

Maximizing the Data Exploration Capabilities of Power View



SQL Saturday
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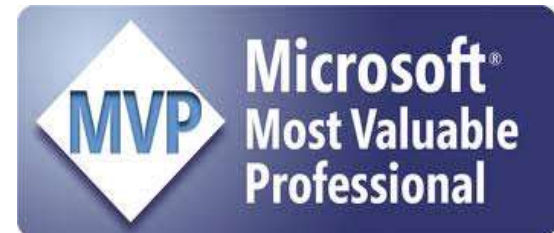


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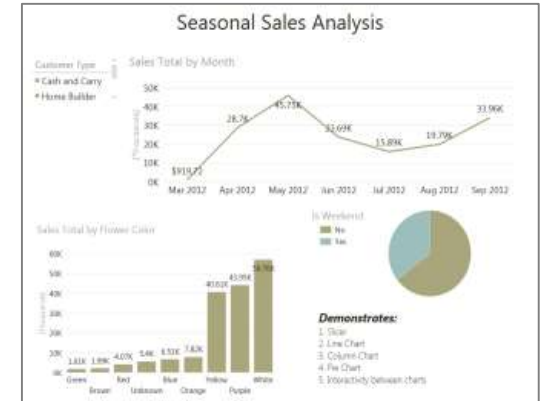
Blog: www.sqlchick.com
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Agenda

- ❑ Introduction to Power View

Demo: Features and Functionality



- ❑ Versions, Software Requirements, and Data Sources
Demo: Power View in SharePoint and Excel
- ❑ Tips on Working With Power View's Limitations & Restrictions
- ❑ Optimizing the BI Semantic Model for Power View
- ❑ Conclusion: Getting the Most out of Power View

INTRODUCTION TO POWER VIEW

Intro to Power View

Visual & **interactive**
Self-Service BI tool

Intended for
business users

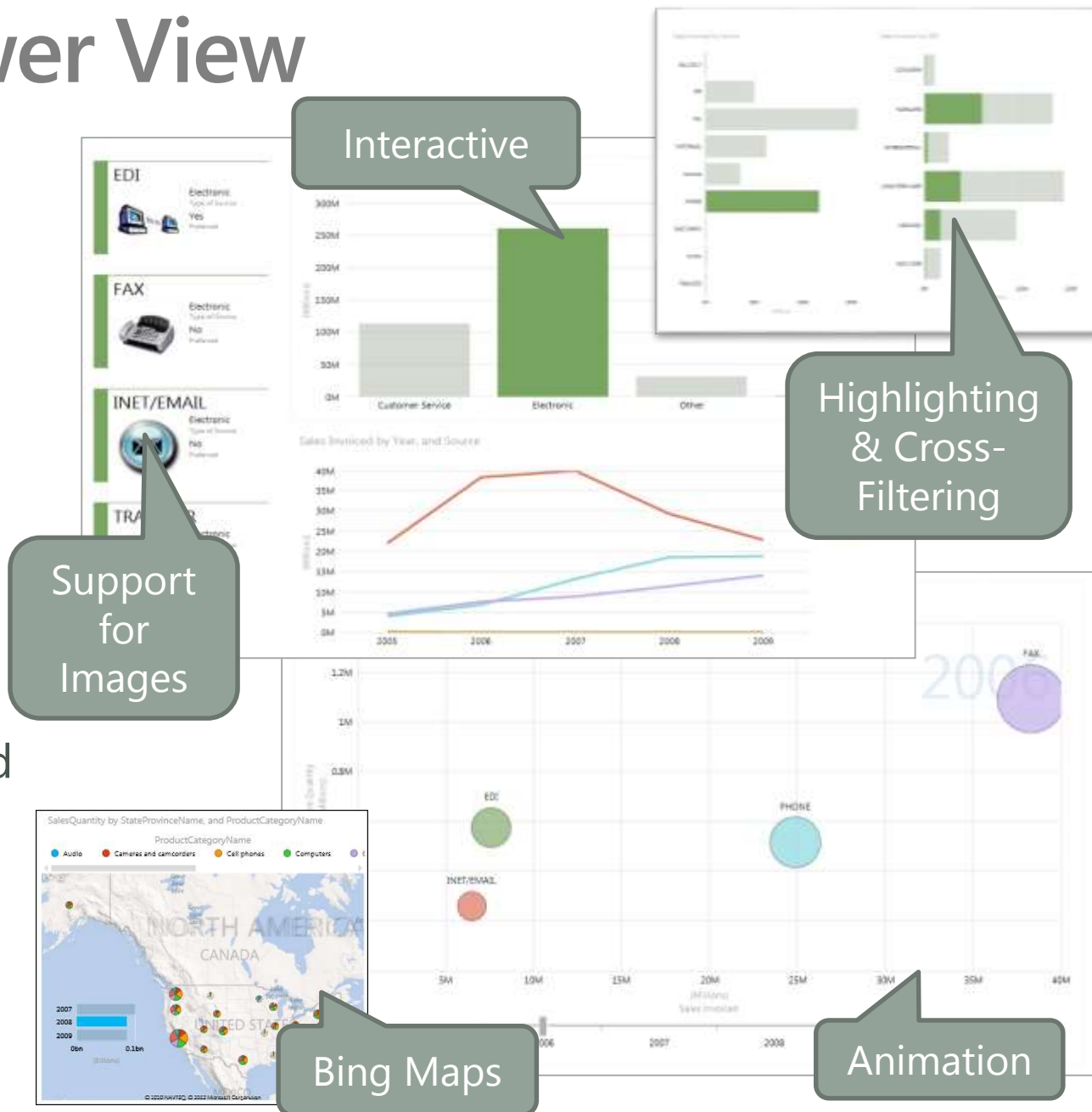
Unique data discovery

Presentation-ready
(like PPT slides)

Silverlight-based
(exception: Power BI)

Model Explorer & Field
List similar to Excel

Goal is powerful data
visualization with
**minimal learning
curve**



SSRS Team Vision

The Reporting Services team's vision for Power View was to provide “an interactive data exploration and visual presentation experience for ad hoc reporting.”



The team's objectives for Power View:

- Be ***simple*** for end users
- Provide ***meaningful context immediately*** as data is added to the display and as the user interacts with that data
- Require no more than ***two clicks*** to visualize the data

Source: Visualizing Data with Microsoft Power View. Brian Larson, Mark Davis, Dan English, and Paul Purington.

Where Power View Fits in MSBI Stack



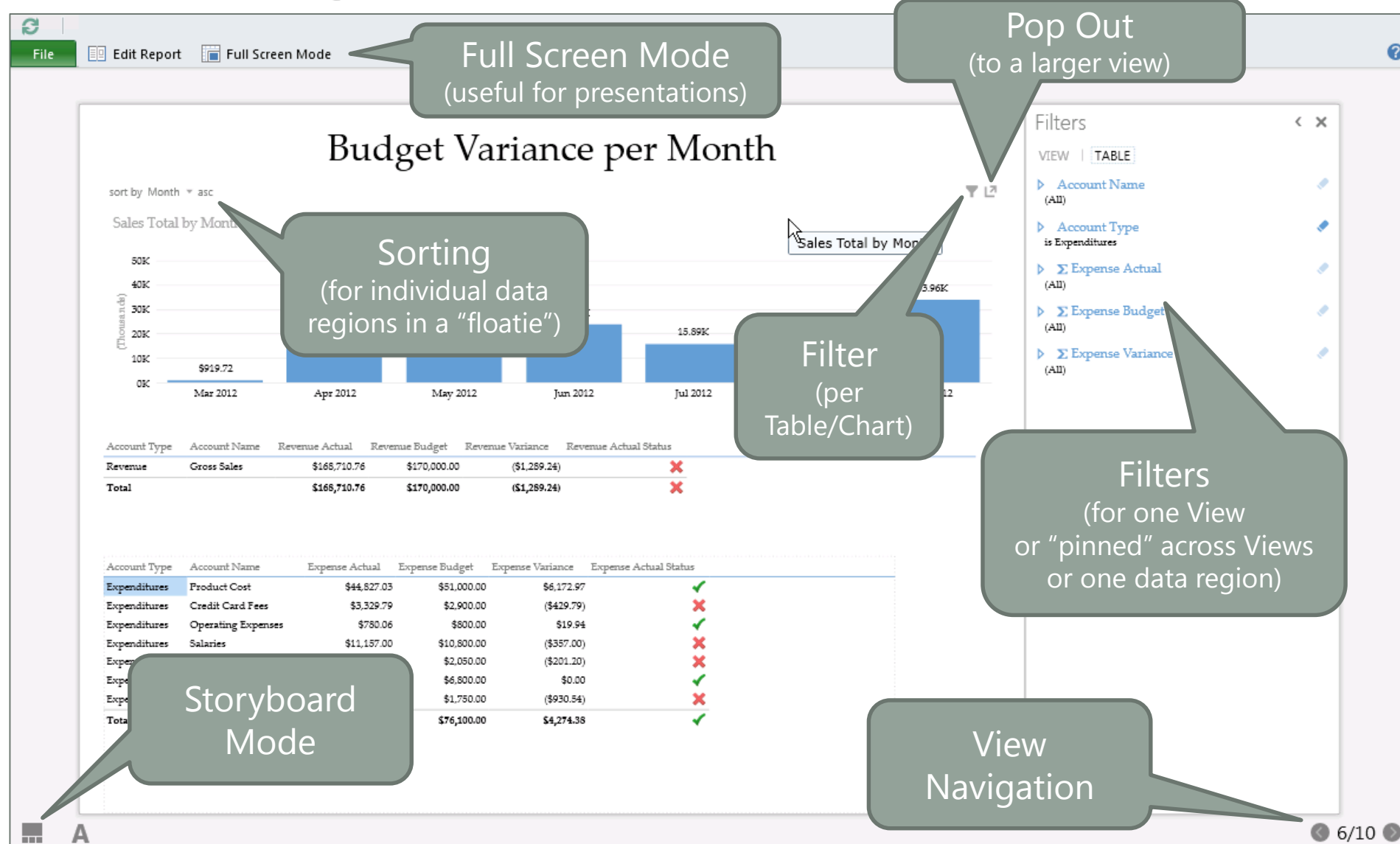
Report Designer
PerformancePoint
Visio Services

PowerPivot
Data Explorer

Power View
Excel
Report Builder



Reading Mode – User Interface



Edit Mode – User Interface

Ribbon

Field List
(Very similar to Excel Pivot Tables)

View Area
(Pages much like Power Point)

Canvas

Filters
(for one View or "pinned" across Views or one data region)

Field Well
(Data Selections)

Budget Variance per Month

Sales Total by Month

Month	Sales Total (Thousands)
Mar 2012	\$919.72
Apr 2012	28.7K
May 2012	45.75K
Jun 2012	23.69K
Jul 2012	15.89K
Aug 2012	19.79K
Sep 2012	33.96K

Account Type	Account Name	Revenue Actual	Revenue Budget	Revenue Variance	Revenue Actual Status
Revenue	Gross Sales	\$168,710.76	\$170,000.00	(\$1,289.24)	✗
Total		\$168,710.76	\$170,000.00	(\$1,289.24)	✗

Account Type	Account Name	Expense Actual	Expense Budget	Expense Variance	Expense Actual Status
Expenditures	Product Cost	\$44,827.03	\$51,000.00	\$6,172.97	✓
Expenditures	Credit Card Fees	\$3,329.79	\$2,900.00	(\$429.79)	✗
Expenditures	Operating Expenses	\$780.06	\$800.00	\$19.94	✓
Expenditures	Salaries	\$11,157.00	\$10,800.00	(\$357.00)	✗
Expenditures	Advertising	\$2,251.20	\$2,050.00	(\$201.20)	✗
Expenditures	Rent	\$6,800.00	\$6,800.00	\$0.00	✓
Expenditures	One-Time Startup Costs	\$2,680.54	\$1,750.00	(\$930.54)	✗
Total		\$71,825.62	\$76,100.00	\$4,274.38	✓

Field List

ACTIVE | ALL

- Account**
 - ☐ Account Code
 - ☒ Account Name
 - ☒ Account Type
 - ☐ Value Type
- Finance**
 - ☐ Budget
 - ☒ Expense Actual
 - ☐ Expense Budget
 - ☐ Expense Variance
 - ☒ Revenue Actual

Drag fields between areas below:

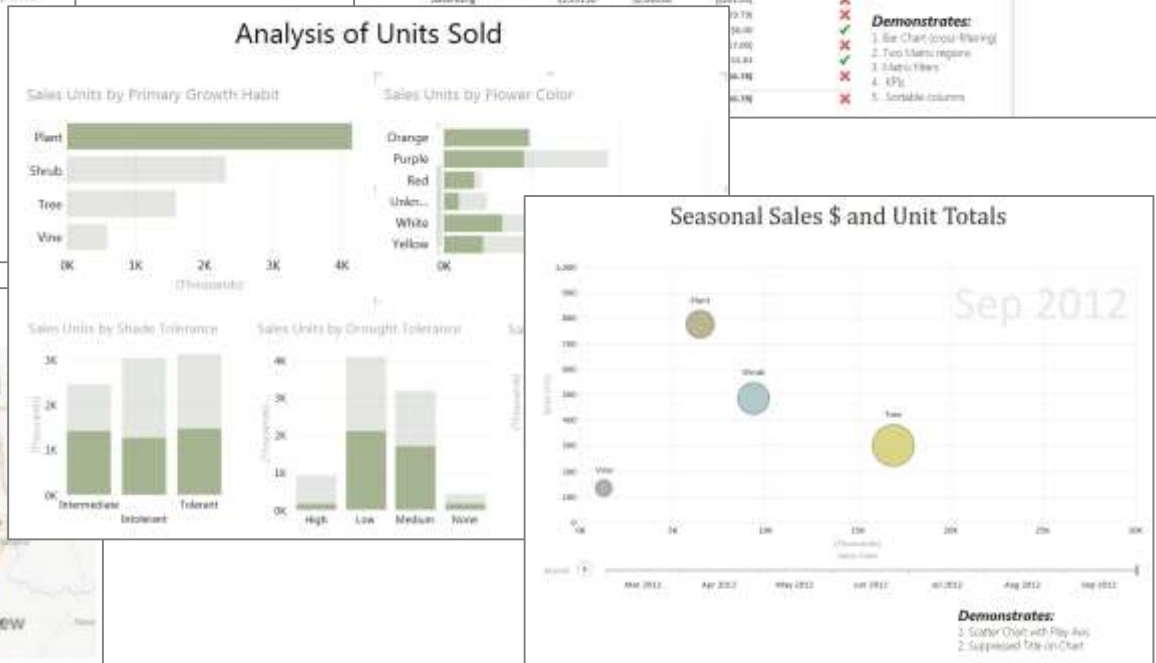
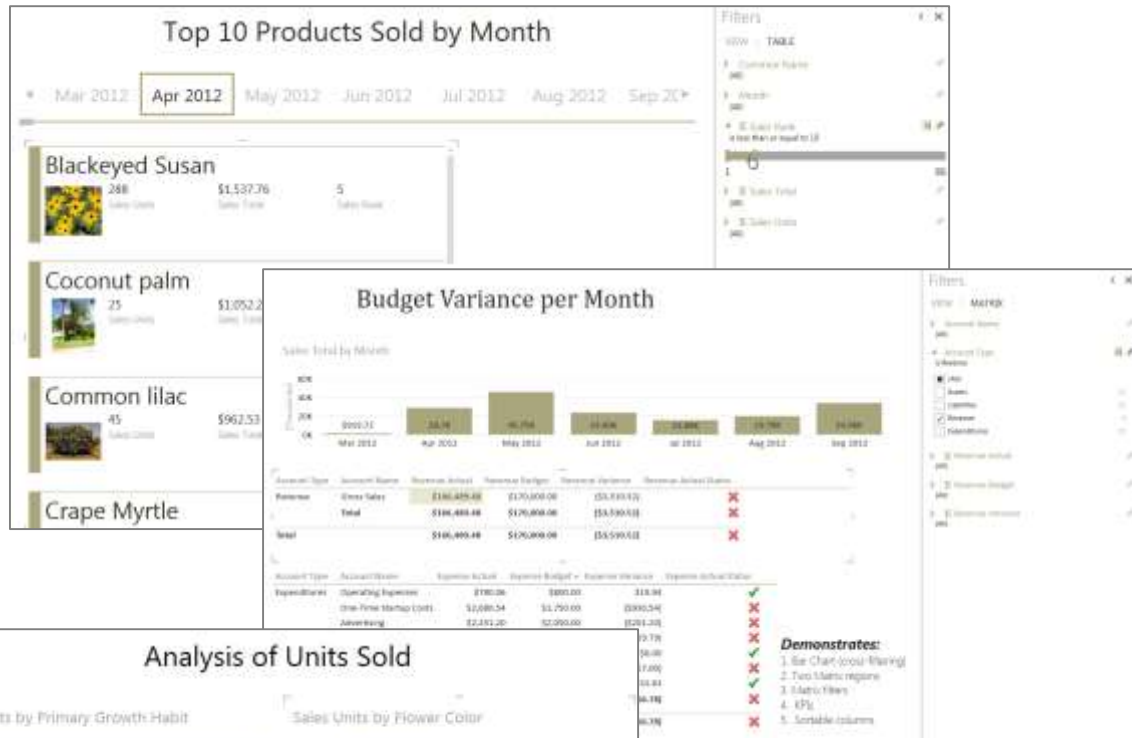
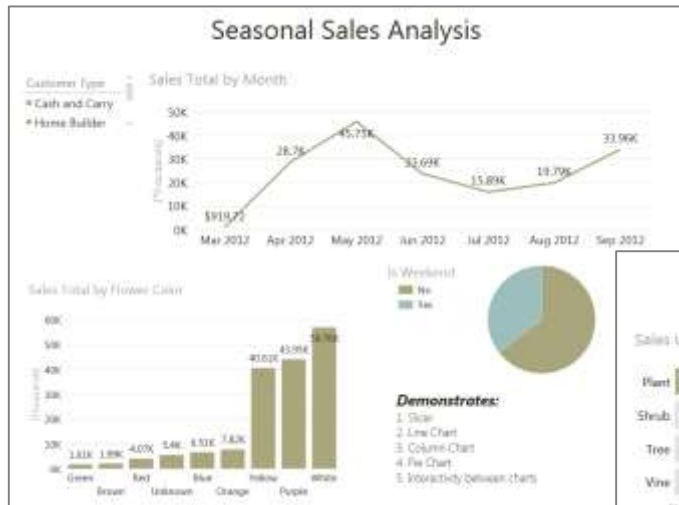
TILE BY

FIELDS

- Account Type
- Account Name
- Revenue Actual
- Revenue Budget
- Revenue Variance
- Revenue Actual Status

Demo 1

Features & Functionality



VERSIONS, SOFTWARE REQUIREMENTS AND DATA SOURCES

Versions & Software Requirements

Power View in SharePoint

- SharePoint 2010 or 2013
- **Authoring in browser** (IE8+ or Firefox 4+)
- **Viewing in browser** (Firefox 4+)
- Published in **RDLX** file format
- Requires Enterprise Edition of SharePoint
- Requires SQL Server Reporting Services 2012 (**SP1 to use all features**) in SharePoint Mode



Power View in Excel

- Excel 2013 add-in
- **Authoring in Excel**
- **Viewing in Excel -or- browser**
- Published in **XLSX** file format
- **No migration path** between XLSX and RDLX formats
- Requires Office 2013 Prof. Plus



Power View in Office 365

- One component of "**Power BI**"
- Requires Office 365
- Based on Excel 2013 (**XLSX** format)
- **Mobile apps (HTML5) -or- browser**

Notable Differences in Functionality

Power View in SharePoint

- **One data connection** permitted per file
- **Reading Mode** and **Edit Mode**
- **Full Screen Mode** for presentations
- Multi-view **pagination** arrows
- Can **export to PowerPoint**



Power View in Excel

- **Different data connections** per worksheet may be used
- Full integration with on-premises SharePoint is yet to come (ex: if XLSX is saved to PowerPivot Gallery in SharePoint, the **thumbnail previews** cannot render the Power View worksheets); Microsoft is following the cloud-first strategy with Power BI first



Data Sources Supported

Power View for SharePoint

External Data Connection:

- SSAS **Tabular** Model
- SSAS **Multidimensional** Model (as of SQL Server 2012 SP1 CU4) – works with limitations on **.RSDS** connection but not at all with **.BISM** connection
- **PowerPivot** Model which has been published to SharePoint

Power View for Excel

External Data Connection:

- SSAS **Tabular** Model
- **PowerPivot** Model which has been published to SharePoint

OR

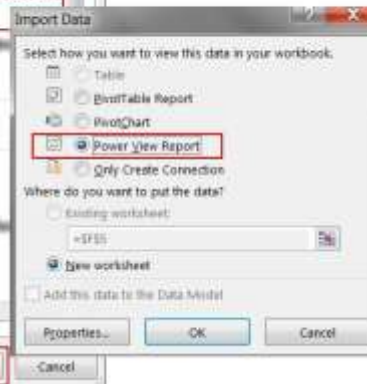
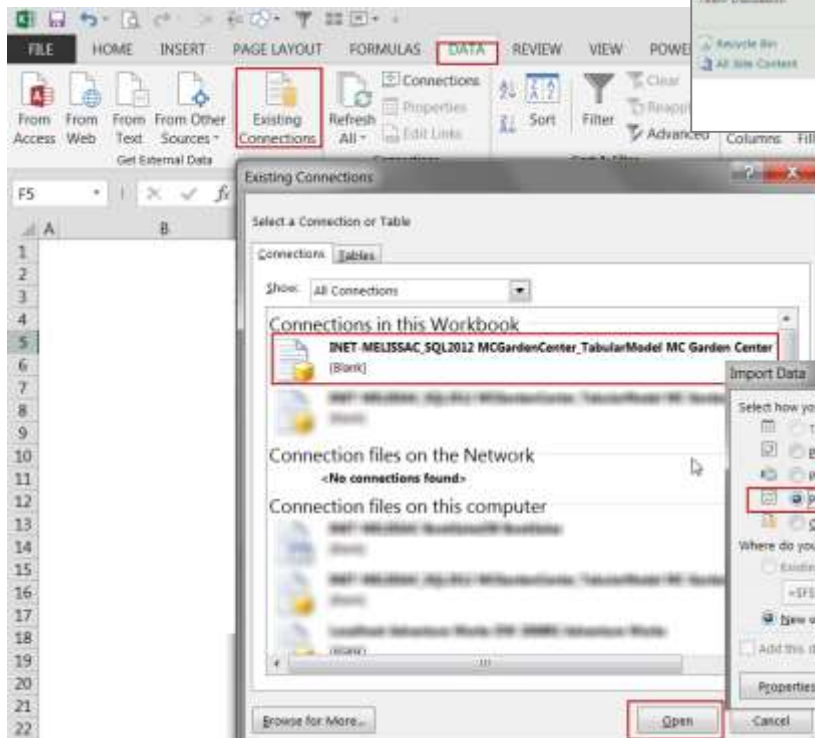
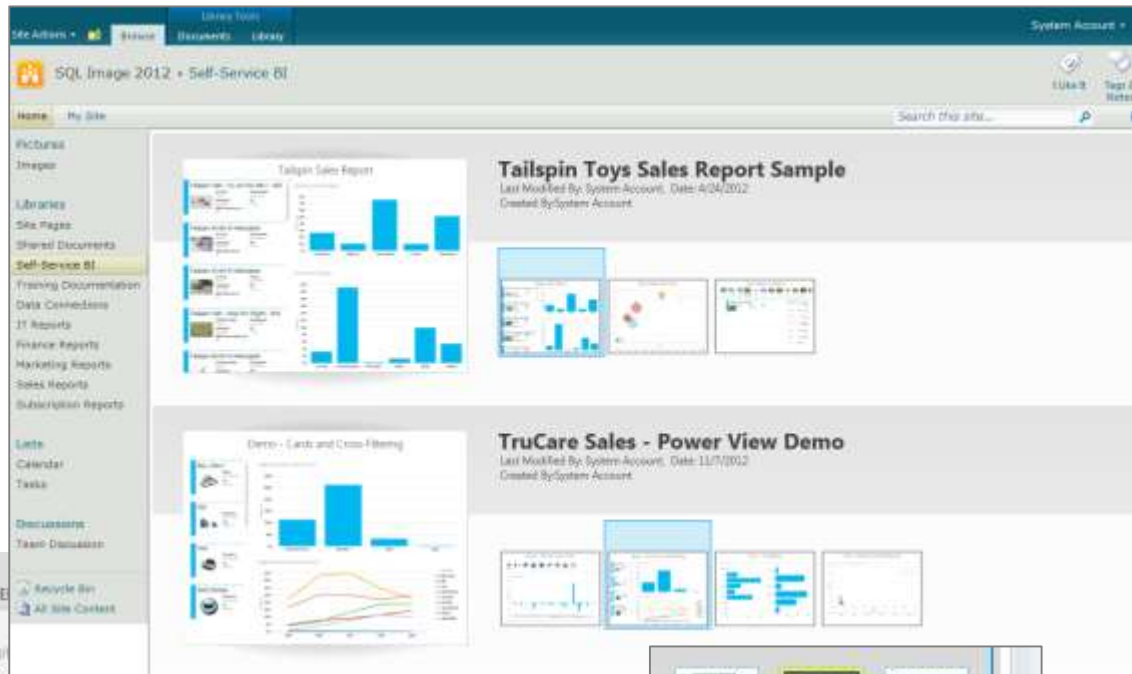
Connection Embedded in Excel:

- **PowerPivot** Model in Excel

Tabular & PowerPivot are collectively referred to as BISM: BI Semantic Model
(*RSDS or BISM connection*)

Demo 2

Power View in SharePoint



Power View in Excel

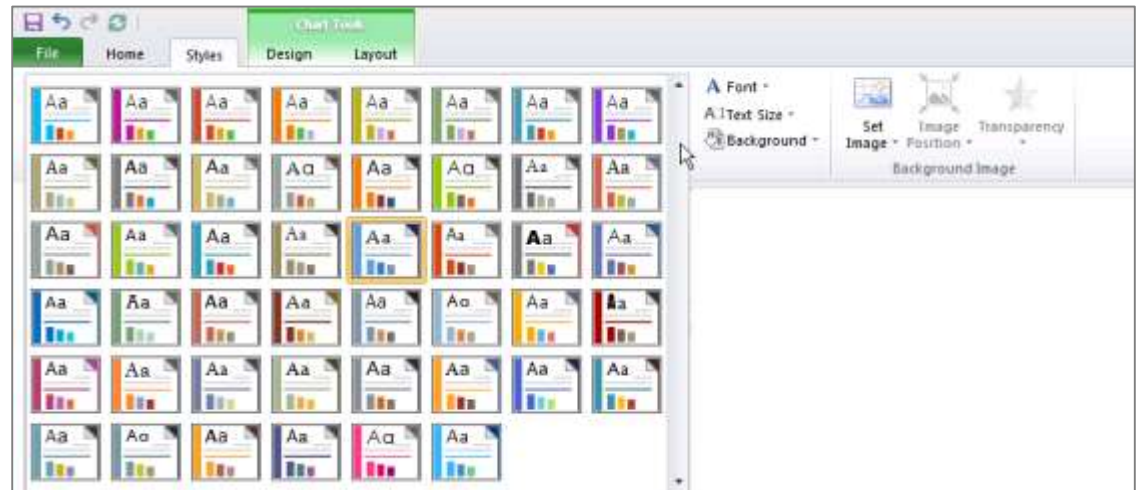
TIPS ON WORKING WITH POWER VIEW'S LIMITATIONS & RESTRICTIONS

The “Less is More” simplicity has great benefits for business users & casual users, but there are tradeoffs for power users who may have exceedingly high expectations.

Themes, Fonts, and Titles

Font and theme settings have broad effect – i.e., simplicity translates into the lack of granular control of every object.

Exception: Text boxes can be formatted individually.



Titles for charts and tables may be hidden, but may not be customized.

Workaround: hide the title and use a textbox.

Some themes may utilize colors (such as red) that inherently have meaning but may not when used in the context of that particular theme.

Reliance on Data Model

Cannot derive a new column in Power View. Tables, columns & hierarchies must exist in the data model.

Field names suitable for reporting must be **defined in the data model** & cannot be changed on the report.

A user who can interact with or influence both the Power View report and the underlying BISM (BI Semantic model) will have the best experience.

Field List

ACTIVE | ALL

Retail Sales

- ☐ Average Unit Price
- ☐ Customer PO Number
- ☐ Delivery Required
- ☐ Sales Delivery Fee
- ☐ Sales Order Line Number
- ☐ Sales Order Number
- ☐ Sales Rank
- ☐ Sales Tax
- ☐ Sales Total
- ☐ Sales Total %
- ☐ Sales Unit Price
- ☒ Sales Units
- ☐ Terms
- ☐ Transaction Count

Drag fields between areas below:

TILE BY

Σ VALUES

Sales Units

AXIS

Foliage Color

LEGEND

VERTICAL MULTIPLES

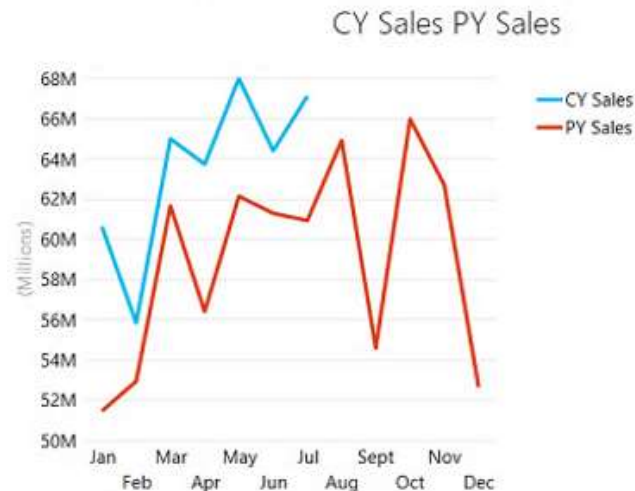
HORIZONTAL MULTIPLES

Chart Axes

The X and Y-axis on charts are dynamic. As slicers or filters are applied, the axis may change dramatically.

Axis ranges may not match and may not always start at 0.

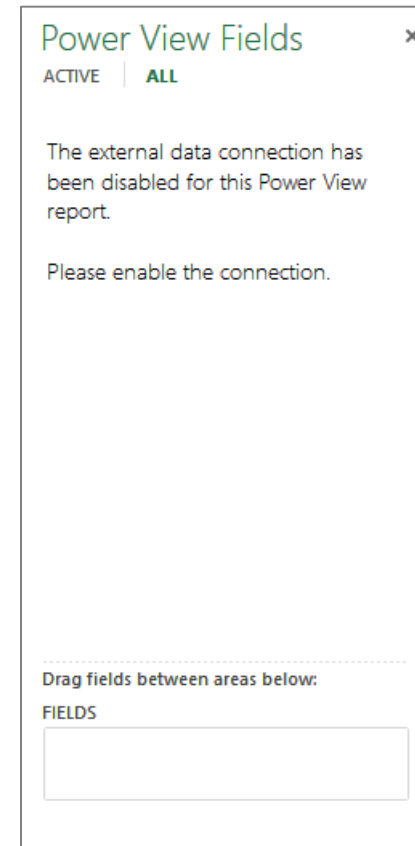
Workaround: Display of Data Labels may be helpful. Consider this a minor training issue to inform users about.



Online Connectivity Requirements

Power View requires constant connectivity to its **data source**. It has no ability to render the “last saved state” the way an Excel Pivot Table does. This inherently means that Power View reports cannot be saved as “snapshot” or historical reports.

Workaround: export to Power Point. Data source connectivity in Power Point is optional (but is required to enable interactivity within Power Point).

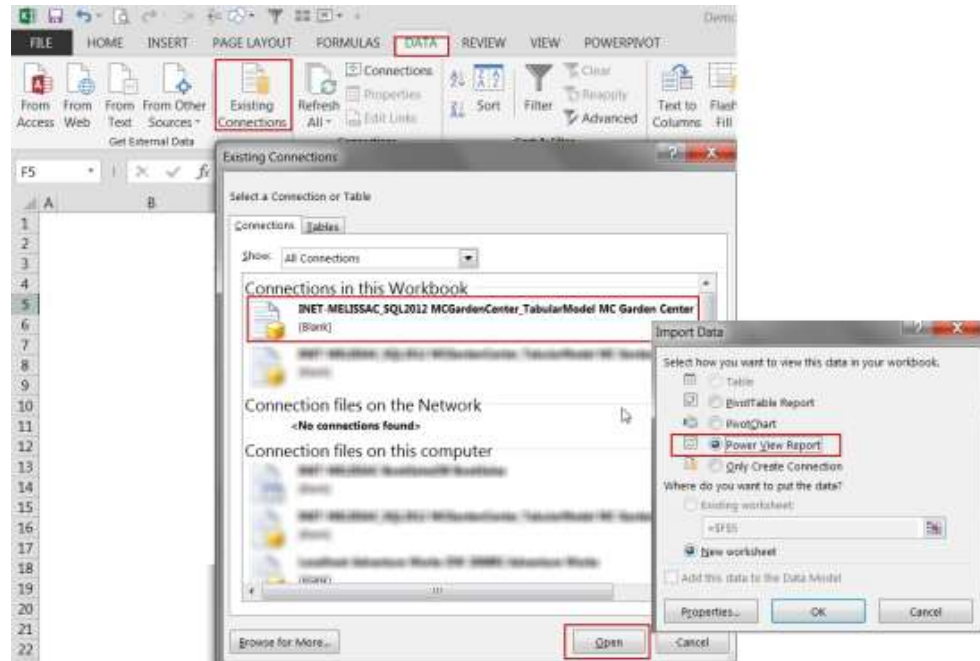
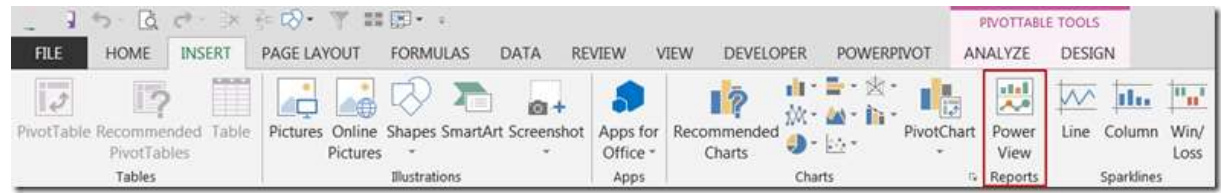


Power View also requires **Internet connectivity** if using a **Map** (due to its integration with Bing Maps) or **Image URLs**.

Adding a Power View Worksheet in Excel

The Insert menu will work fine if a Power Pivot model is embedded. However...

If you are using an external data connection (ex: to a Tabular model) you'll need to insert the Power View worksheet via the data connection itself.



Be sure to leave at least one Excel worksheet in the workbook so you don't get "stranded" in a Power View worksheet without full menus.

SharePoint Integration with XLSX

Automatic Data Refresh of XLSX Files in SharePoint

If Power View worksheets are embedded in an Excel 2013 workbook, ***automatic data refresh is not yet supported*** in SharePoint. *Workaround: Power View for SharePoint (connected to data sources being refreshed).*

Rendering of XLSX Power View Worksheets in SharePoint

Thumbnail previews not supported. Excel Services rendering does work. Bug: Download will omit the Power View worksheets so keep the original!

File Sizes for XLSX Files with a PowerPivot Model

Excel 2013 removes the file size limit → the limit depends on the computer's resources. This is great; however, other considerations remain:

- 2GB limit in on-premises SharePoint document library
- 250MB limit in SharePoint Online for Office 365 (10MB rendering limit)



Filtering & Slicing Behavior

Types of Filtering

- View (Filter Pane)
- All Views (Filter Pane) - can be "pinned" across views as of SS2012 SP1 CU4
- Data Region/Visualization (Filter Pane or Funnel symbol)
- Slicer (Canvas)

Search

- Search displayed if the list of values is long (otherwise not shown)
- Wildcards: ?=single *=multiple
~ =escape character
- Checkboxes to select & deselect offer flexibility

Notable Behaviors

- Charts can behave as if they are filters; one exception to this inherent cross-filtering: hierarchies in the data region do not cross-filter other charts properly.
- No support for hierarchies in the filters. *Workaround: slicers can cascade (ex: Year>Month>Day).*
- Flexibility to filter on measures (in addition to dimensional data).
- Some filtering capabilities available in Excel are not available in Power View (such as Top 10 x); often this can be addressed with DAX formulas instead.

Support for Power View in Excel 2013

Client Computer

Editable & interactive

SharePoint Online (Office 365)

Interactive

SharePoint configured to render workbooks in Excel Services

Interactive

SkyDrive

Not visible

SharePoint configured to render workbooks with Office Web Apps

Not visible

More info:

<http://office.microsoft.com/en-us/excel-help/power-view-in-excel-in-sharepoint-server-or-sharepoint-online-in-office-365-HA103276078.aspx>
and
<http://technet.microsoft.com/en-us/library/jj219751.aspx>

OPTIMIZING THE BI SEMANTIC MODEL FOR POWER VIEW

Optimizing a Model for Power View

Table Properties

In Tabular Model or PowerPivot

Default Field Set - The most common fields to be added to Power View table initially

Table Behavior

Power View only; not applicable to Excel Pivot Tables

- Row Identifier – How unique rows are identified; also enables images to be used in reports
- Keep Unique Rows – If fields shouldn't be grouped
- Default Label – What field represents a row; shown in tiles
- Default Image – Image which represents a row of data

Relationships - The relationships between tables are critical for interactivity to work

Optimizing a Model for Power View

Field Properties in Tabular Model or PowerPivot

1 of 2

Images - URLs paths, or embedded in model (if space & memory permits)

Data Category - Allows geography & images to function properly

Descriptions - Displayed as tooltips for fields and tables

Data Type & Format - Decimal, number, text data types with or without currency symbol, decimal places, etc (formats cannot be modified within Power View, although aggregation can)

Sort By - If sort isn't alphabetical (ex: sort Jan, Feb, Mar by month number not name)

Optimizing a Model for Power View

Field Properties

2 of 2

in Tabular Model or PowerPivot

Field Names - Friendly name to display on reports (names and column titles cannot be customized in Power View)

Summarize By - Default aggregation such as Sum, Average, Count

KPIs – Key Performance Indicators

Calculated Fields & Columns - DAX calculations can extend a model significantly! Examples include:

Derived text & numeric columns

Ratios & rankings

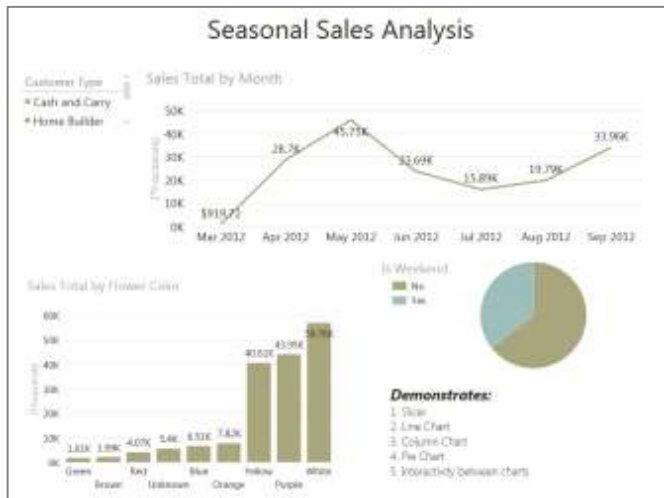
Variances amounts & percentages

Time intelligence

CONCLUSION

Getting the Most out of Power View

Use Power View for the things it's best at:



Visualization

Ad-hoc, interactive, behavior

Exploration

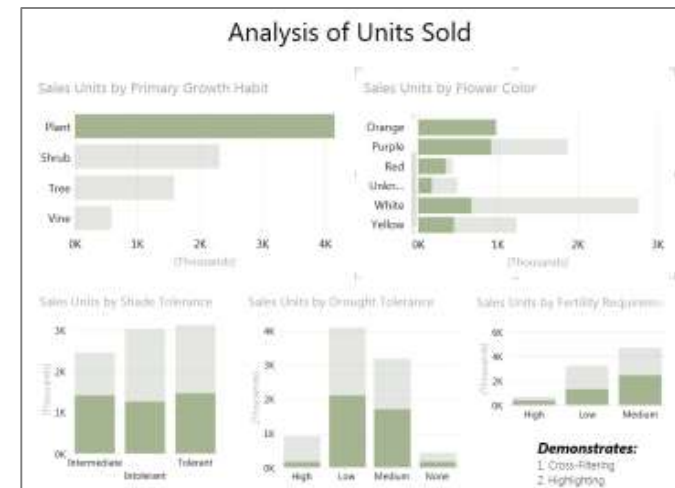
Becoming acquainted with a new set of data

Analyzing categories of data

Interactivity & quick visualization changes

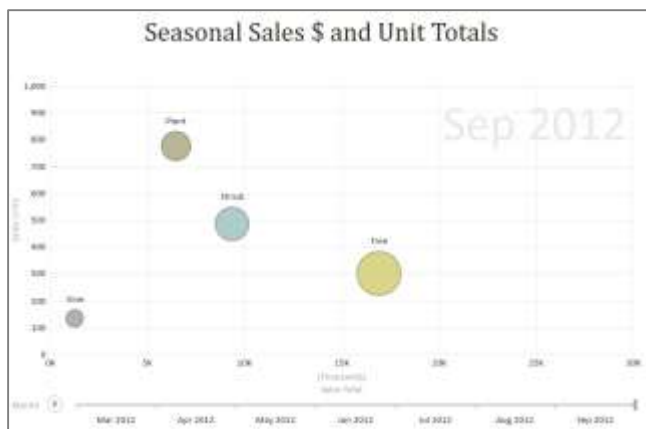
Exposure of relationships

Highlighting, cross-filtering & sorting

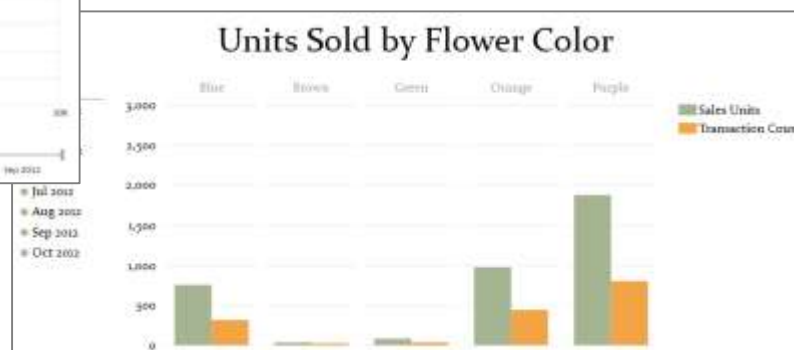


Getting the Most out of Power View

Use Power View for the things it's best at:



Uncovering patterns & trends
Animated play axis, small multiples



***Images which increase
meaningfulness of the data***
Cards & tiles

Getting the Most out of Power View

Use Power View for the things it's best at:

Employee Full Name	Employee Primary Area	Employee Type	Employee Photo
Wade Becker	Grounds	Hourly	
Mason Samuel	Owner	Salaried	
Addison Adams	Purchasing	Hourly	

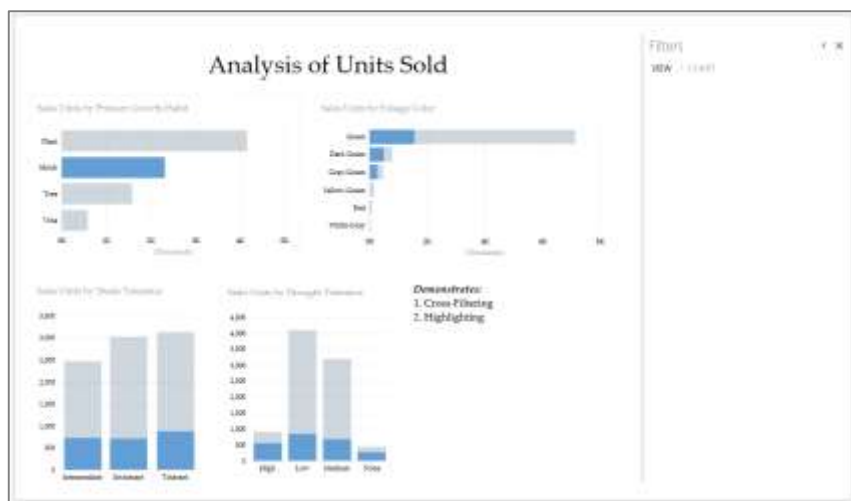
Dimension-only report

Geographic data
Zoom-able Maps



Getting the Most out of Power View

Use Power View for the things it's best at:



Sharing Data During Meetings

Slide Show Format including
interaction when exported to
Power Point

Business-driven reports & prototyping

Use the domain knowledge to get a head start on reporting projects



Getting the Most out of Power View

"Managed" Self-Service BI (Top Down)



Power View
Report



SSAS Tabular
Data Model

"Unstructured" Self-Service BI (Bottom Up)



Power View
Report



PowerPivot
Data Model

- ✓ An understanding of the ***BISM model and report*** = most flexibility
- ✓ ***Optimize*** the model for Power View
- ✓ Understanding of ***DAX*** extend capabilities of Power View

Users with control (or input) over both model & report may have the best experience

Thanks for attending!

Slides at
sqlchick.com
(Presentations & Downloads page)



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