements
- Bugs

**Requirements Templates**
- Track Requirements
- Release a new version at each iteration
The ABCs are attitude, behaviour and communication skills.
Communication Planning...

**Development Teams**
- Daily Standups
- Weekly Cadence
- Weekly Status Reports

**Program Level**
- Weekly Coordination Meetings and updates to project plans
- Weekly Cadence
- Weekly status to key stakeholders

**Management**
- Monthly Steering Committee
- Dashboard report – featuring accomplishments, plans, challenges & HOW THEY CAN HELP
Planned Communications are the Minimum

- Encourage and Enable direct communication between team members
- Stay in constant touch with team leaders
- Use ALL Tools at your disposal
  - Skype
  - Web Conferencing
  - Instant Messaging
  - Phone (remember them?)
- Take the time for Face to Face Meetings & Private Phone Calls
Questions and Comments?