Secrets to Building an Agile, Adaptable BI Environment
Agile

Characterized by quickness, lightness, and ease of movement; nimble.

- American Heritage Dictionary
Drivers

“The business says the IT dept. is…”
– Too complex
– Too slow
– Too rigid
– Too expensive

“IT dept. says the business is…”
– Too impatient
– Too unrealistic
– Too busy
– Too undisciplined

IT is from Mars, Business is from Venus!
Who Wins?

BUSINESS

- Speed
- Flexibility
- Change
- Short term

IT

- Stability
- Control
- Standards
- Long term
The Goal

• Marry the best of both worlds.
  – *Flexibility & Control*
  – *Speed & Stability*
  – *Short & Long term*

• But the onus is on IT to take the first step

• But how?????
How Deliver Enterprise Agility?

1. Align the team
2. Slow down to speed up
3. Anticipate the business
4. Manage expectations
5. Cede control
6. Federate, then persist
7. Embrace agile development
8. Automate BI
9. Embrace the Cloud
10. ???

1. Align the team

Sponsorship Commitment and BI Success

Align with the Business

How Aligned is the BI Project Team with the Business?

Principle of Proximity

“We sit side by side with business people and report into the same leadership. The only difference is that we specialize in the data and they specialize in the business processes.”

Wes Flores, senior technology manager, Verizon
Expand BI role - ‘spanner’

- Business person with technical savvy
- Strategic advisors
- Dotted line to business unit

“Make them work side by side, elbow to elbow, nose to nose.”
BI Governance

• “Business owns BI, not IT”

• BI Steering Committee – Senior executives
  – Cross-functional representation
  – Approves and funds BI roadmap
  – Prioritizes projects

• BI Working Committee – BI users, stewards
  – Recommend projects
  – Suggest enhancements
  – Select products
2. Slow down to speed up

Rushes into projects

Looks “up” and “across” before starting
Hare Attributes

• IT-driven project
  – “We know what they need”
  – “Build it and they will come.”

• Business “knee jerk” project
  – Know pain but not drivers
  – Seduced by the tools

• Looks for fixes, not solutions
  – “What information do you want?” (WRONG!)
  – “What are you trying to accomplish?” (RIGHT!)
Be a tortoise!

• Spend 2-4 weeks getting oriented
  – Interview “up” – key executives
  – Interview “across” – other departments
  – Create iteration “0” or “-1”

• Why? Spend time up front…
  – Align with other groups
  – Establish roadmap and key architecture
  – Avoid reworking core data model later
  – Know your source data
3. Anticipate the business

“We built right-time delivery into our DW environment upfront; not because the business asked for it, but because we knew they would eventually.”

Alicia Acebo, former DW manager at Continental Airlines
Think Global, Act Local

“We implemented key corporate information in the warehouse in anticipation of future business needs -- an educated guess, if you will. While our investment approach was premised upon only building what the business was prepared to fund, that didn't stop us from "influencing" certain investments which we felt would have greater value in the future. As a result of our earlier initiatives, we had almost all of the data to satisfy the new needs very quickly…”

– Art Pelletier, director of client services, EDC of Canada
4. Manage expectations

“You can’t always get what you want. But if you try some time, you just might find, you get what you need.”

*Rolling Stones*
Manage Expectations - BI Portfolio

Data Sources
A & B
Data Sources
C & D
Data Sources
E & F
Etc.

1st Release
2nd Release

Industry best practice to add a new data source = 3 months

Customer Revenue Reporting
Product Sales Analysis
Sales Channel Analysis
Customer Profiling
Network Feature Management
Product Churn
Compensation Reporting
Long Distance Attrition/Call Winback
Cross Sell/Up Sell
Promo / Campaign Analysis

 Estimated Time
3 months
6 months
12 months

Data Sources
A & B
Data Sources
C & D
Data Sources
E & F
Etc.

1st Release
2nd Release

Industry best practice to add a new data source = 3 months
BI SWAT Teams

When the CEO calls…

Govern

Verify

Federate
5. Cede Control

<table>
<thead>
<tr>
<th>PRENATAL</th>
<th>INFANT</th>
<th>CHILD</th>
<th>TEENAGER</th>
<th>ADULT</th>
<th>SAGE</th>
</tr>
</thead>
</table>

“Inform Executives”

“Empower Knowledge Workers”

“Monitor Business Processes”

“Drive the Business”

“Drive the Market”

“Cost Center”

GULF

CHASM

Mgmt Reports

Spreadmarts

Data Marts

Data Warehouses

Enterprise DW

BI Services

System

Individual

Department

Division

Enterprise

Inter-Enterprise

Business Value
Harmonize local & enterprise needs

<table>
<thead>
<tr>
<th>Scope</th>
<th>Funding</th>
<th>Team</th>
<th>Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal</td>
<td>Operational Reporting</td>
<td>IT</td>
<td>Individual Executive</td>
</tr>
<tr>
<td>Infant</td>
<td>Spreadmarts</td>
<td>IT</td>
<td>Analyst Executive</td>
</tr>
<tr>
<td>Child</td>
<td>Data Marts</td>
<td>Enterprise IT</td>
<td>Department Dept. Budget</td>
</tr>
<tr>
<td>Teenager</td>
<td>Data Warehouses</td>
<td>Exec IT</td>
<td>Division Div. Budget</td>
</tr>
<tr>
<td>Adult</td>
<td>Enterprise DW</td>
<td>Corp. IT</td>
<td>Enterprise Corp. IT</td>
</tr>
<tr>
<td>Sage</td>
<td>BI Services</td>
<td>Inter-Enterprise</td>
<td>BICC Steering Committees</td>
</tr>
</tbody>
</table>

- Local control
- “Think Local, Resist Global”
- “Plan Global Act Global”
- “Plan Global Act Local”
Architectural dividing line?

Centralized Organization?

Decentralized Organization?
6. Federate, then Persist

- Query data where it lies
  - **Prototype requirements**
  - **Validate user actual user interest**
  - **Avoids the time and cost of building a DW**

- **Limitations**
  - **Data volumes**
  - **Query complexity**
  - **Data quality**

**Buzz words**

“Virtual data warehouse”
“Data virtualization”
“Distributed data services”
“Federated architecture”
Hard Wired Federation

Screen elements linked directly to individual queries

Pros:
- Deploy quickly
- Low cost
- Flexible data access

Cons
- Programmed drill down
- No dimensions
- Hard-wired queries
Federated query tools use a global semantic layer to dynamically query data from multiple sources.

Pros:
- Multiple sources
- Semantic layer abstraction
- Table join optimization

Cons:
- No history
- Data quality issues
- Complexity
7. Embrace Agile Development

- Waterfall: 20%
- Agile: 29%
- Hybrid of waterfall and agile models: 51%
Agile Development

Traditional Waterfall Development Approach

- Define, design, build
- IT-based team
- Locks down user requirements
- 3-6 month iterations
- Missed budgets
- Missed schedules
- Unhappy users

User Input

Requirements

Design

Implement

Test

6-9 months of development

No User Interaction

Release

User Review
Agile Methodology

- Small team w/ bus. analyst
- Short iterations
- Frequent feedback
- Accepts new requirements
- Complete, but immature code

2-4 weeks

Applied to BI/DW
- Good for report development
- Challenge to develop tests
- Lack of documentation
- Agile for DW?

TDWI RESEARCH
8. Automate BI

- DW automation tools automate the creation, management, and documentation of BI solutions
  - “Rapid prototyping”
  - “Change management”
  - “Data lineage & impact analysis”
What is being built?

- **Reports, dashboards, scorecards, analytics, etc.**

- **Business objects and views (i.e. metadata) that simplify the creation of queries against analytic databases**

- **A star schema or OLAP cube designed to support a single application, subject area or workgroup**

- **Extract, transform, load, validate, clean, and move data from a data warehouse to a data mart**

- **A data warehouse or staging area that integrates transaction data in third normal form (3NF).**

- **Extract, transform, load, validate, clean, and move data from source systems to a data warehouse**
### How is it being built?

<table>
<thead>
<tr>
<th>What do the users want?</th>
<th>Based on the users needs, what is the best way to design the solution? What is the blueprint of the design?</th>
<th>How do we build the solution? How do we integrate it into the existing solutions?</th>
<th>How do we verify that we built what the user asked for? And that it performs properly?</th>
<th>How do we roll out the solution? And gain rapid adoption?</th>
</tr>
</thead>
</table>

**Requirements** | **Analysis** | **Design** | **Build** | **Test** | **Deploy** |

**Reports** | **Semantic Layer** | **Data Mart (Star Schema)** | **DW-DM ETL/ELT** | **DW (3NF)** | **Source-DW ETL/ELT** |

**TDWI Research**
Analytic Application Framework

Domain specific application

Packaged Application X

Closed Loop

TDWI RESEARCH
Build vs Buy

CUSTOM
- Get requirements
- Scope project
- Hire developers
- Design schema
- Build ETL
- Document metadata
- Build reports
- Get feedback
- Test, implement
- Train users

PACKAGED
- Install software
- Configure application
- Define security and views
- Refine reports
- Test, train, deploy

Resources

Time to Deploy
9. Embrace the Cloud

Commercial hardware or software services that you access over the internet via a Web browser.
Types of Cloud-based Services

- Applications
  - Software-as-a-service
    - “Salesforce.com”
- Platform
  - Platform-as-a-service
    - “BI-as-a-service”
- Infrastructure
  - Infrastructure-as-a-service
    - “Amazon EC2”

Solutions Stack
Benefits of Cloud Computing

- Doesn’t require IT resources
- Doesn’t require capital expenditure
- Can deploy a solution quickly
- Automatic upgrades
- Expand capacity and usage on demand
- Terminate the service at any time
Proven Cloud Applications

- Prototypes
- Proofs of concept
- Project-based BI
- Analytic data marts
- Analytic sandboxes
- Demos!
Analytic Sandboxes

Logical Sandboxes

Data Warehouse (RDBMS)

Analytic Sandbox

Cloud-based Sandboxes

Data Warehouse (RDBMS)

Analytic Data Mart
Summary – Delivering Agile BI

• Challenges
  – How overcome the business-IT gulf?
  – How stay ahead of your users?

• Soft stuff
  – Align the team, cede control, anticipate the business, manage expectations, Slow down to speed up (scope)

• Technical stuff
  – Federation, agile development, BI automation, the Cloud (scale)
Tenth Secret?

• What do you think?