Tools & Techniques for Implementing Corporate and Self-Service BI

Triad SQL BI User Group

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About Melissa

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About Intellinnet

Management Consulting & Microsoft-centric Technology Services

Portals & Collaboration

Business Intelligence

Cloud & Mobility

Infrastructure

5,000+ projects since 1993

Application Development

Strategy > Process > Business > Technology
Agenda

- Characteristics of Corporate BI & Self-Service BI
- Overview of Microsoft BI Self-Service Tools
- Demo of Self-Service BI Tools
  
  **Data Modeling & Shaping:** Data Explorer, PowerPivot
  
  **Data Visualization:** Excel, Power View, GeoFlow (*)
  
  **Information Delivery:** SharePoint 2013, Excel Services, PowerPivot Gallery

- Benefits, Challenges and Takeaways

(*) Report Builder falls in this category too, but we are skipping that demo since it’s a mature tool
Characteristics of Corporate BI

**Gartner definition of BI Services:**
“Offerings to design, develop and deploy enterprise processes and to integrate, support and manage the related technology applications and platforms.”

✓ **Corporate BI:** A centralized approach to business analytics that places a high value on standardization, reusability, security, data quality, change management, and governance

✓ Typically managed by IT or a BI Center
Characteristics of Self-Service BI

**Gartner definition:** "End users designing and deploying their own reports and analyses within an approved and supported architecture and tools portfolio."

- **Self-Service BI:** Empowers the business user
- Values data exploration and discovery of information over standardization & governance
- More permissive of trial & error than Corporate BI
Corporate BI + Self-Service BI

Data Feeds, PowerPivot Models, Excel Services, Misc Files

Corporate Data Warehouse, Cubes

ETL

Source Data

Producers

Power Users & Data Analysts

Business-Generated Reports, Dashboards, Scorecards, PowerPivot Models

Consumers

Data Feeds, PowerPivot Models, Misc DBs, Misc Files

A single managed environment (SharePoint Portal)

BI Developer

System Administrator

Business Users
Needs Driving Self-Service BI

✓ Productivity + speed of delivery
✓ **Data exploration** + unpredictable ad-hoc analysis
✓ **Prototyping** for a Corporate BI solution
✓ Needs for **data from outside** sources ("mashups")
✓ Lack of **subject matter expertise** in IT
✓ Business dissatisfaction with **IT BI capabilities**
✓ Insufficient **budgets** in IT to fully support
Types of Self-Service BI Environments

- **Regulated by IT**
  - IT mandates which data sources are authorized
  - IT mandates which software tools are permitted
  - Strict implementation of “Managed” Self-Service BI

- **Business Driven**
  - IT is well informed of business needs & requirements
  - Business units build team-based BI solutions
  - IT builds corporate BI solutions & supports infrastructure
  - Seeks optimal balance between governance & flexibility

- **Business Self-Reliant**
  - IT is unaware of “organic” departmental efforts
  - Weak alliances between IT and business
The Term “Power User”

Creation of Reports and Dashboards

Integration of Data from Various Sources; Creation of Data Models; Analysis of Streaming Data & Geospatial Data

Data Model Cleansing and Transformation

Statistical Analysis; Exploration of Big Data; Predictive Analytics & Data Mining; Analysis of Unstructured Data

Large Segment of Self-Service BI Users
Subset of Self-Service BI Users
Much Smaller Subset of Self-Service BI Users
Very Small Subset of Self-Service BI Users
OVERVIEW
OF MICROSOFT
SELF-SERVICE BI TOOLS
BI Tools Used by Various Users

- **BI Developers & Architects**
  - Reporting Services
  - PerformancePoint
  - Visio Services

- **IT Pros**
  - PowerPivot
  - Data Explorer
  - GeoFlow
  - Report Builder

- **Power Users & Data Analysts**
  - Power View
  - Excel

- **Business Users**
Excel

Pivot Tables & Charts
Data Connections
Power View integration with Excel 2013
Numerous add-ins to handle statistical analysis, data mining, & big data access
Excel Add-Ins

**PowerPivot**  [Excel 2010 and 2013]

In-memory solution for Self-Service BI data modeling needs

Based on xVelocity column-store indexes

Large volumes of data

Create “mashups” of data

Data is embedded

Introduces DAX expressions

Schedule data refreshes in SharePoint

Can do visualization in familiar Excel environment, or another tool
Excel Add-Ins

**Analysis Toolpak & Solver**
Capabilities for in-depth “what if” analysis & statistical functions

**Data Mining Add-In**
Predictive analytics and data mining using Excel and Visio

**Hive Add-In**
Support for “big data” with connections to HDInsight (Hadoop)

**RExcel**
Access to statistical package R from within Excel
Excel Add-Ins **In Preview Mode**

**Data Explorer** [Excel 2010SP1 or 2013]
A Self-Service ETL tool. Imports and transforms data in ways that are more difficult with PowerPivot, such as doing online searches, importing data from web pages, and merging files. Output can optionally be stored in a PowerPivot data model.

**GeoFlow** [Excel 2013]
A 3-d Mapping tool which plots geographic and temporal (date/time) data on a 3-D globe and over time.
Power View

Visual & interactive
Unique data discovery
Presentation-ready (like PPT slides)
Silverlight-based
Requires an SSAS data source (Tabular or MD) or PowerPivot for SharePoint

Two design environments:
• SharePoint (requires Reporting Services add-In)
• Excel (2013 only)
Report Builder

Tool of choice for pixel-perfect, fully formatted reports

Printing, exporting

Expressions

Subscriptions & data alerts

Mature, significant capabilities

Two design environments produce a the same format:

- Report Builder (a click-once application - for business users)
- Report Designer in Visual Studio (SQL Server Data Tools integrated with source control - for BI Pros)

Support for many different data sources

Supported on Windows phones and iPhone
SharePoint 2013

Single access point for BI
Organize libraries based on content & security
Gives IT ability to manage & monitor
Additional metadata fields may be created
Unified security model
Checkouts
Workflow & approvals
Versioning & history
Additional ULS logging
Excel Services

SharePoint Service to display workbooks on Web
Reduces emailing
Calculations performed on server
Security, versioning, workflow
Share an entire workbook or sections
Integrated with PowerPivot for SharePoint

Interaction with Pivot Tables via field list is now supported within the browser
Auditing and Compliance of Excel & Access

Several features to audit, manage, discover, document, & assess risk profile for Excel workbooks & Access databases:

- Inquire
- Spreadsheet Compare
- Database Compare
- Audit & Control Management
- Discovery & Risk Assessment
PowerPivot Gallery

Specialized SharePoint document library
Silverlight-based
Thumbnail previews of PowerPivot report contents
Manage data refreshes for PowerPivot workbooks
Creation of Power View and Excel reports

Manage data refresh for this PowerPivot model
Create Excel or Power View report using this PowerPivot model as data source
Thumbnail previews contents of report
Data Modeling & Shaping: PowerPivot, Data Explorer
Data Visualization: Excel, Power View, GeoFlow
Information Delivery: SharePoint 2013, Excel Services, PowerPivot Gallery
BENEFITS, CHALLENGES & TAKEAWAYS
## Levels of BI Within an Organization

<table>
<thead>
<tr>
<th>Business Self-Reliant Self-Service BI</th>
<th>Managed Self-Service BI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal environment which places higher value on agile discovery of information than on governance &amp; standardization</td>
<td>Environment which places a high value on governance, standardization, and security while trying to meet agile business needs</td>
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</tbody>
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<table>
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<tr>
<th>Rudimentary BI</th>
<th>Corporate BI</th>
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<tbody>
<tr>
<td>Manual and/or repetitive data analysis, often performed with data extracts or re-keyed; may result in “spreadmarts”</td>
<td>Standardized reporting which serves various business units, often supported by IT or a BI Center</td>
</tr>
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**Business Analytic Capability**

**IT Management & Control**

**Business Driven**
Key Benefits

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<tr>
<th>Business Self-Reliant Self-Service BI</th>
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<tr>
<td>Agility of business decisions</td>
<td>Secure sharing of data</td>
</tr>
<tr>
<td>Facilitation of one-time analysis</td>
<td>Utilization of business expertise</td>
</tr>
<tr>
<td>Data exploration &amp; discovery</td>
<td>Facilitation of prototyping</td>
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<tr>
<td>Significant user flexibility</td>
<td>Automation and management</td>
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<td>Familiar Excel environment</td>
<td>Single “authoritative” source</td>
</tr>
<tr>
<td>Significant user flexibility</td>
<td>Cleansed data sources</td>
</tr>
<tr>
<td></td>
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Business Analytic Capability

IT Management & Control
### Key Challenges

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<td>Interpretation of data</td>
<td>Cooperation of IT &amp; business</td>
</tr>
<tr>
<td>Data modeling &amp; analytical skills</td>
<td>Support for authors</td>
</tr>
<tr>
<td>Achieving actionable insights</td>
<td>Employee terms &amp; transfers</td>
</tr>
<tr>
<td>Secure sharing of data</td>
<td>Organization of environment</td>
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<tr>
<td>Duplication of efforts</td>
<td>Change management</td>
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<td>Questionable data sources</td>
<td>Support from influencers &amp; execs</td>
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<tr>
<td>Not usually repeatable</td>
<td>Speed of delivery</td>
</tr>
<tr>
<td>Not typically efficient time-wise</td>
<td>Costly requirement changes</td>
</tr>
<tr>
<td>Interpretations of data</td>
<td>Adoption by report authors</td>
</tr>
<tr>
<td>Locating business rules</td>
<td>Search ability &amp; documentation</td>
</tr>
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**Business Analytic Capability**

IT Management & Control
Corporate BI Projects

☑️ Good candidates for Corporate BI
- Operational and/or routine reporting
- Subscription-driven reporting
- Mature and/or complex solutions
- Very large volume of data
- Frequent data refreshes are required
- Row-level security considerations
- Reusability is required

☑️ Poor candidates for Corporate BI
- Small projects
- Infrequent or one-time analysis
- Rarely used data
Self-Service BI Projects

✓ Good candidates for Self-Service BI
  - Small projects
  - Infrequent or one-time analysis
  - Rarely used data
  - Unpredictable analysis
  - Prototyping

✓ Poor candidates for Self-Service BI
  - Large sets of data
  - Incremental data loads are required
  - Near real-time analysis is required
  - Complex requirements
  - Row level security is required
Takeaway: Take Advantage of SSBI Efforts

Think of the BI Semantic Model as a “graduating” life-cycle of tools – the evolution from Self-Service to Corporate can make the Corporate environment much more robust.
Takeaway: Focus on Training & Support

✓ Train the data producers on data & tools
  - Need to understand the data and how to use the tools

✓ Provide documentation
  - Data dictionaries
  - User guides
  - FAQs

Self-Service can reduce the IT backlog for report development.

However…
It creates different demands of IT: data, training, support
Takeaway: Seek Balance

✓ A “managed” self-service environment can help the business in so many ways:
- Automatic data refreshes
- Security of data & access
- Insight into activity of critical workbooks
- Reduce chaos & potential disorganization
- Lessen duplication of efforts
- Help with change management, testing & validation
- Adequate infrastructure & technology

It may require some convincing of the business… focus on the benefits to them
Takeaway: You Will Have to Reconcile

- Challenges of “who is right”
  - Self-Service reports often don’t match Corporate reports

- Non-standard data definitions & calculations
  - Makes “one version of the truth” very difficult
  - Temptation to change the data

- Use of questionable data sources
  - Publically available data online may be inaccurate

Be ready with people & processes for how to reconcile – you might be surprised at the # of support requests
Takeaway: Partnering to Make it Work

- Support from influencers, evangelists & execs
- Liaisons between Business & IT
  - Technical SMEs within business units
  - Support & training within business units
- Utilization of business expertise
  - Validation
  - Active & Passive Prototyping

The Personal > Team > Corporate BI model can help facilitate the partnership
Takeaway: The Big Three

People
Mutual respect & understanding between business & IT

Process
Balance between flexibility & governance

Technology
IT insight to activities & opportunities
Tools & Techniques for Implementing Corporate and Self-Service BI

Thanks for attending!

Slides at sqlchick.com
(Presentations page)

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