



Introduction to best design practices for  
Visualising Data and Dashboards

By Simranjit Singh Deol



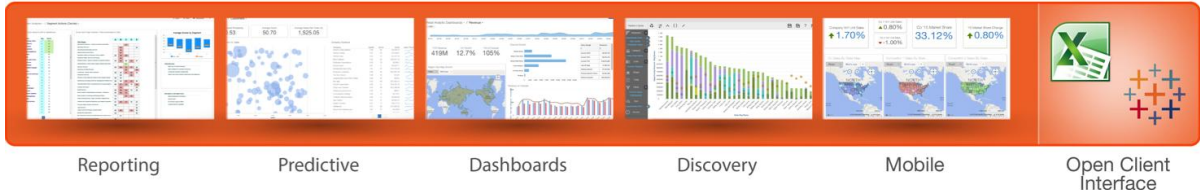
# Agenda/Objectives

- ✓ What are Dashboards?
- ✓ Why are they effective?
- ✓ Visualizing Basics
- ✓ Value-Based Design
- ✓ Dashboard Navigation
- ✓ Design and Layout
- ✓ Q&A

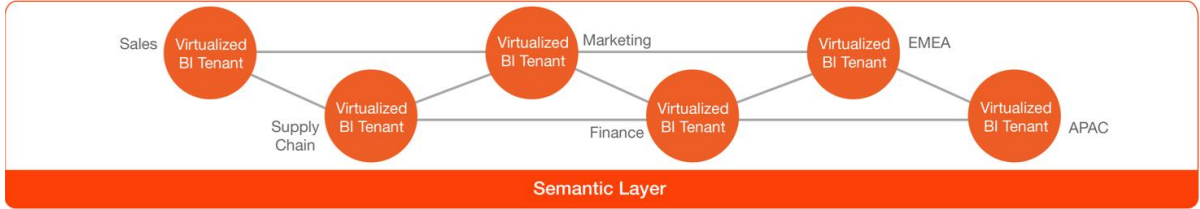


# How Birst Works

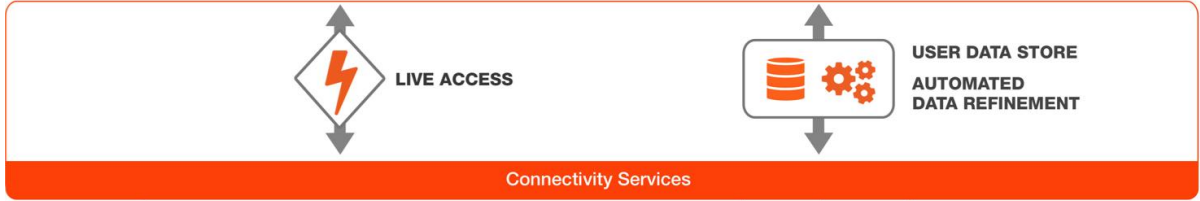
## BIRST ADAPTIVE USER EXPERIENCE



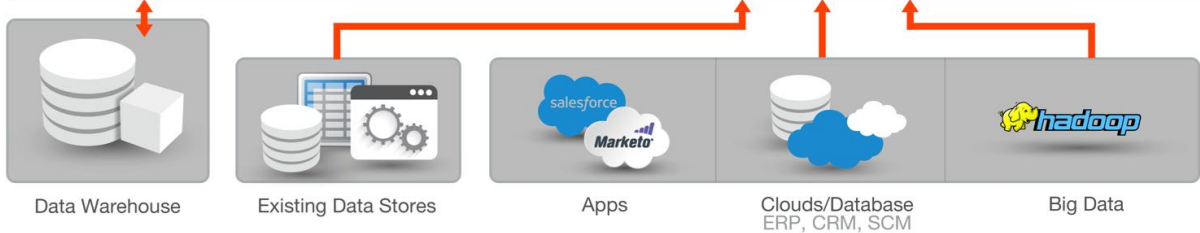
## BIRST MULTI-TENANT CLOUD ARCHITECTURE



## BIRST USER DATA TIER



## ENTERPRISE DATA TIER



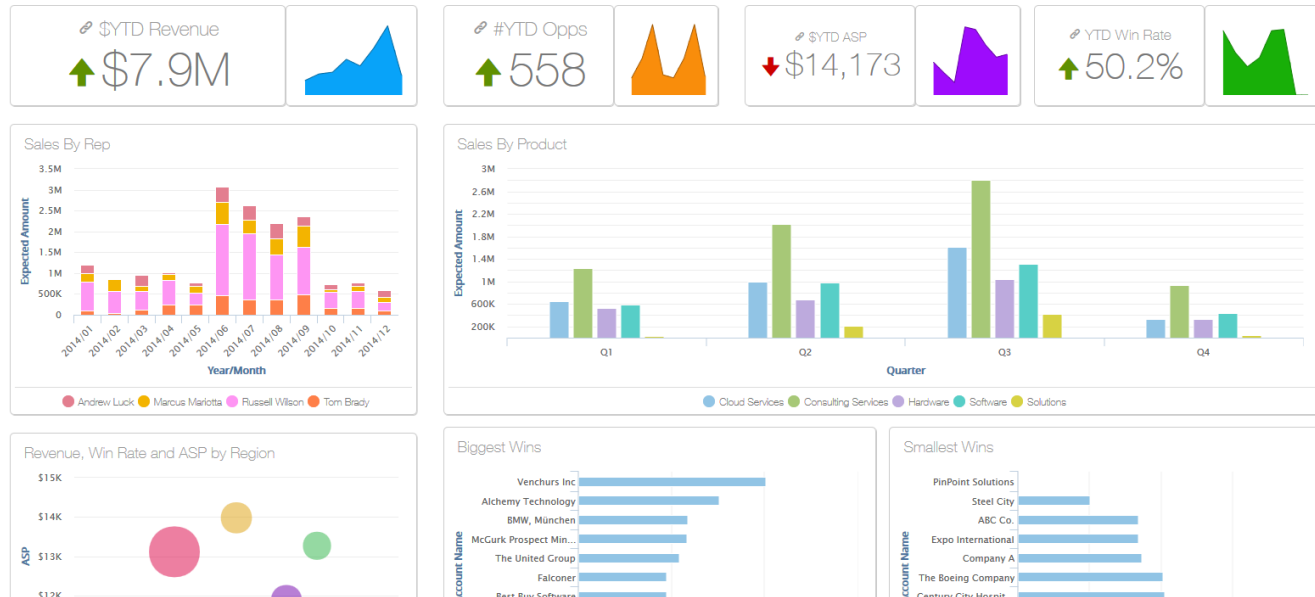
T-156210

Local Data  
Enrichment



# What are dashboards?

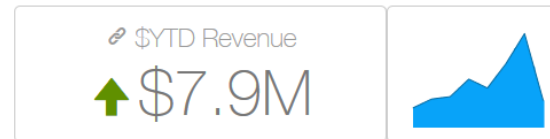
🌀 A dashboard is a collection of tables, charts, images and texts that provide an overview of your business performance data.



# What are dashboards?

“Dashboards **summarise** information from disparate systems to provide a **holistic** view of the organisation.”

“Dashboards **combine** data from different sources and direct user **attention** to the most **important information** so that they can quickly **identify** and react to trends and problem areas.”



# What are dashboards?

“Dashboards are designed to **quickly** and **clearly** communicate information needed to achieve your organisational objectives.”

“Dashboards are designed to display information that is timely, accurate, **valuable** and **actionable**.”



# Why are dashboards effective?

The human mind can't store much information in short term memory.

Dashboards overcome this limitation in **three** key ways...



# Why are dashboards effective?

- 1) Using Charts and graphs to summarise data. It is easier to remember the ups and downs in sales from a line chart than it is to remember the exact figures from a table.

For example, let's look at the table below:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sales (in USD)	4123	3356	3692	3789	4111	3987	3990	4128	4133	4241	4222	4324



# Why are dashboards effective?

- a. What is the annual sales trend?
- b. What was the lowest performing month?
- c. How are things looking for the future?

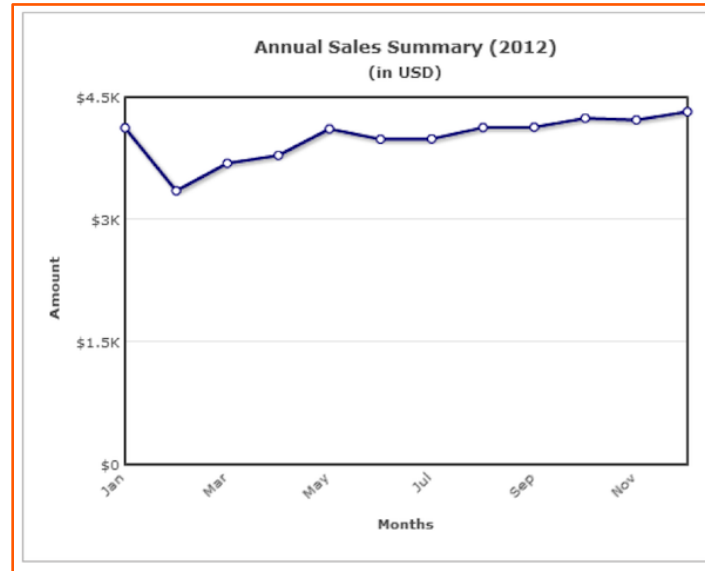
It becomes quite difficult to understand and remember all of the data.

There is a deep desire amongst executives to get “**summarised data**”, to get a “**snapshot**” or to get the “**top-line view**”.



# Why are dashboards effective?

Now try looking at the same data in a graph...



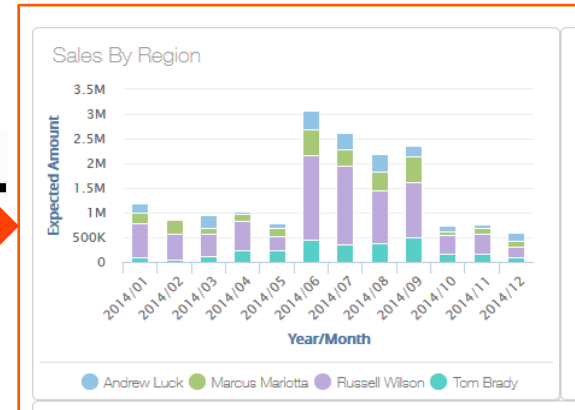
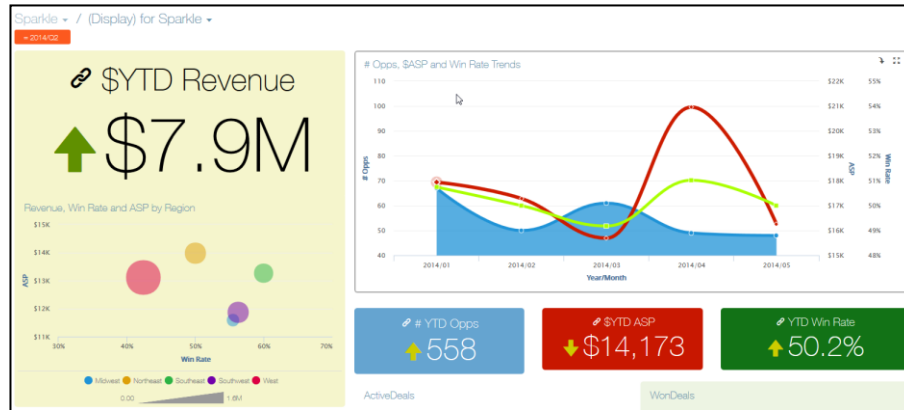
The information here is much easier to **understand** and **remember**.



# Why are dashboards effective?

## 2) Providing an overview/summary screen with drill-down options.

Provides a snapshot view of critical data on a single page, reducing the load on short-term memory. Users can then drill down if they need details about a specific dataset.

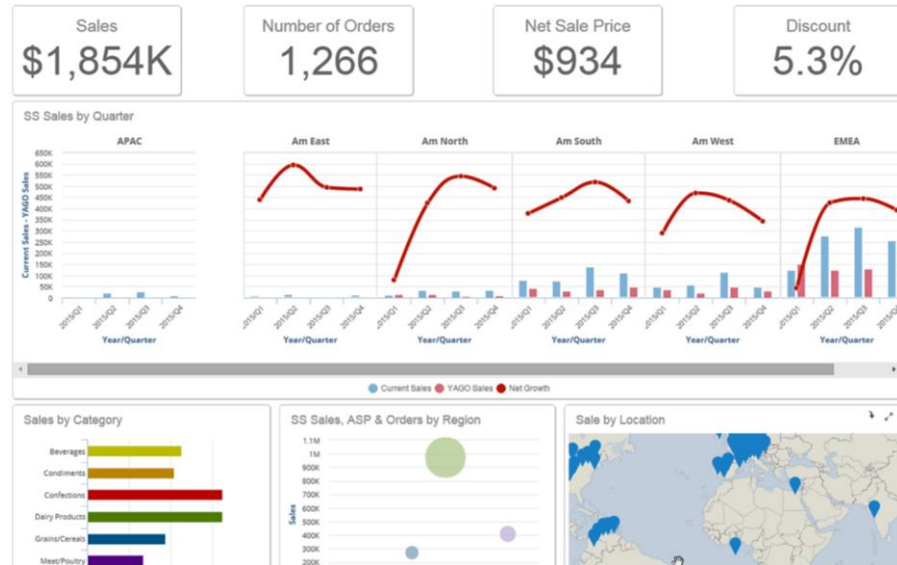


# Why are dashboards effective?

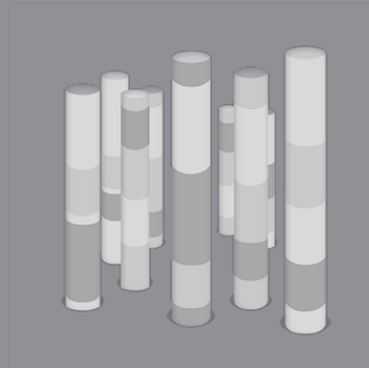
## 3) Splitting data across tabs and placing related data under one tab.

Reduce the cognitive load on the user by breaking information down into digestible chunks.

Also, as related data is placed under one tab, it is easier for the user to analyse it.



# Visualizing with Birst





# Dashboard Basics:

1. **Quick:** Do not make me think
2. **Clear:** Avoid chart junk
3. **Valuable:** Do not waste the space
4. **Actionable:** Data needs context



“Quick” means not making me think

A dashboard should be **generally**  
understandable in **under TEN seconds.**

Like this one:

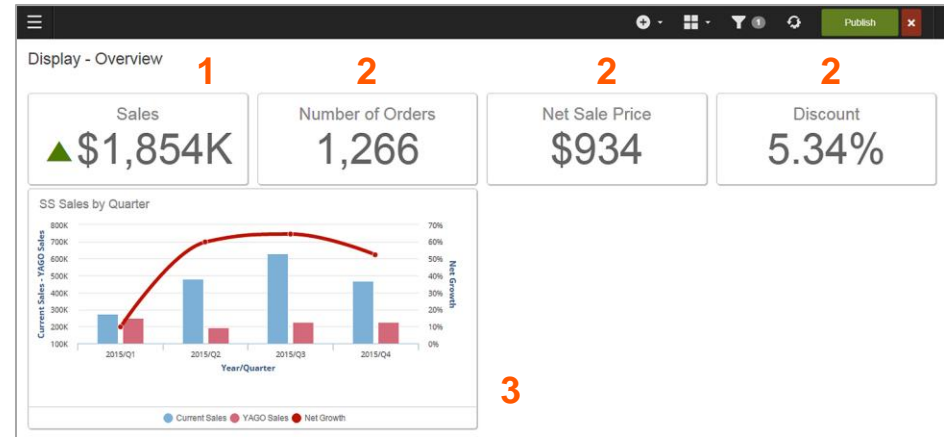


The **critical** pieces should be understandable in  
**less than THREE.**



# The Steps for creating a dashboard

1. Create the primary KVI.
2. Identify and create KVI drivers.
3. Create visualizations that clarify the KVIs.



Decide is it important to show everything on the same page or would it be better to divide the content into several pages.



# Start with a KVI



# What is a KVI?

- ❁ KVI (Key Performance Indicators) are quick performance metrics, which indicate how some key measures (typically revenue and profit) are performing.



# What is a KVI?

Can you guess the top KVIs for these industries?

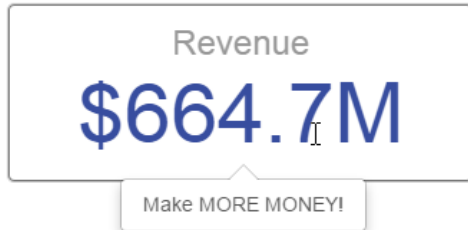
Function/Industry	Example KVIs
Sales	<ul style="list-style-type: none"><li>• [Redacted]</li><li>• [Redacted]</li><li>• [Redacted]</li></ul>
Marketing	<ul style="list-style-type: none"><li>• [Redacted]</li><li>• [Redacted]</li></ul>
Call Center	<ul style="list-style-type: none"><li>• [Redacted]</li><li>• [Redacted]</li><li>• [Redacted]</li></ul>
Finance	<ul style="list-style-type: none"><li>• [Redacted]</li><li>• [Redacted]</li><li>• [Redacted]</li></ul>
Operations	<ul style="list-style-type: none"><li>• [Redacted]</li><li>• [Redacted]</li></ul>
Pharma Sales	<ul style="list-style-type: none"><li>• [Redacted]</li></ul>



# Design Tips - KVIs



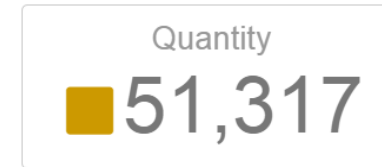
Main KVI should stand out using borders and background colors.



Use useful tooltips/descriptions.



Use the Drill Across options to make the dashlets link across to other pages.



Add visual indicators to show a quick overview on performance.



# Design Tips - KVI

You can layer dashlets on top of each other. For example, you can layer a KPI with a transparent background over an image. Drag a dashlet over another dashlet to activate the layering toolbar and use it to position the layers.

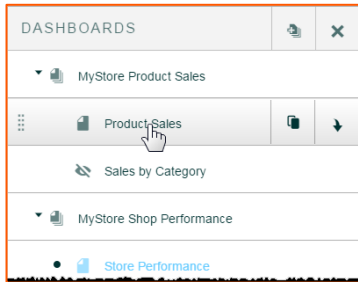


# Dashboard Navigation

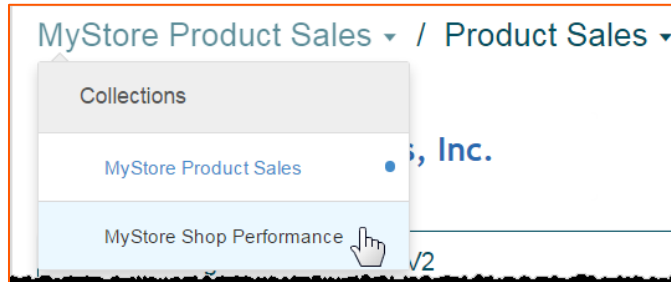


# Dashboard Navigation

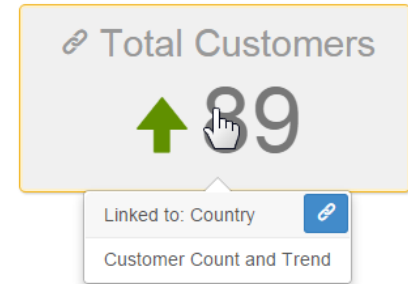
There are multiple ways to guide business users through multiple dashboards.



Dashboards Drawer



Dashboards Breadcrumbs

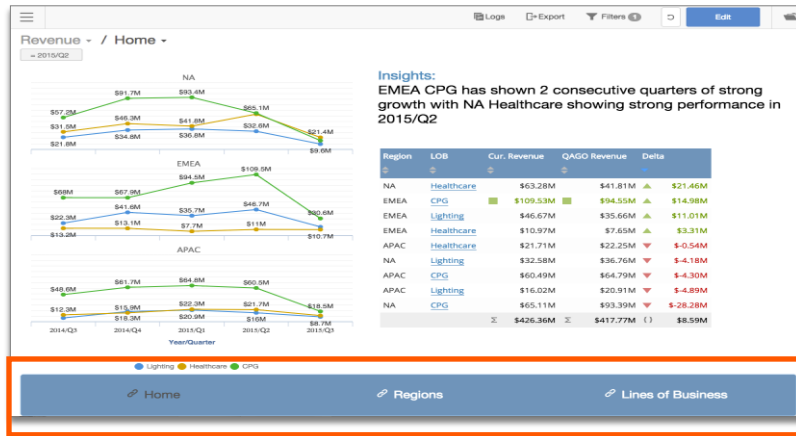


Drill-across (reports, KPIs, buttons)



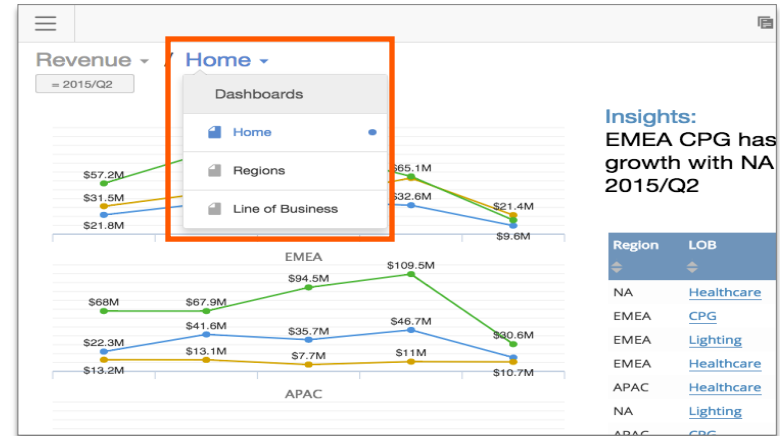
# Dashboard Navigation

- ✿ People should not notice the navigation experience.
- ✿ Implement the navigation in a way that supports the structure and purpose of the app, without calling attention to it.
- ✿ Consider adding buttons as a navigation bar (aim for about 5 buttons maximum).



Good

VS



Average



# Drill-Across links

- ✿ A drill-across link connects a KPI, button, chart, or tabular report to another dashboard.
- ✿ For example, from a high-level depiction you could link to additional reports that show more context and detail.

Big buttons and absence of detailed menus make Dashboards 2.0 friendly to touch input devices, such as tablets or mobiles.

 Canadian Stores

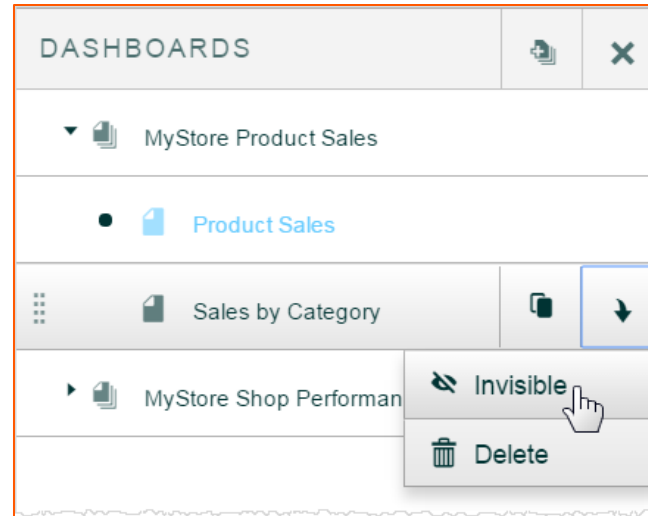
 Sales by Category

**Tip:** Drill-across links can pass filters or conditional display configurations as parameters. Chart reports can also pass column values.



# Hiding Navigation

- ✿ In some designs you want more control over when and how a user gets to a dashboard.
- ✿ You can make dashboards invisible so that they do not show up in the dashboards drawer or breadcrumbs.
- ✿ Then you add a drill-across link to the appropriate button, KPI, or report.



# Value-Based Design



# A one page illustration...

1. Identify what you get hired and fired on:
  - Revenue (**KVI**)

2. Think of what influences this (KVI drivers)

- # Opportunities (**KVI Driver 1**)
- Average Selling Price (**KVI Driver 2**)
- Win Rate (**KVI Driver 3**)

3. Think of who influences your KVI drivers. Who you can call / fire. (**Action Points**)

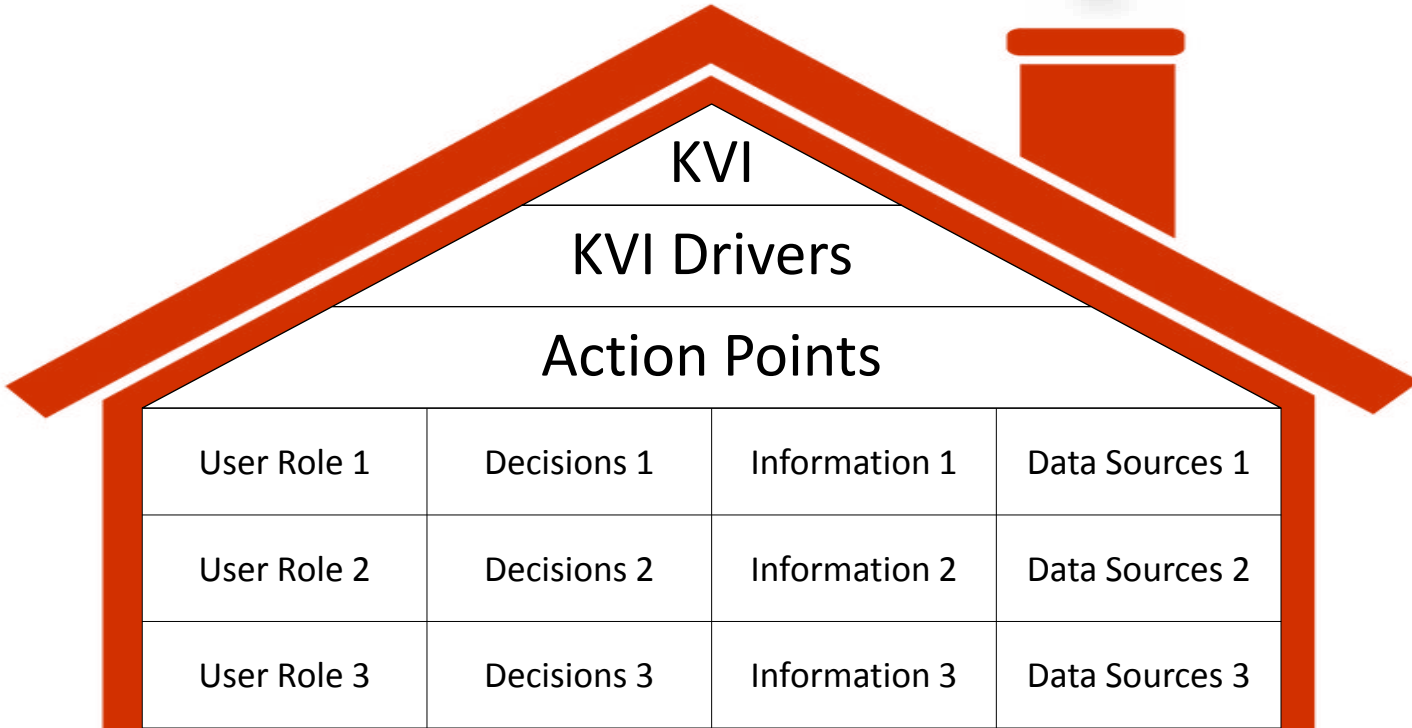
- Sales Organization (**Action Point 1**)
- Product Management (**Action Point 2**)
- Marketing/Customer (**Action Point 3**)

4. Mash it all together...

- 4 measures x 3 dimensions = a lot of options...



# VBD - House of Value



# Example: Can you fill in the blanks?

KVI - What is the business held accountable for?	New \$ Assets		
KVI Driver(s) - What are the key things that cause the KVI to go up or down?			
Action Points – 1) Who will you call? 2) What will influence what they do?  - The actual things that you can take action on that influence the KVI Drivers.	1. <u>Sales Org (Region / Branch / Advisor)</u> 2. . 3. .		
Who will want to see the dashboards?	User Role 1: <u>Exec</u>	User Role 2:	User Role 3:
Decisions: What actions will they take?	Which market or branch to call? Which products to focus on?	Which advisor to call? Which products to focus on?	Which customer lead to work? Which products to focus on?
Information: Where does the data live?	<ul style="list-style-type: none"> <li>Assets sales by branch/product</li> <li>Back Office + CRM systems</li> </ul>	<ul style="list-style-type: none"> <li>Assets sales by advisor/product</li> <li>Back Office + CRM systems</li> </ul>	<ul style="list-style-type: none"> <li>Asset potential by customer/product</li> <li>Back Office + CRM systems</li> </ul>

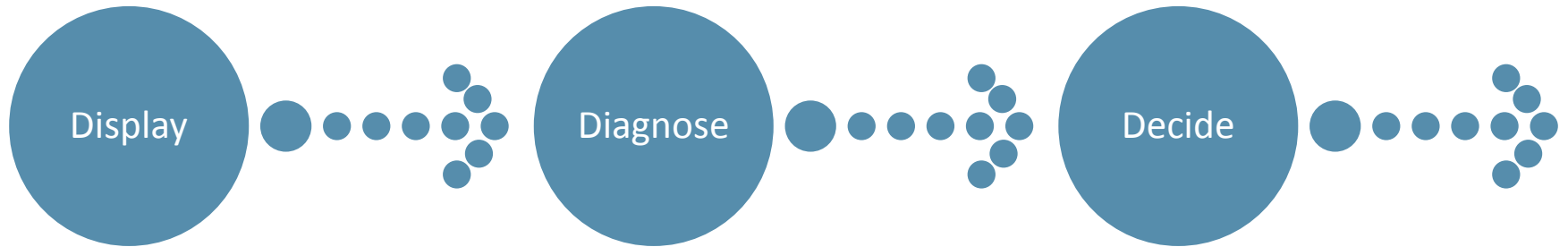


# Example Solution

KVI - What is the business held accountable for?	New \$ Assets		
KVI Driver(s) - What are the key things that cause the KVI to go up or down?	# of Customer Leads * % Work Rate * % Close Rate * \$/Closed Lead		
<p>Action Points –</p> <ol style="list-style-type: none"> <li>1) Who will you call?</li> <li>2) What will influence what they do?</li> </ol> <p>- The actual things that you can take action on that influence the KVI Drivers.</p>	<ol style="list-style-type: none"> <li>1. <u>Sales Org (Region / Branch / Advisor)</u></li> <li>2. <u>Product (Family / Product)</u></li> <li>3. <u>Customer &amp; Leads (for Advisor only)</u></li> </ol>		
Who will want to see the dashboards?	User Role 1: <u>Exec</u>	User Role 2: <u>Branch Manager</u>	User Role 3: <u>Advisor</u>
Decisions: What actions will they take?	Which market or branch to call? Which products to focus on?	Which advisor to call? Which products to focus on?	Which customer lead to work? Which products to focus on?
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# These Principles Turn Information into Value-based Dashboards



# Display : overview

Strongly Recommend

**KVI Trend**

Strongly Recommend

**KVI Driver1 Trend**

Strongly Recommend

**KVI Driver2 Trend**

Strongly Recommend

**KVI Driver3 Trend**

Strongly Recommend

**KVI Trended by Top Action Point**

**KVI Trended by 2<sup>nd</sup> Action Point**

**KVI rankings for 3<sup>rd</sup> Action Point**

**KVI/Driver1/Driver2 by Top Action Pt.**

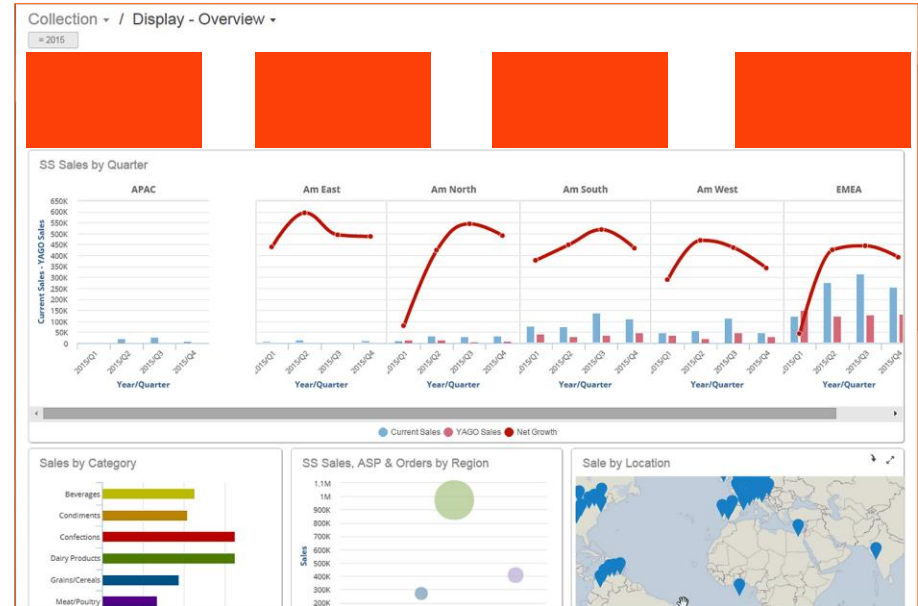


# Exercise:

Q: Which of these is the primary KVI?

- Number of Orders
- Net Sales Price
- Discount
- Sales

Q: Can you place each of the KVI Drivers into their correct places?



- This 2-4 pages are where the real analysis and diagnosis occurs
  - **Goal:** enable diagnosis of issues in a manner that leads to action
  - **Content:**
    - Multiple reports showing **interaction** of drivers / KVI / action points
    - Lots of filter use
  - Generally Diagnosis pages are organised by either:
    - **KVI Drivers** (e.g. Receivables, Deal Size, Close Rate)
    - **Key Action Points** (e.g. Products, Channels, Locations)



# Diagnose – KVI Driver

KVI:	D1:	D2:	D3:
	AP1:	AP2:	AP3:

**Strongly Recommend**

**Driver 2 Trend by Action Point**

**Strongly Recommend**

**Driver 2 & 3 vs KVI by Action Point**

**Strongly Recommend**

**Driver 2 by Action Points**

**KVI Drivers by Action Points**



# Diagnose – Action Point

KVI:		D1:		D2:		D3:	
		AP1:		AP2:		AP3:	

Strongly Recommend

KVI Trend by Action Point

Strongly Recommend

KVI by Action Points

Strongly Recommend

KVI & Drivers by Action Point

KVI & Driver by Action Point



Decide

# : Detail Page

- ✿ Detail page enables user to take finite actions to improve KVI and KVI drivers
  - This is the page where most analysis ends up – with a list of specific items on which to take action as filtered by the analysis performed on the Diagnosis pages



Decide

# : Tactical Lists



✿ Lists of items for specific action regardless of analytical process:

For example:

- A list of top overdue invoices.
- A list of top customers without an account review in last 30 days.
- A list of items with stock outs in last 7 days.
- A list of top unfulfilled orders.





# Value-Based Design (Recap)

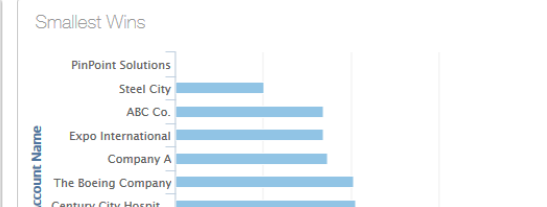
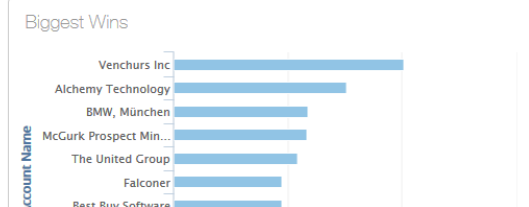
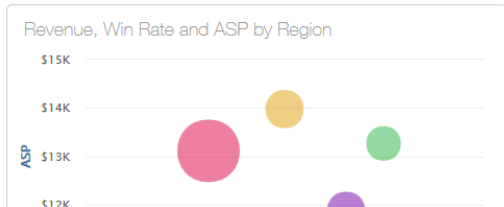
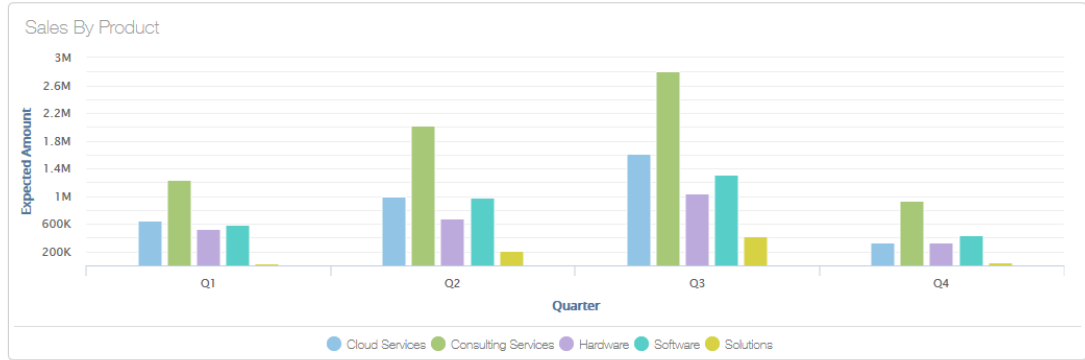
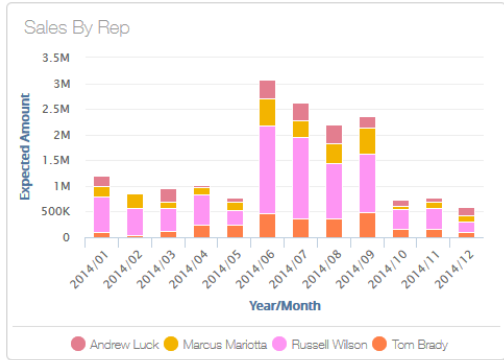
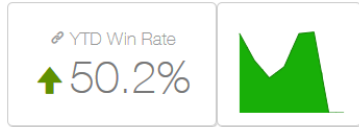
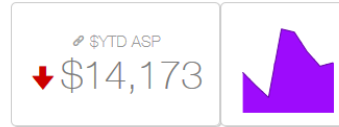
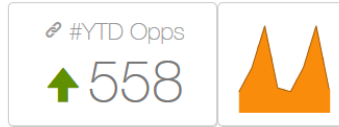
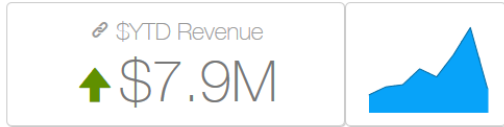


# VBD Display – Baseline



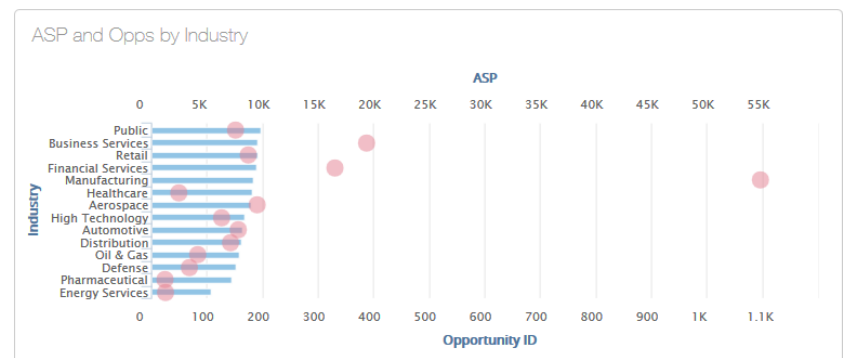
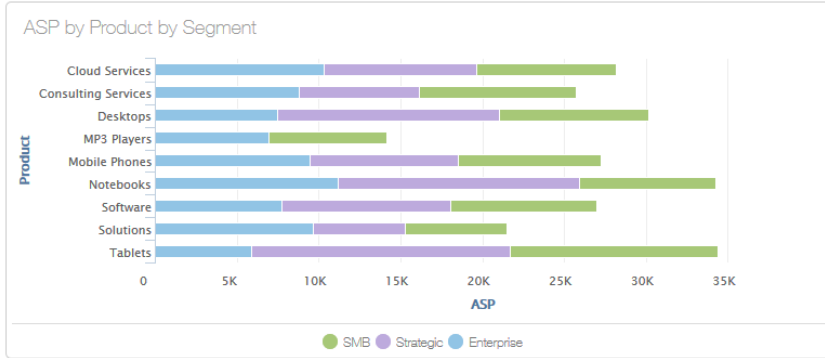
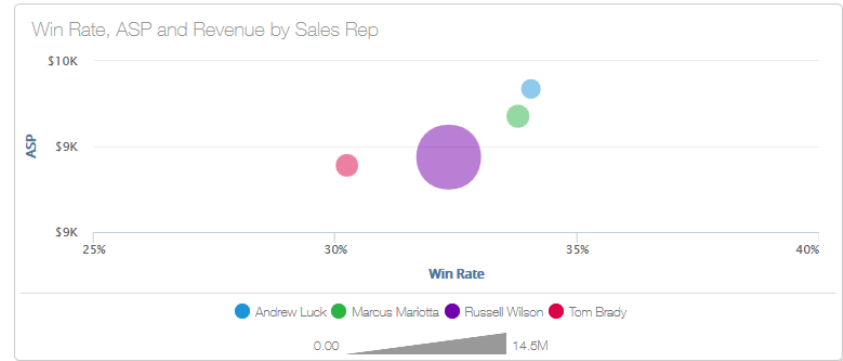
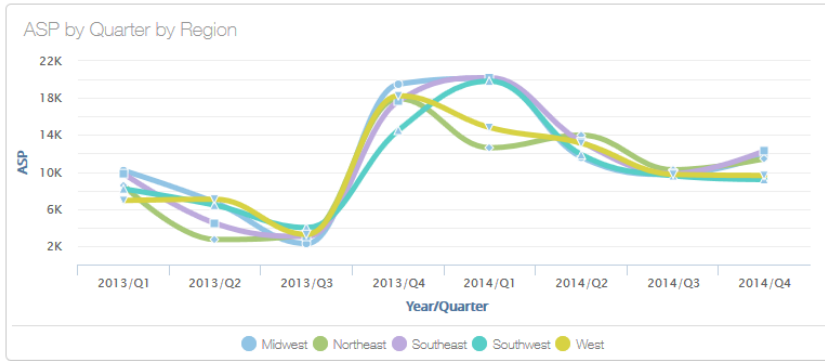
VBD ▾ / (Display) Monitor View ▾

2014/Q2



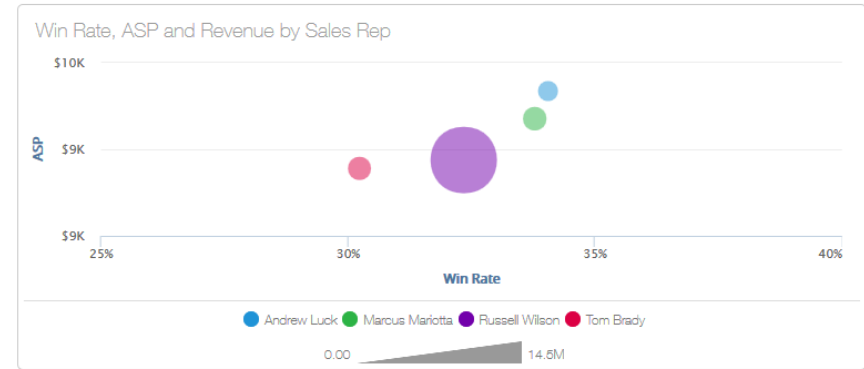
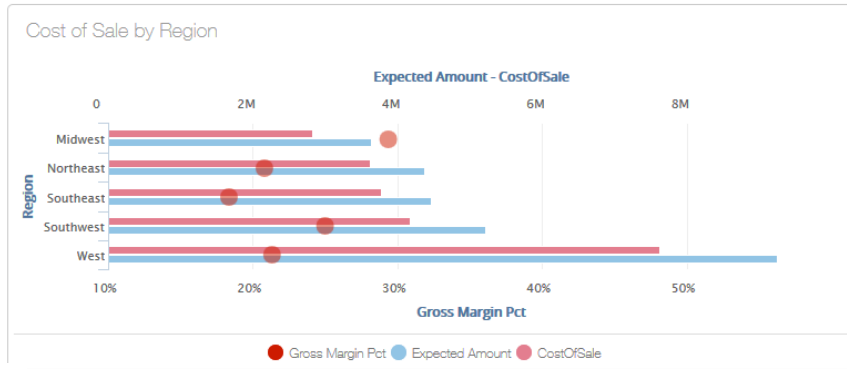
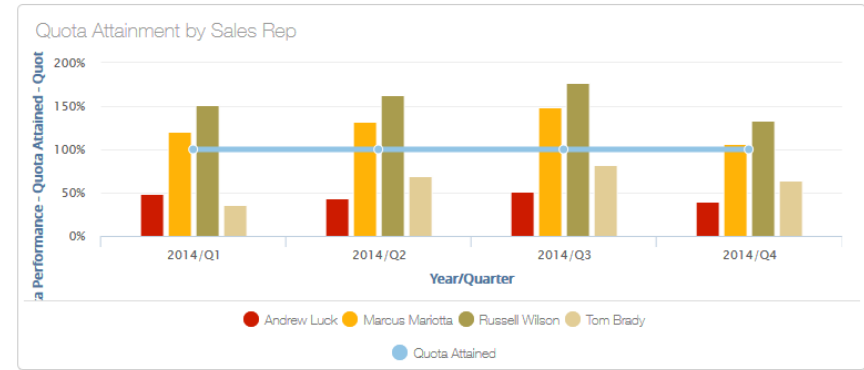
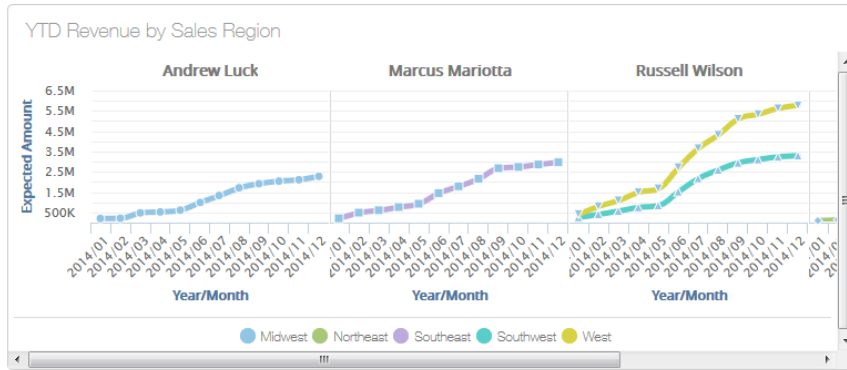
# VBD Diagnose – KVI Driver (ASP)

VBD ▾ / (Diagnose) Analysis by Average Deal Size ▾



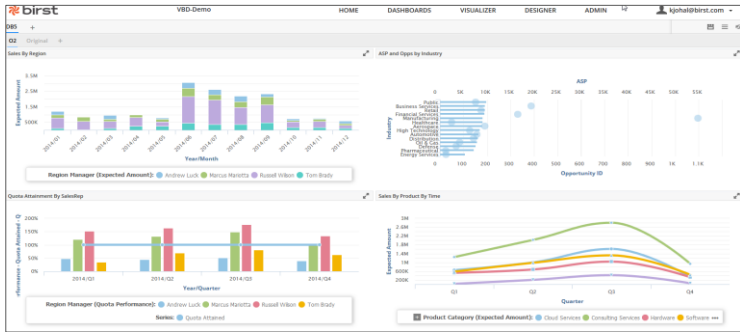
# VBD Decide – Action Point (Sales Org)

VBD ▾ / (Diagnose) Analysis by Sales Region ▾



# From VBD to Good UX

1

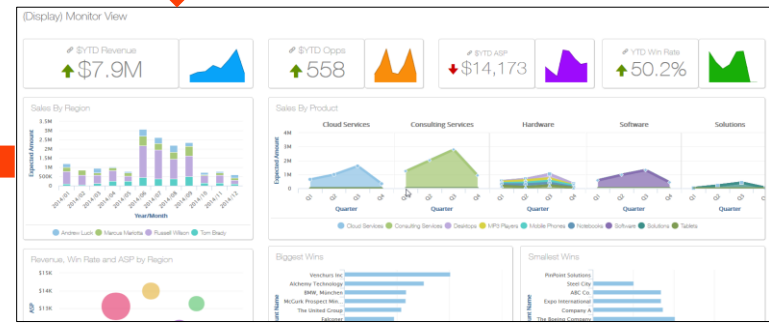
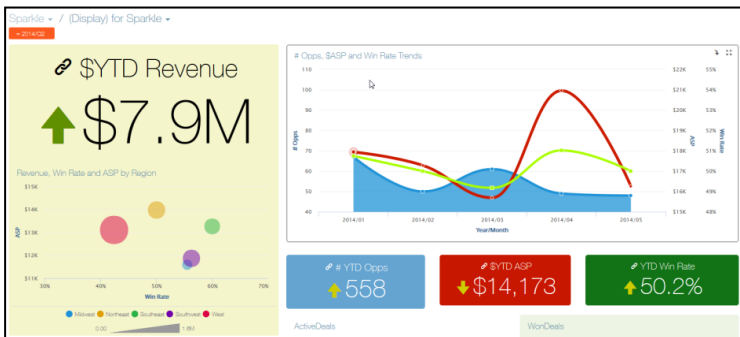


2



Good UX

VBD



# The Dos and Don'ts of VBD

## Do

- Start with a House of Value
- Identify your KVI
- Map out your drivers
- Determine key action points
- Start with the highest role
- Test that decisions can be made with your dashboard

## Don't

- Recreate what you already have in Excel
- Assume you know the drivers without testing out the math
- Create a bunch of chart junk and see what looks good
- Build too much without putting on your analyst hat



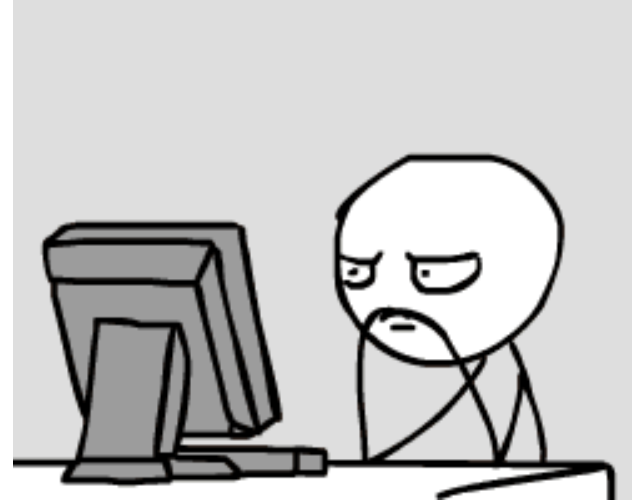
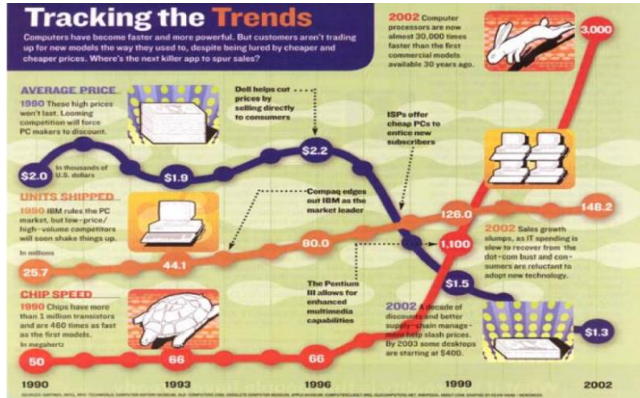
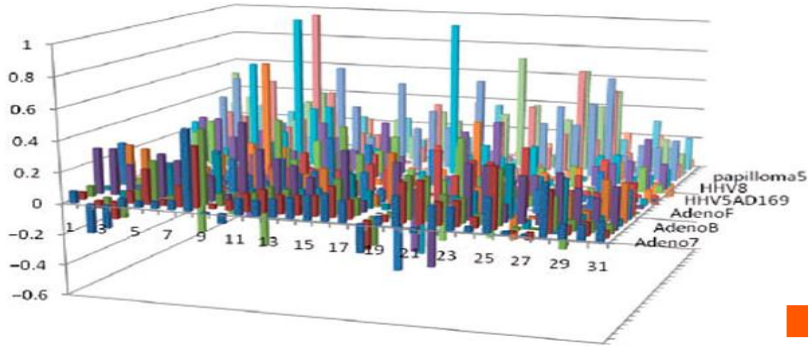


# Dashboard Basics:

1. **Quick:** Do not make me think
2. **Clear:** Avoid chart junk
3. **Valuable:** Do not waste the space
4. **Actionable:** Data needs context



# Clear – Avoid Chart junk

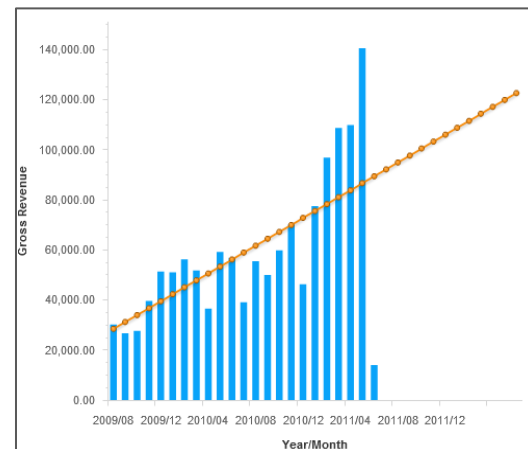
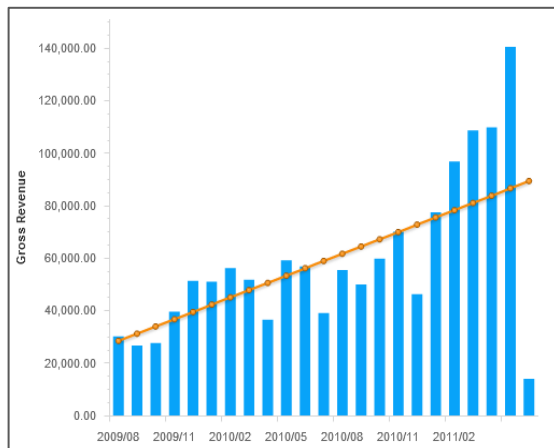


# Predicting Trends

To create a future prediction we must convince Birst to include dates in the future. The easiest way to do so is to add Time Series Measures > Year Ago > Gross Revenue > By OrderDate > YAGO Sum to the report.

Because data for the year ago sum exists in the future Birst will extend the date range and the chart should change to the following.

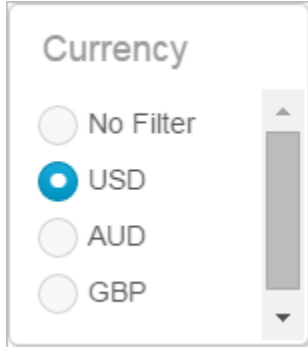
**Tip:** For better accuracy there are external plugins that can be used.



# Filters

Filters help end users explore different levels of detail. Placing an embedded filter next to a dashlet that it affects helps to provide context.

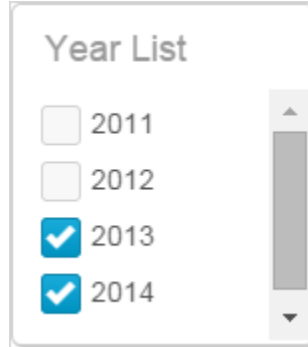
If a filter is invisible users will not be aware of its presence and will be unable to modify it. This can be useful when the displayed data is filtered based on the user's position/privileges.



Currency

- No Filter
- USD
- AUD
- GBP

A vertical scrollbar is visible on the right side of the filter box.



Year List

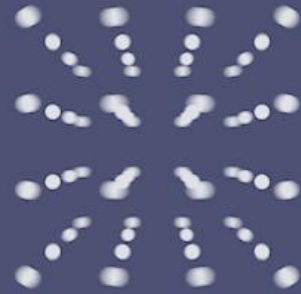
- 2011
- 2012
- 2013
- 2014

A vertical scrollbar is visible on the right side of the filter box.

**Tip:** For better performance and usability, set a default value for the top filter in the group.

**'Use as display filter'** causes the filter to be applied on data in memory rather than at the database





# Dashboard Optimisation



# Dashboard optimisation using filters

Birst generates a time dimension from a year 1900 to a year 2050 by default. This can make it difficult for users to select values of interested. If a filter contains thousands of values the dashboard load times might affected as well.

It makes sense to define a filter in to only show the values relevant to the users.

## BQL Code

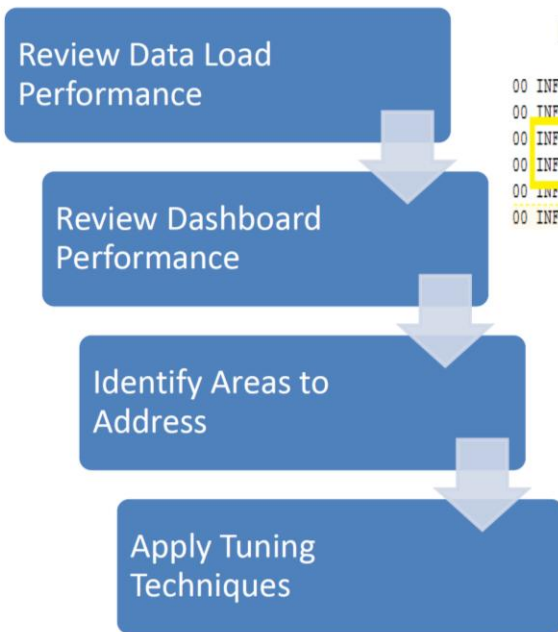
```
SELECT [Time.Year] FROM [ALL] WHERE  
[Time.Year] > 2005 and [Time.Year] < 2015 ORDER  
BY [Time.Year] DESC
```

Query Column Name (optional)



# Dashboard Optimisation

🌀 Birst can sometimes need performance tuning. Here is an overview of the tuning process:



## Load Log

```
00 INFO - Finished LoadStaging [ST_All_Transaction_with_Premium_Rate] for processingG
00 INFO - Logging step LoadStaging [ACORN] for processingGroup [001 Data Cleansing] f
00 INFO - Finished LoadStaging [ACORN] for processingGroup [001 Data Cleansing]
00 INFO - Elapsed Time = 8 minutes, 48 seconds for: LoadStaging
00 INFO - Logging step LoadWarehouse [ACORN] for processingGroup [001 Data Cleansing]
00 INFO - Starting LoadWarehouse [ACORN] for processingGroup [001 Data Cleansing]
```

## Query Log

```
[1D] DEBUG - DashboardMongoDBCache.getDashboardPaths() time = 3
[1D] INFO - Logical Query: SELECT [Case_Data_311.Category] FROM [A
[1D] INFO - Missed Cache:3789:SELECT [Case_Data_311.Category] 'Cat
[1D] DEBUG - Connection is closed or not valid for thread (Thread[T
[1D] INFO - Physical Query:3789:1286ms:
```

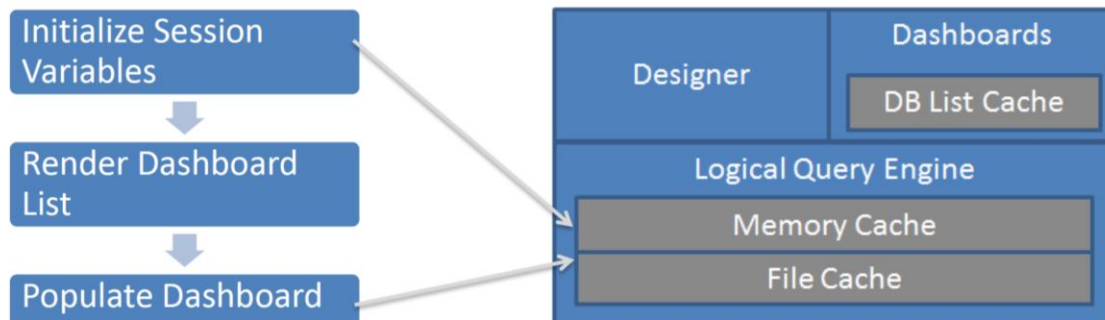
```
[1D] INFO - Logical Query:3789:1294:21:Rows-21,Time-1294ms
[1D] DEBUG - Cached Resources never expires
[1D] INFO - Result set received (database) for query: SELECT [Case
[1D] INFO - Logical Query: SELECT [Time.Year] , [Opened: Avg: Days
[1D] INFO - Missed Cache:3790:SELECT [Time.Year] 'Year', [Opened: A
[1D] INFO - Physical Query:3790:213ms:
```



# Dashboard Optimisation

- ❁ When rendering a lengthy detail report, there can be delays on the server due to the amount of rendering on the server.
- ❁ Here are some good solutions for this:
  - ❁ We can use Asynchronous Rendering
  - ❁ We can create a top “N” records prompt
  - ❁ We can use Scheduled Report Distribution

Best Optimized by



# Display Filters

- ✿ When doing report-level data manipulation through advanced custom expression functions, always use display filter.
- ✿ This is to avoid querying the same data set repeatedly and to allow filtering on the data currently in memory. This saves a lot of loading time.

The screenshot shows a 'Filter Column' dialog box with the following fields and options:

- Column: Product\_Category
- Filter Type:  Data,  Display,  Set-based
- Prompted:
- Apply to Measure: All
- Relation: =
- Use variable:
- Value: [Empty text box]
- Show Values: [Button]
- Save: [Button]
- Cancel: [Button]



# Display Filters

In short the difference between regular data operations and display operations is this:

- ✿ Data operations are carried out at the database level and return results that meet the criteria.
- ✿ Display operations are carried out after the database returns a result set for the report query.
- ✿ Display operations include DISPLAY WHERE, DISPLAY BY, RANK, PTILE (percentile calculations) and expressions.



- SELECT [City],[Revenue]  
FROM [All] **WHERE**  
[Product]='Laptop'
- SELECT [City],[Revenue]  
FROM [All] **WHERE**  
[Product]='Monitor'

- SELECT [City],[Revenue]  
FROM [All] **DISPLAY WHERE**  
[Product]='Laptop'
- SELECT [City],[Revenue]  
FROM [All] **DISPLAY WHERE**  
[Product]='Monitor'



# Display Filters

- ✿ However there are problems when it comes to using Display Filters
- ✿ Applying Display Filters at the wrong level can yield different results so be careful
- ✿ For example, wanting to know how much someone has made during their life in the company

For example:

- `SELECT [City],[Revenue]  
FROM [All] WHERE  
[Product]='Laptop'`
- `SELECT [City],[Revenue]  
FROM [All] WHERE  
[Product]='Monitor'`
- `SELECT [City],[Revenue]  
FROM [All] DISPLAY WHERE  
[Product]='Laptop'`
- `SELECT [City],[Revenue]  
FROM [All] DISPLAY WHERE  
[Product]='Monitor'`

Filter Column

Column: Product\_Category

Filter Type:  Data  Display  Set-based

Prompted:

Apply to Measure: All

Relation: =

Use variable:

Value:  Show Values

Save Cancel



# Cache Seeding

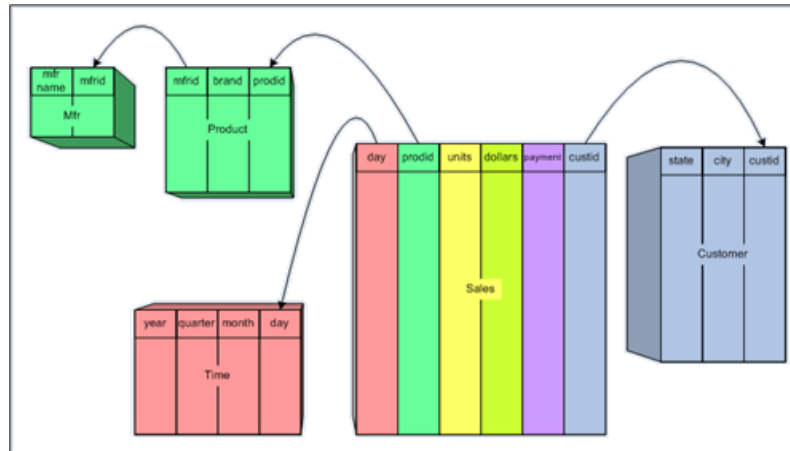
✿ Cache Seeding is when you automatically populate cached for your space with pre-defined reports and queries. For example:

- ✿ Scheduled Reports
- ✿ BirstConnect Tasks
- ✿ Web Services



# Automated Pre-Aggregation

- ✿ Automated Pre-Aggregation is when Birst allows you to take any logical query and persist it as an aggregate table. Birst supports:
  - ✿ Automatic update/rebuild of aggregate tables
  - ✿ Incremental updating of aggregate tables
  - ✿ Filtered loads of aggregate tables



# Aggregation VS Caching

## Aggregate

- Stored as tables in data warehouse
- **Unlimited in size**
- There is a delay in data availability
- **Serves broader extended queries**

## Cache



- Stored in files and/or memory
- Limited to 100,000 rows
- **No delay in data availability**
- Serves repeated or similar queries only



# Best Practices for Data Processing

- ✓ Only load necessary levels of detail
- ✓ Do not create unnecessary hierarchies or levels
- ✓ Do incremental extractions of larger data sources
- ✓ Do not target unnecessary columns or tables
- ✓ Only 'analyse by date' for useful dates
- ✓ Avoid excessive history



- 
- ✓ **Quick:** Do not make me think
  - ✓ **Clear:** Avoid chart junk
  - 3. **Valuable:** Do not waste the space
  - 4. **Actionable:** Data needs context
- 





# Design and Layout



“ *In an age where we are almost overwhelmed by data, being able to extract information that is truly of value is essential, and likely demonstrates an ordered and rational business.*

*I might be offered the 'complete package' from a 3rd party software provider and be inclined not to purchase based on poor UX and their ability to present.* ”

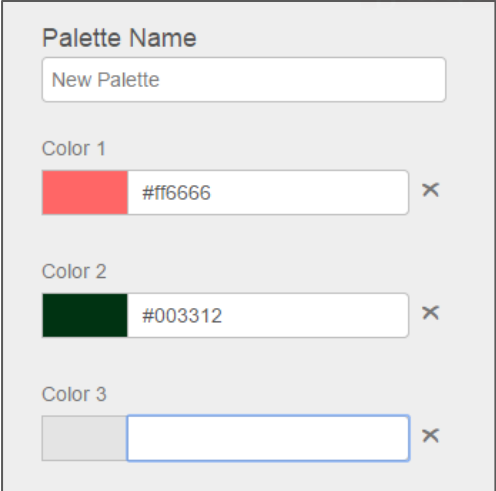
- Richard Hatfield, Director at Allies Limited



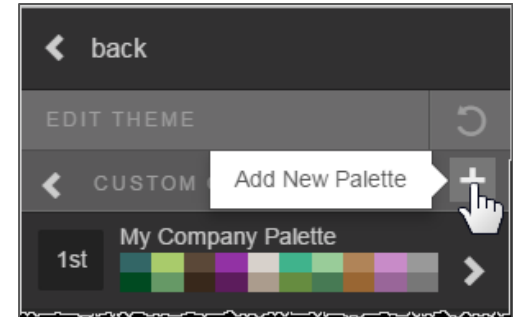
# General Theme Design - Color

- ✿ Obtain the hex color values of your corporate color standards for use in themes.
- ✿ Apply a neutral color to backgrounds so that the color does not detract from the charts.
- ✿ Avoid areas of "loud" colors that distract from the information you want to highlight in reports.

**Tip:** If you do not have the brand guidelines for colour and font, a good tip is to insert the logo as an image and then use the colour picker to select the correct color.

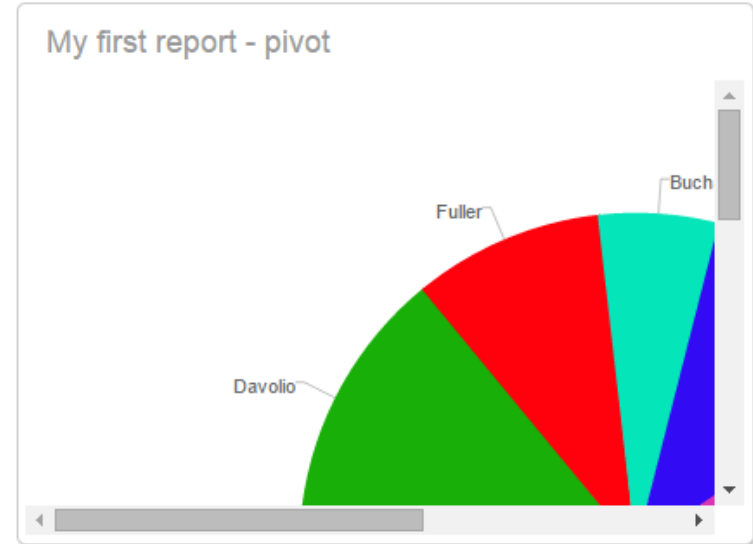


A screenshot of a 'Palette Name' dialog box. It features a text input field at the top containing 'New Palette'. Below this are three color selection slots, each with a small color swatch and a text input field for a hex code. The first slot is labeled 'Color 1' and shows a red swatch with the hex code '#ff6666'. The second slot is labeled 'Color 2' and shows a dark green swatch with the hex code '#003312'. The third slot is labeled 'Color 3' and shows a light grey swatch with an empty text field. Each slot has a small 'x' icon to its right.



# General Theme Design

- ✿ Designer reports have a **fixed resolution**. Because the pixels are fixed it might not be possible to fit the report in the designated area.
- ✿ This looks unprofessional so you should avoid, if possible.
- ✿ Visualizer reports on the other hand are not affected by the resizing issue.



**Tip:** Strive for simplicity. Keep the dashboard clean and simple to make it easy to scan and understand.



# General Theme Design

- ✿ Organise content into sections and subsections that reflect users' needs.
- ✿ Give each section a short, descriptive title.
- ✿ Place the most important information towards the top left of the page.
- ✿ Group related sections together.
- ✿ Use white space, and if needed, lines, light borders around sections, and/or background colors to separate content groups.



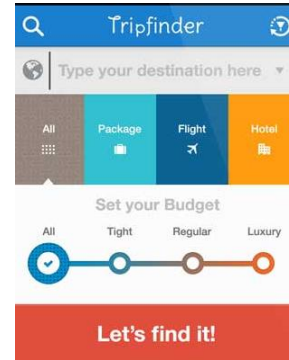
# General Theme Design

- ✿ Order each section by importance, you will need to understand the users goals to achieve this.
- ✿ Try to fit all of the high-level data on one page.
- ✿ Use “small multiples” that allow users to see related data at once to make comparisons.
- ✿ Test it with users.
- ✿ Aim for a minimalistic, flat design.



# What is Flat Design?

- ✿ Flat design is a minimalistic design approach that emphasises usability. It features clean, open space, crisp edges, bright colours and two-dimensional/flat illustrations.



- ✿ Solid, vivid colours give aspects the emphasis needed to set them apart; sans serif typography provides a clean look; UI elements like buttons are clear and noticeable.



# What is Flat Design?

✿ Which one of these two has a flat design?



A flat design calendar for August 2014. The header is a dark grey bar with a left arrow, the text "August 2014", and a right arrow. Below the header is a grid with days of the week (SU, MO, TU, WE, TH, FR, SA) as column headers. The dates are displayed in a clean, sans-serif font. The date 12 is highlighted with a light blue background.

SU	MO	TU	WE	TH	FR	SA
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6



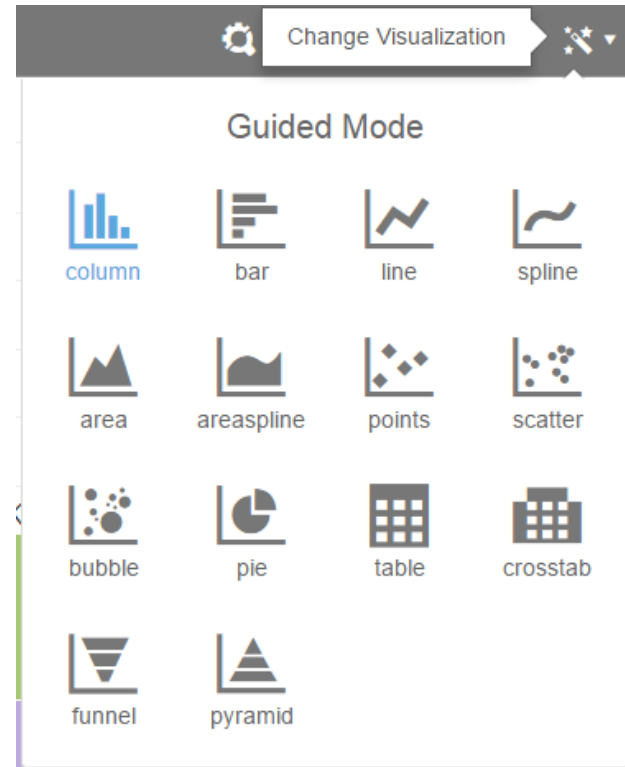
A 3D design calendar for September 2013. The header is a red bar with a left arrow, the text "September 2013", and a right arrow. Below the header is a grid with days of the week (Sun, Mon, Tue, Wed, Thu, Fri, Sat) as column headers. The dates are displayed in a clean, sans-serif font. The date 5 is highlighted with a dark green background, and the date 21 is highlighted with a dark red background. The calendar has a 3D effect with shadows and a dark grey background.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
24	25	26	27	28	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6



# General Theme Design

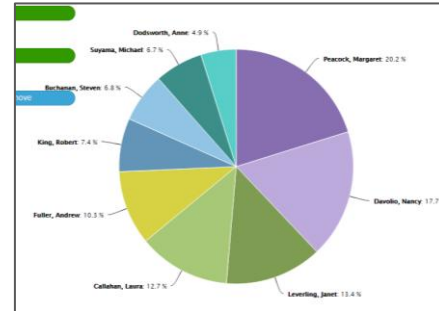
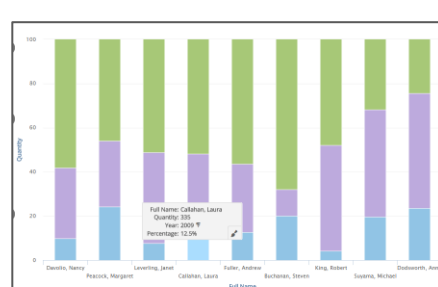
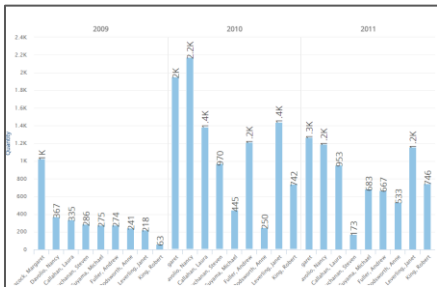
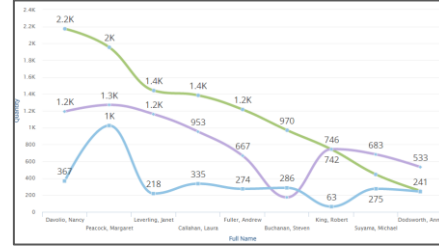
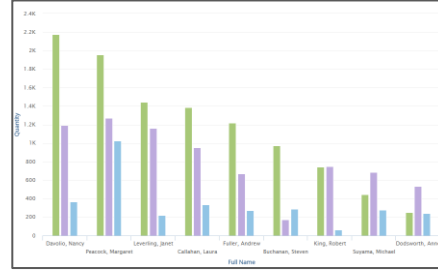
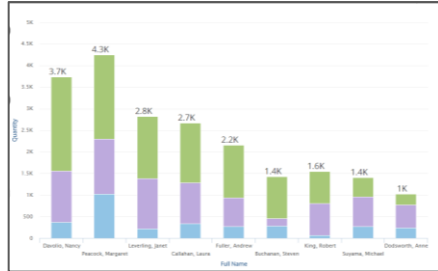
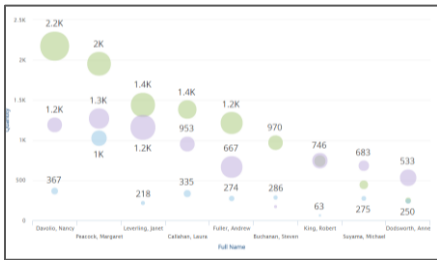
- ✿ Select the best display mechanisms for communicating the data clearly and efficiently. (Use text, graphs, mind maps, icons, images, tables etc.)



# General Theme Design

There are many ways in which we can show the same data, which is best?

	2009		2010		2011		Summ
	Quantity	Gross Reven...	Quantity	Gross Reven...	Quantity	Gross Reven...	
Buchanan, Ste...	286	4,330.40	970	23,970	179	2,339.90	£
Callaghan, Laura	335	9,997.20	1,384	30,801.12	863	24,053.90	£
Davidis, Nancy	367	8,836.20	2,174	50,381.88	1,192	23,821.86	£
Dodsworth, A...	241	6,155.90	250	7,002.10	533	27,074.75	£
Fulter, Andrew	274	6,346.80	1,216	37,548.90	667	36,760	£
King, Robert	63	621	742	17,443.85	746	25,078	£
Levering, Janet	218	4,017.60	1,441	41,565.10	1,161	42,528.09	£
Peacock, Marg...	1,026	25,197.70	1,954	40,631.99	1,271	34,315.11	£
Soyama, Mich...	275	5,241.80	465	12,407.99	683	15,917.31	£
Summary	£ 3,085	£ 70,306.60	£ 10,576	£ 261,492.90	£ 7,379	£ 232,208.52	£



# Think creatively about ways to get your [Data] point across

## 1. Color

Hue , Intensity

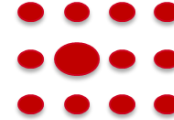
Color - Difference



Form - Orientation



Form - Size



## 2. Shape

Form, Length, Thickness, Orientation

Color - Intensity



Form - Length



Form - Form

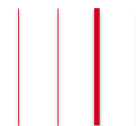


## 3. Size

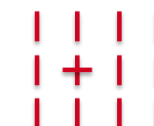
Position - 2D



Form - Thickness



Form - Mark



## 4. Position

Horizontal, Vertical, Depth

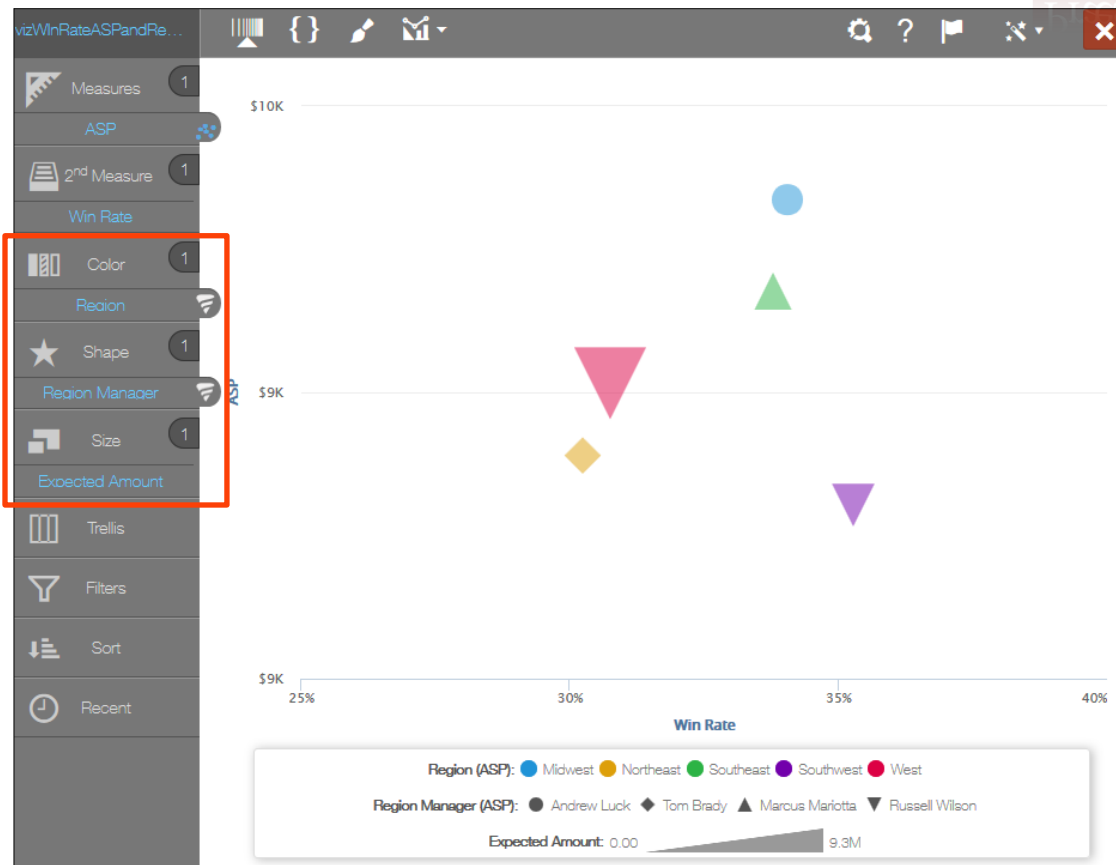
Note:

- Color is more dominant than shape



# Birst Tip:

Use Visualizer to use all the ways – easily!



# Great dashboard checklist

## Value Based Design

- ✓ Start with a House of Value
- ✓ Identify your KVI
- ✓ Map out your drivers
- ✓ Determine key action points
- ✓ Start with the highest role
- ✓ Test that decisions can be made with your dashboard



## Brilliant UX

- ✓ Use color and themes to bring things together
- ✓ Use KPI widget instead of wall of numbers
- ✓ Design for mobile to force important content to take center stage
- ✓ Use the virtual page to add details and hide clutter
- ✓ Use templates for good proportion



# “Valuable”: Do not waste the space



## The top left is most important

- Do not waste it with a logo.

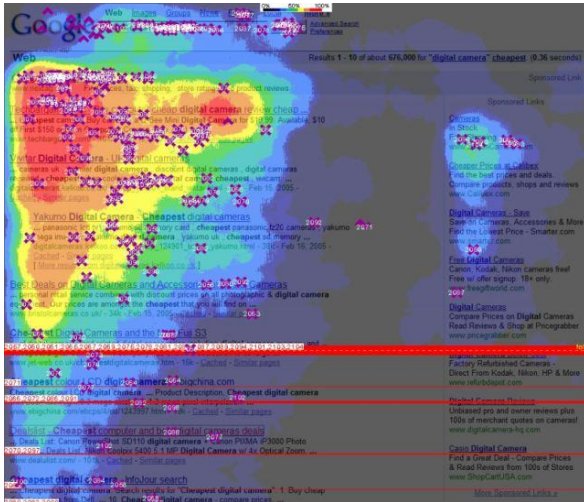
## Whitespace is a good thing

- Clean space = Clearer outliers

**Tip:** Larger gaps and smaller text is better than large graphics and text close together



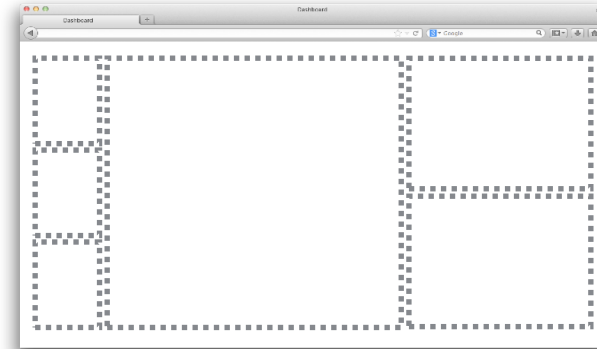
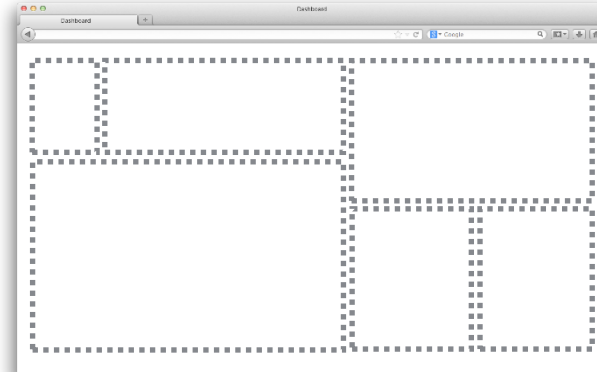
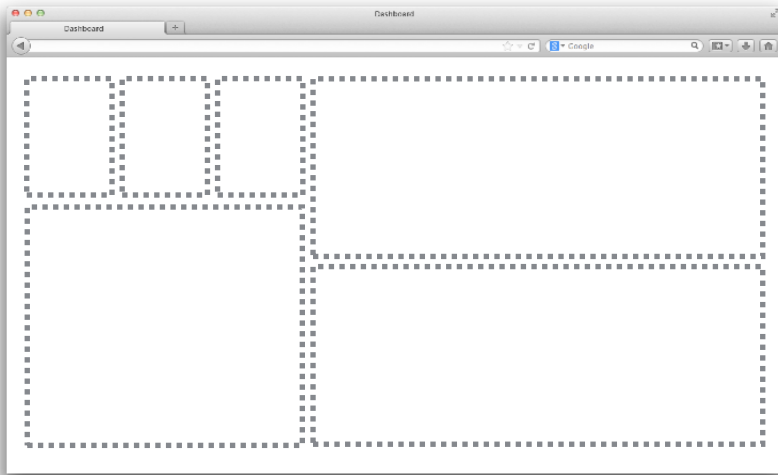
# “Valuable”: Do not waste the space



**Tip:** Heatmapping is a great way to get inspiration for layout ideas.



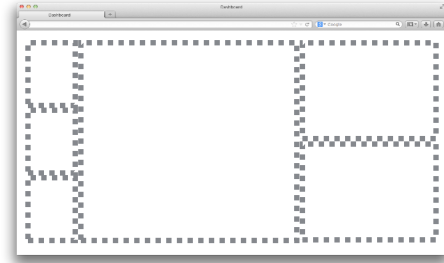
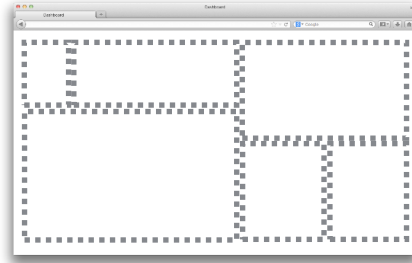
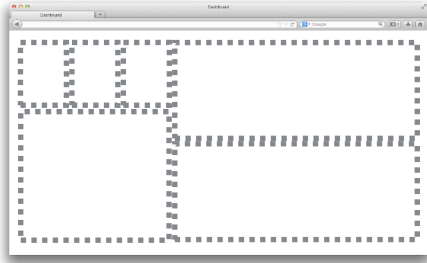
# First Tip: Some layout Ideas



**Q:** What do all of these layouts have in common?



# Birst Tip: Some layout Ideas



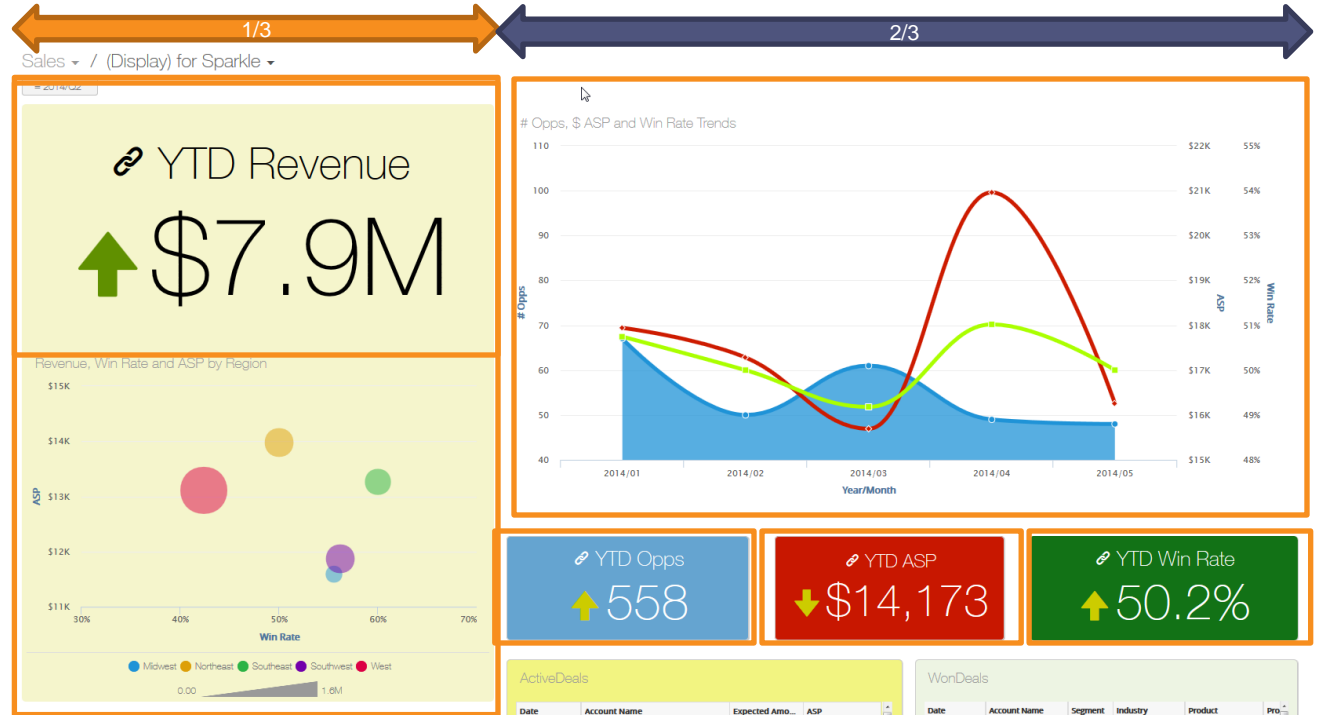
**A:** None of the layouts are evenly proportioned



# Birst Tip: Ratio and proportion

**Tip:** Templates are a quick way to arrange the content into “thirds” which is ideal for mobile devices.

It also keeps things interesting



# Birst Tip...

- ✿ Consider mobile: it forces clarity, with important content center stage.
- ✿ Try to keep all of the important information above the 'fold'. This saves viewing and loading times.

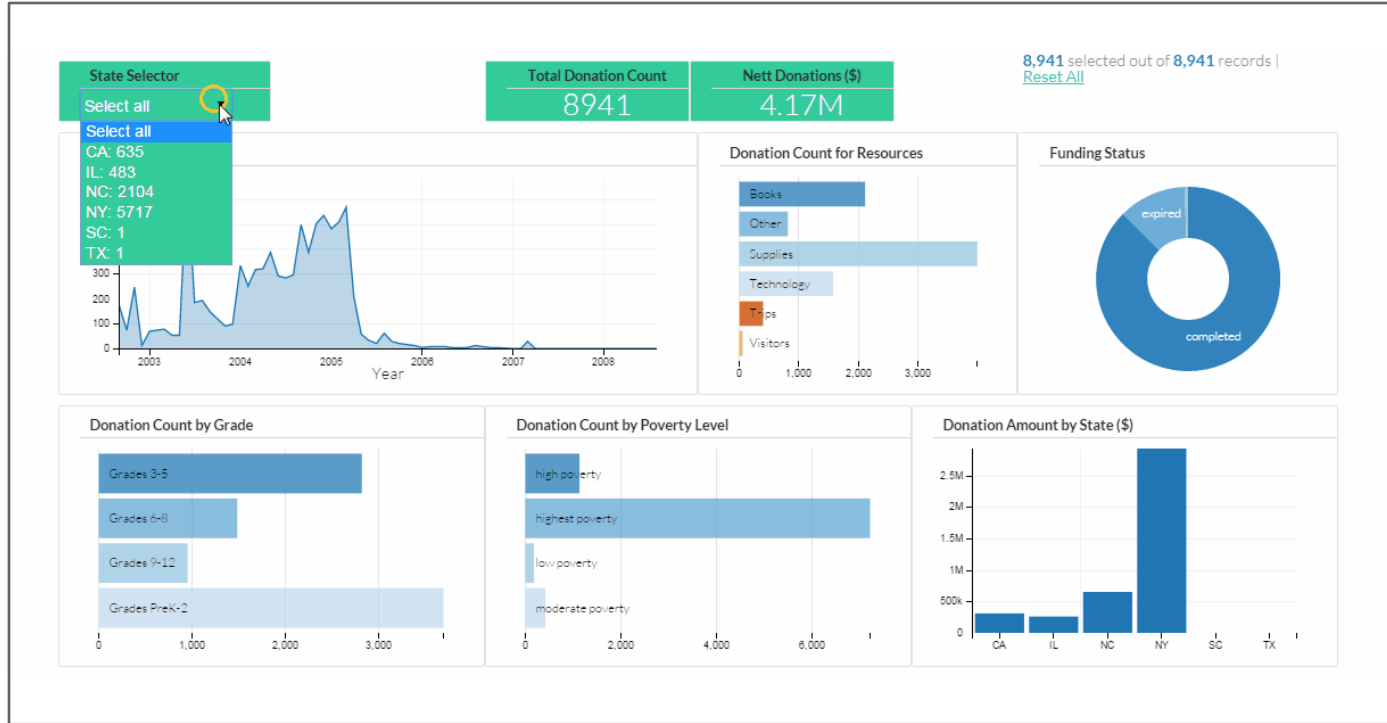


The screenshot shows a mobile dashboard with a 'Deal Funnel' on the left and a list of deals on the right. The Deal Funnel is a horizontal bar chart showing the number of opportunities at various stages: Prospecting, Qualification, Needs Analysis, Value Proposition, M. Decision Maker, Perception Analysis, and Proposal. The list of deals includes columns for Date, Account Name, Segment, and Includ.

Date	Account Name	Segment	Includ
06/01/2014	Church Hill Labs	SMB	Retail
06/01/2014	Combinental Tire North America Inc.	SMB	Manuf
06/01/2014	Juster Technology	SMB	Retail
06/01/2014	Farrish-Hare Electrical Supply Corp.	SMB	Manuf
06/01/2014	Riso Products	SMB	Retail
06/01/2014	Swanson Inc.	SMB	Manuf
06/01/2014	The Boeing Company	SMB	Manuf
06/01/2014	The United Group	SMB	Manuf
06/01/2014	Tire Inc.	SMB	Manuf
06/01/2014	Wong Enterprises	SMB	Public
06/02/2014	Century City Hospital	SMB	Franc
06/02/2014	Hartstark Outlet	SMB	Manuf
06/02/2014	Miami Valley	SMB	Manuf
06/02/2014	Oika Systems	SMB	Manuf
06/02/2014	Sagep Nash Mills	SMB	Manuf
06/02/2014	State of Minnesota	SMB	Manuf
06/02/2014	The Technical Magazine	SMB	Manuf
06/02/2014	Vandemore Enterprises	SMB	Manuf
06/02/2014	Venchurs Inc.	SMB	Manuf
06/02/2014	Velvyn & Freytag	SMB	Manuf

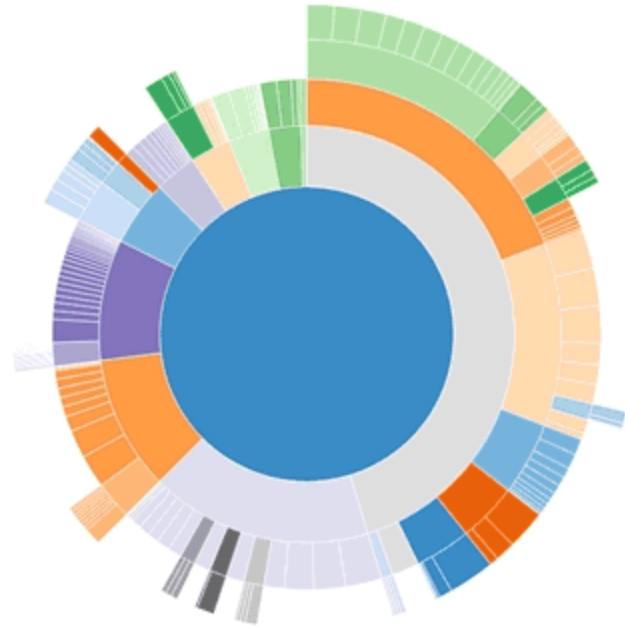


# D3 - Data-Driven Documents



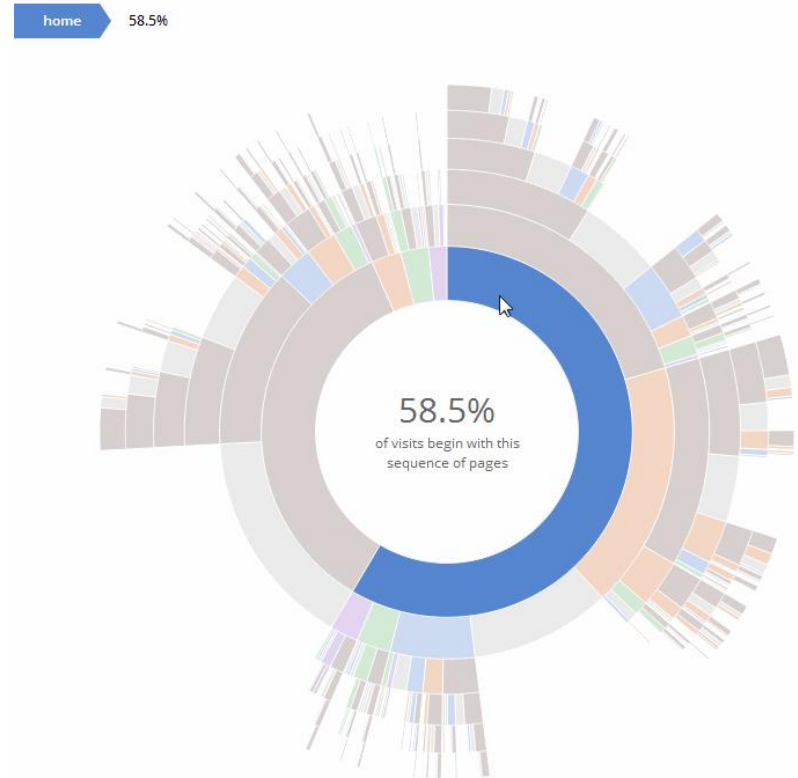
# D3 - Data-Driven Documents

- ✿ D3.js is a JavaScript library for producing dynamic, interactive data visualizations in web browsers.
- ✿ It makes use of the widely implemented SVG, HTML5, and CSS standards.
- ✿ In contrast to many other libraries, D3.js allows great control over the final visual result.

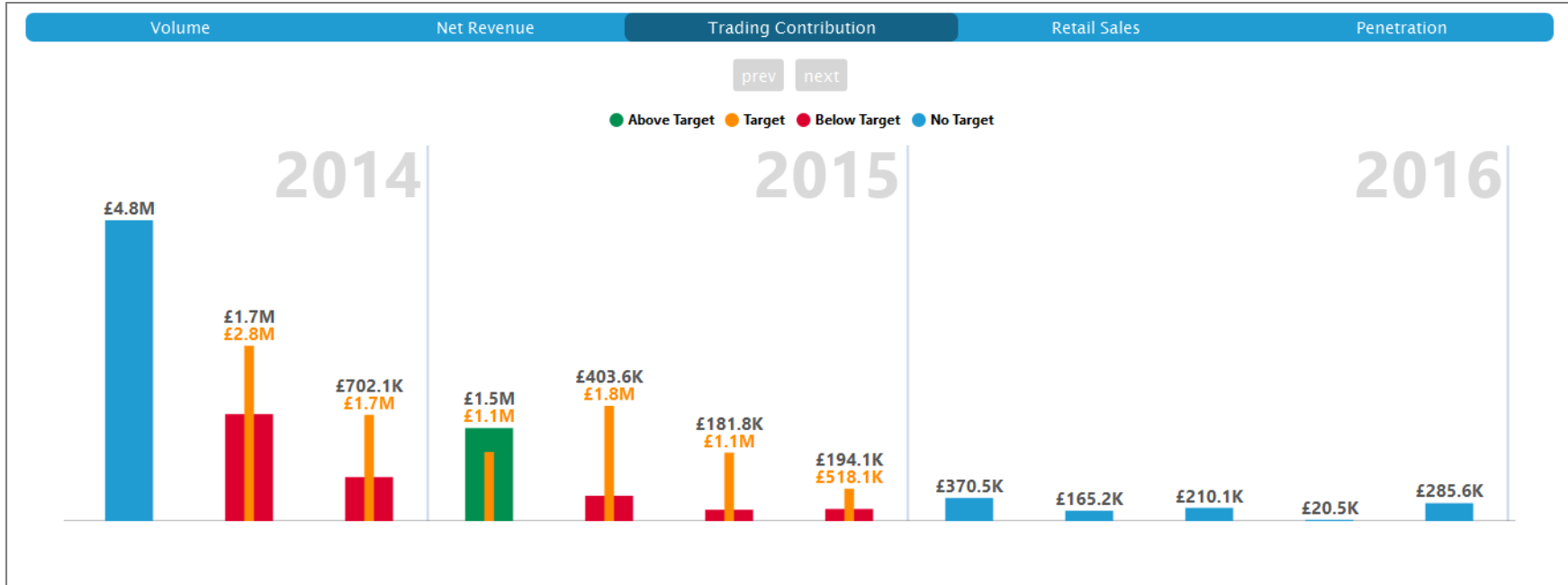




# D3 - Data-Driven Documents

- ✿ D3 allows you to bind arbitrary data to a Document Object Model (DOM), and then apply data-driven transformations to the document.
- ✿ For example, you can use D3 to generate an HTML table from an array of numbers. Or, use the same data to create an interactive SVG bar chart with smooth transitions and interaction.
- ✿ D3 is extremely fast, supporting large datasets and dynamic behaviours for interaction and animation.



# D3 - Praesto Example

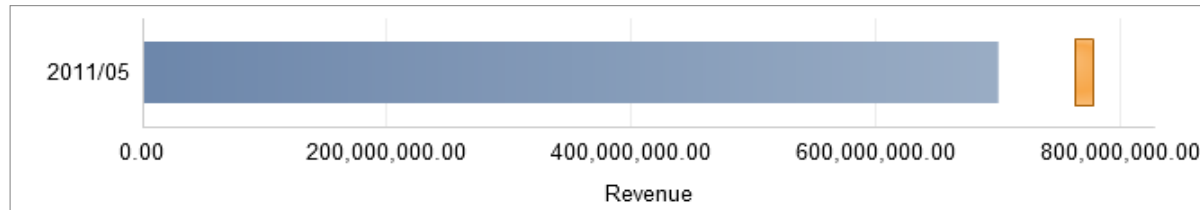


- 
- ✓ **Quick: Do not make me think**
  - ✓ **Clear: Avoid chart junk**
  - ✓ **Valuable: Do not waste the space**
4. Actionable: Data needs context
- 



# “Actionable”: Data Needs Context

- ✿ Comparing data give it context and makes the data more relevant to the users needs. It also makes the data actionable.



# “Actionable”: Data Needs Context

**Q:** Name some good examples of things that data can be compared against

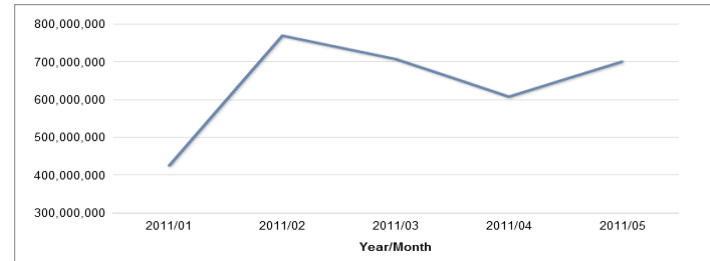
Then....

Draw some rough examples



# “Actionable”: Data Needs Context

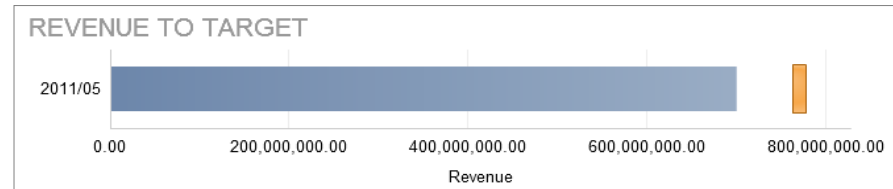
- **Compare** to Time  
Last week, month, or year



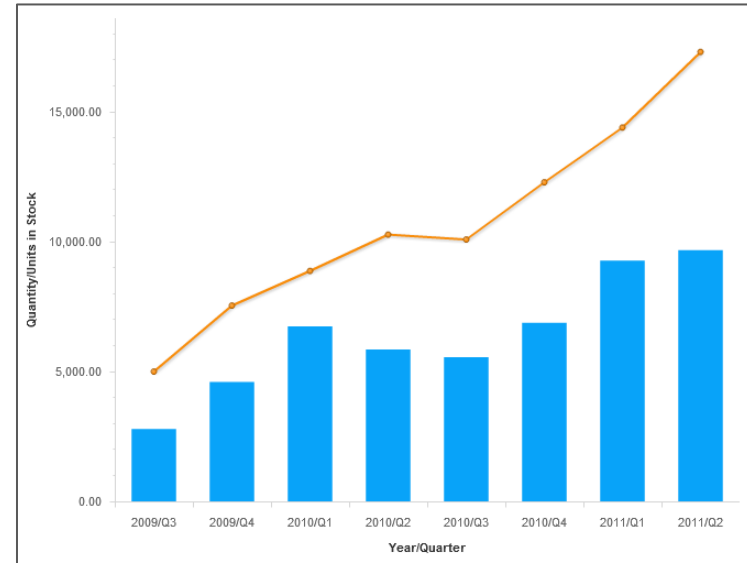
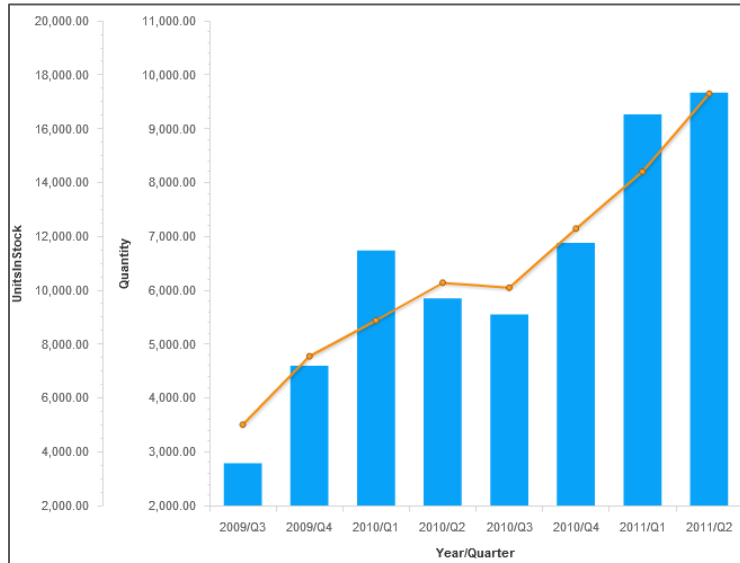
- **Compare** to Aggregates  
(Totals, Averages)



- **Compare** to Benchmarks



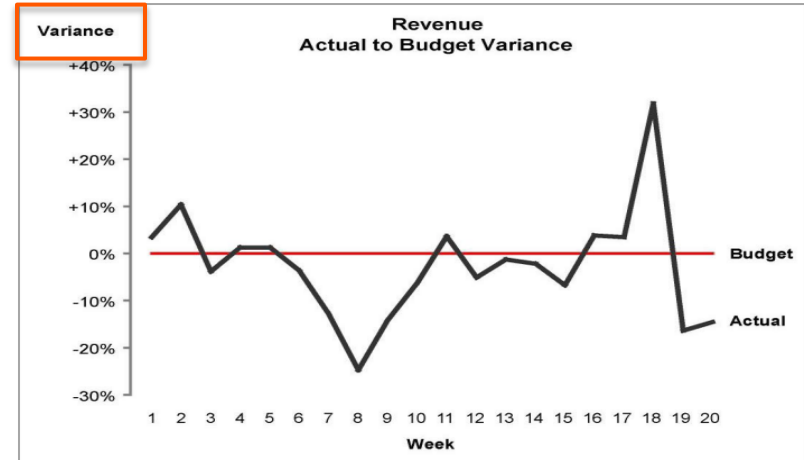
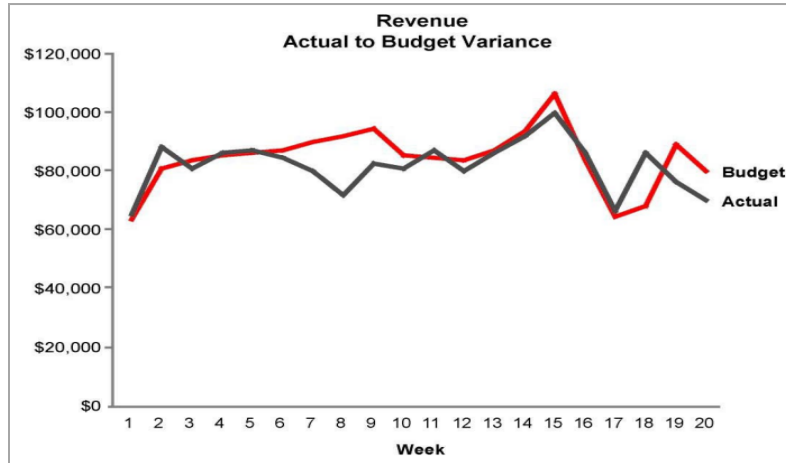
# Combining Axis



Combining an Axis can show a better insight and become easier to digest.



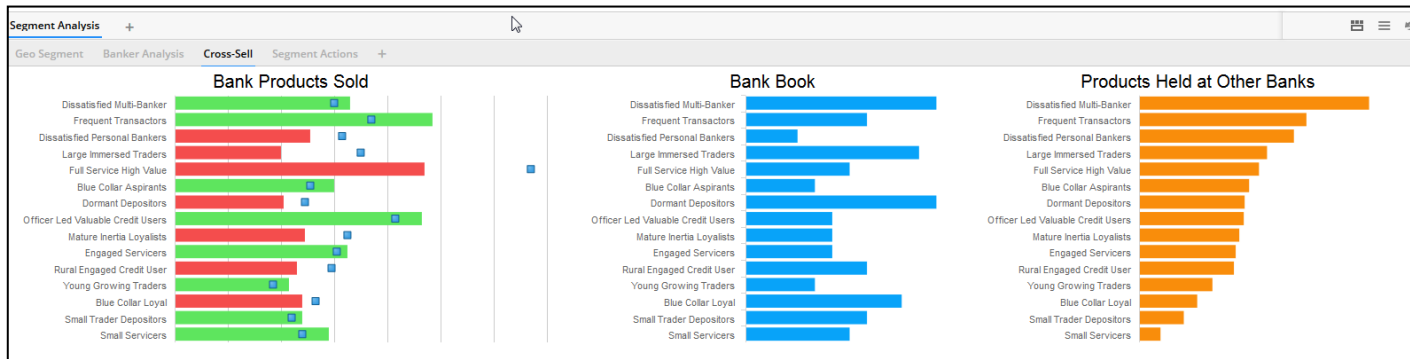
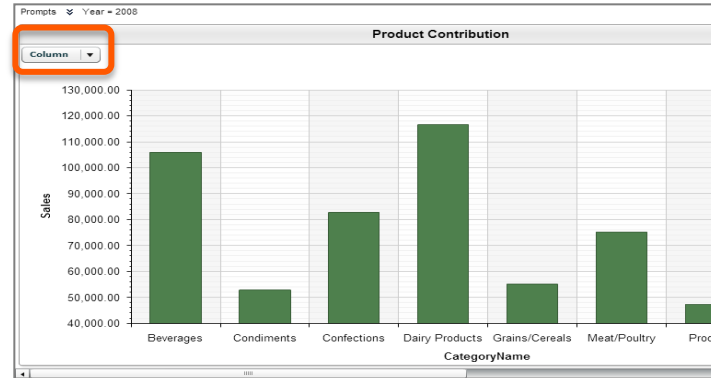
# Q: Which chart is more illuminating (and actionable)?



Use Birst's agility to experiment – you might be surprised with what works best



# Doing something like this might seem appealing:



But consider showing all charts at the same time.  
It is often more actionable that way

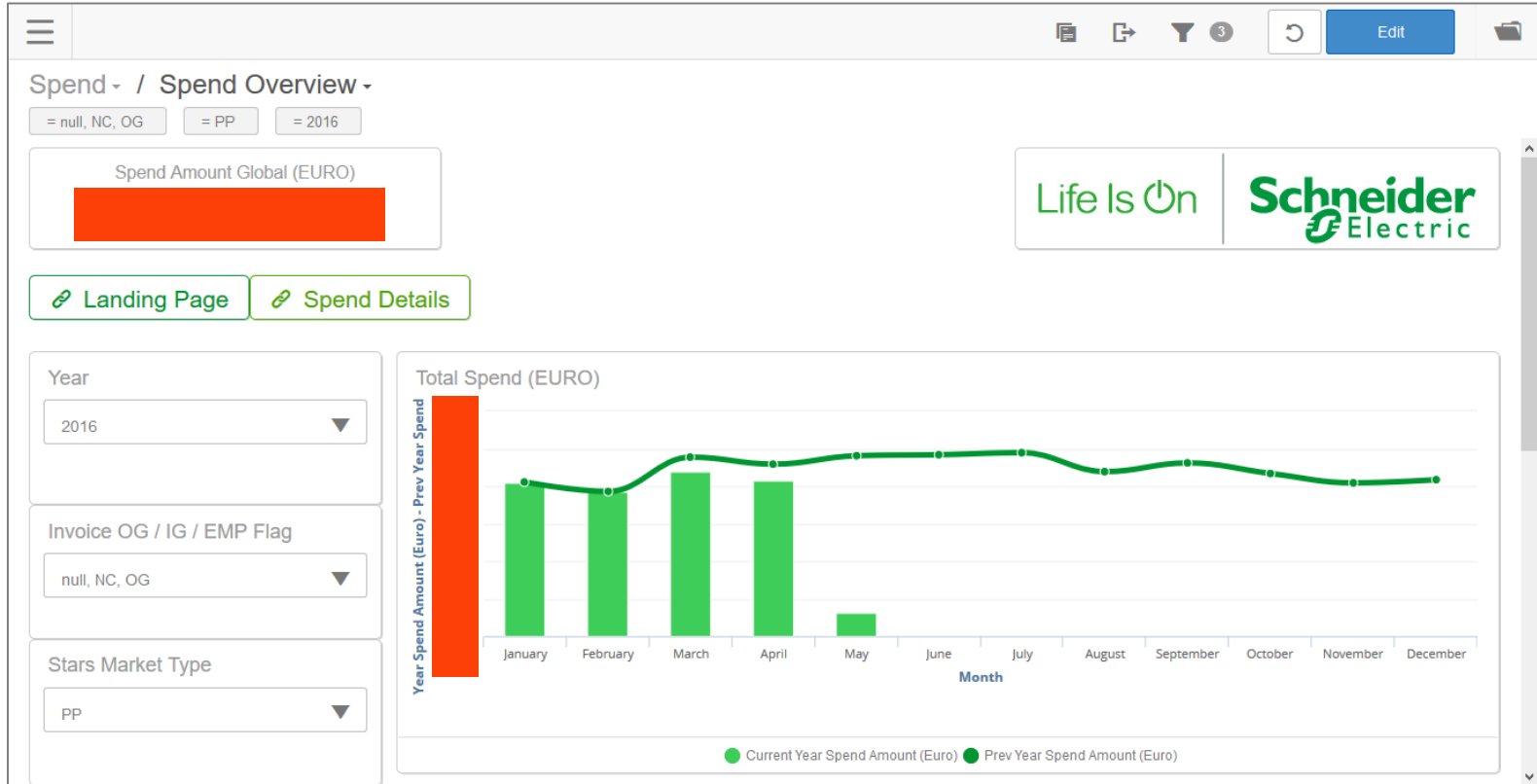




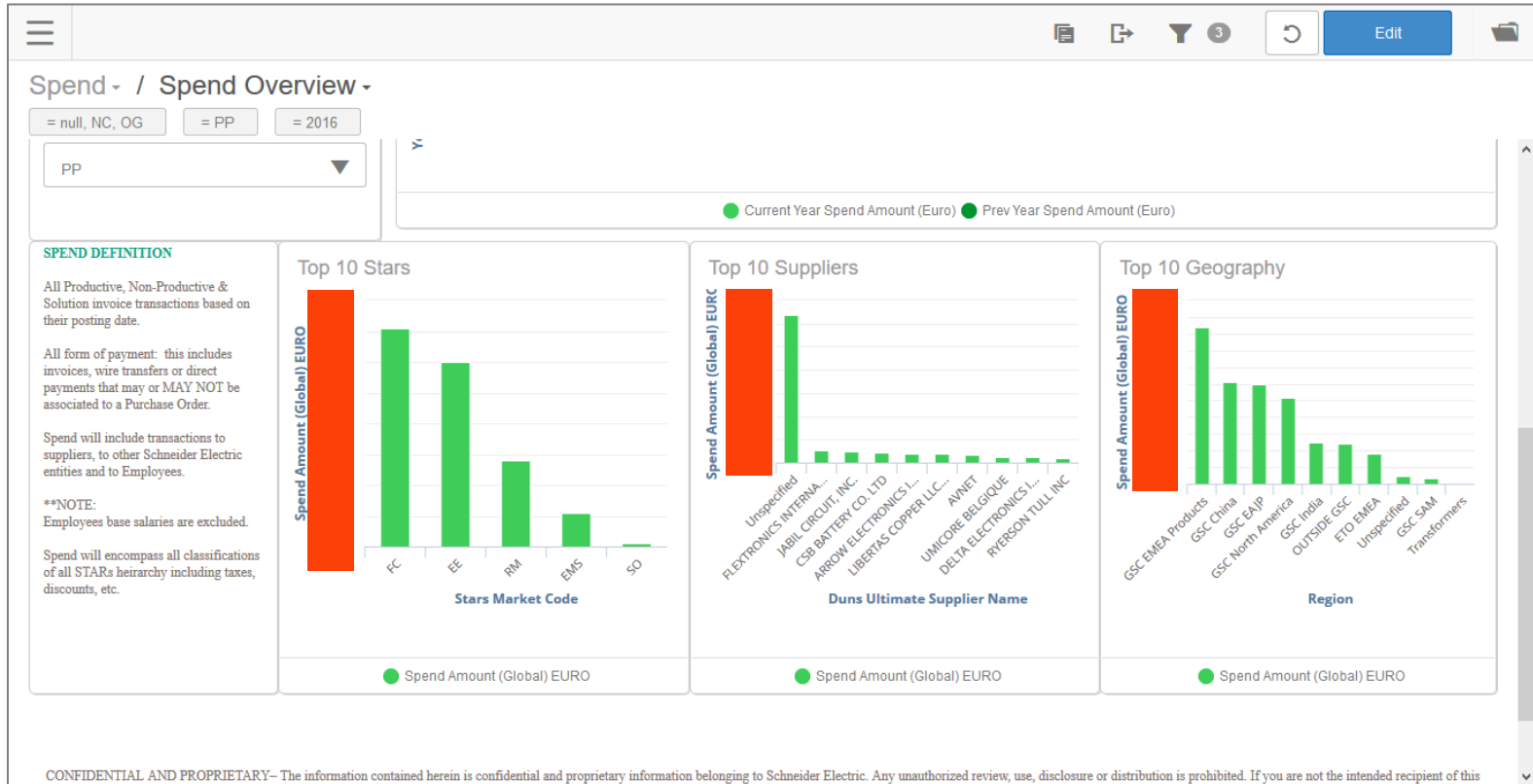
# Example Dashboards



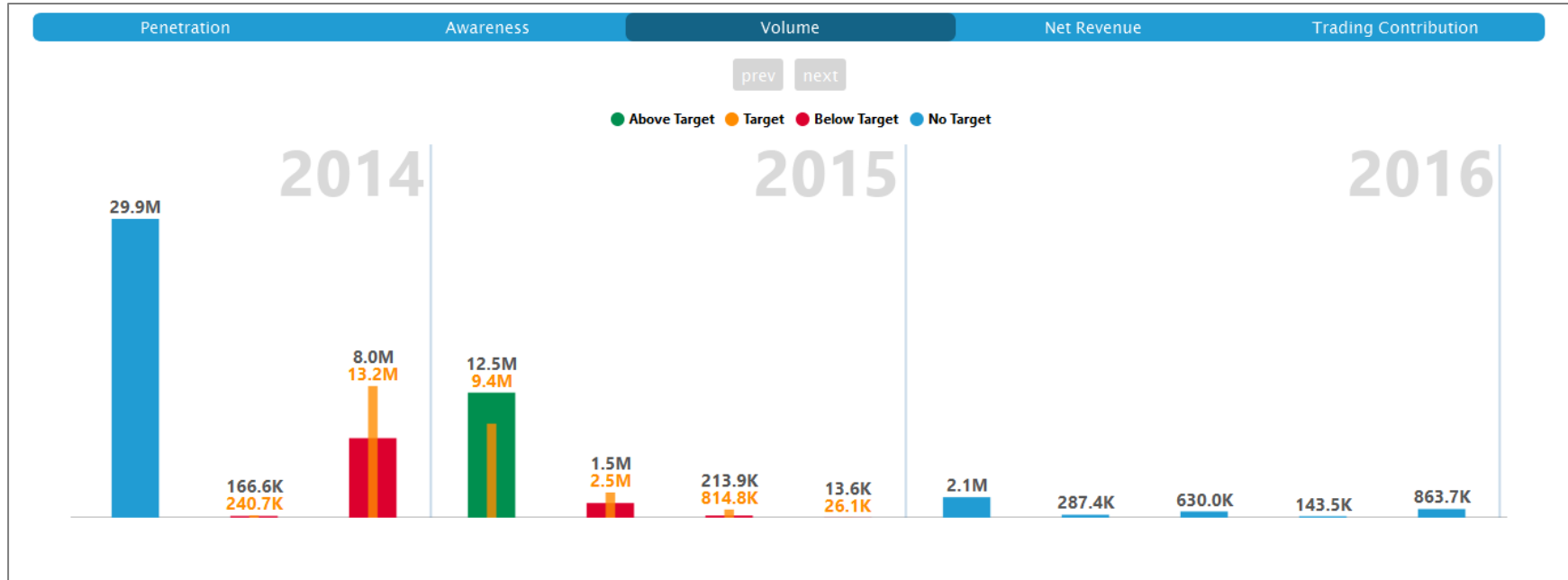
# Let's look at a few Praesto Dashboards



# Let's look at a few Praesto Dashboards



# Let's look at a few Praesto Dashboards





Let's build a  
Dashboard..



# Exercise: Build your own dashboard.

- ✿ Pick/Create a company
- ✿ What industry is it?
- ✿ What is the primary KVI?
- ✿ What are the key KVI Drivers?
- ✿ What are the key Action Points?
- ✿ Who is the primary user of the dashboard?



# Exercise: Build your own dashboard.

- ✿ Draw a wireframe of the layout of the dashboard home page
- ✿ Now fill in the blocks with the graphs and data in formats that you feel best represent the data and highlight the key points/changes.



# Exercise: Build your own dashboard.

- ✿ Draw the dashboard that would appear if the user drilled down on one of your KVIs

Then...

- ✿ Draw the dashboard that shows actionable data



# Exercise: Build your own dashboard.



Now that you have created your Dashboards,  
pass them over to the person on your left.



# Exercise: Build your own dashboard.

- ✿ Do you understand clearly what is going on and what the highlights in the data are?
- ✿ Write down 3 things you like and 3 things you don't like about the dashboards.



# Exercise: Build your own dashboard.



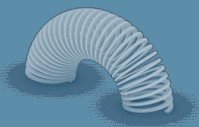
Now pass the dashboards back. Pass the dashboards over to the person on your right and repeat the last steps.



# Exercise: Build your own dashboard.

- ✿ You should now have 12 points to look over (6 good things and 6 bad)
- ✿ What were the most common flaws?
- ✿ What were the most liked things?





# Final Thoughts

- Now that we've scratched the surface of dashboards



# Six common questions...

1. Where would I go for technical training?
2. Where can I go for communal knowledge?
3. Where can I go to log a bug?



# Where would I go for technical training? Education Portal (aka LMS)

<https://education.birst.com/>

The screenshot displays the Birst Education Portal (LMS) interface. The main navigation menu includes:

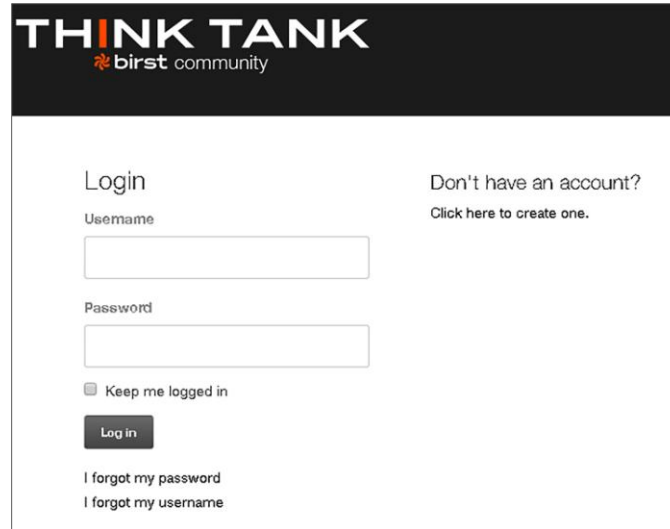
- MY TRAINING**: A list of training modules with columns for Name and Due Date. The list includes:
  - CLICK HERE for instructions on how to navigate this page
  - Training Catalog
  - 201311EQ - Sales Presentation
  - 201311EQ - Support Presentation
  - 201311EQ - Competitive Intelligence Presentation
  - 201311EQ - Engineering Presentation
  - 201311 EQ - BIRT Video
- TRAINING CATALOG**: A green button to view the full catalog.
- TRAINING HISTORY**: A red button showing completed training, including a "Partner Certification Exam" completed on 12-Aug-2014.
- TRAINING REFERENCES**: A grey button to access all Birst training, with a "Launch Reference" link.
- LEARNING PLANS**: A yellow button to view learning plans, including a "BIRT Visualizer" link.
- TRAINING REPORTS**: A blue button to view reports.
- MY PROFILE**: A teal button to view the user's profile, currently showing "Jim Smith".

The interface also features a "View By" dropdown menu set to "Due Date" and a "1 of 20 Courses" indicator at the bottom of the training list.



# Where can I go for communal knowledge? Birst Community (aka: THINK TANK)

<https://community.birst.com/>



**THINK TANK**  
birst community

Login

Don't have an account?  
[Click here to create one.](#)

Username

Password

Keep me logged in

[I forgot my password](#)  
[I forgot my username](#)



# Q: Where can I go to log a bug?

## A: Support Portal

<http://support.birst.com/> (or via the product)

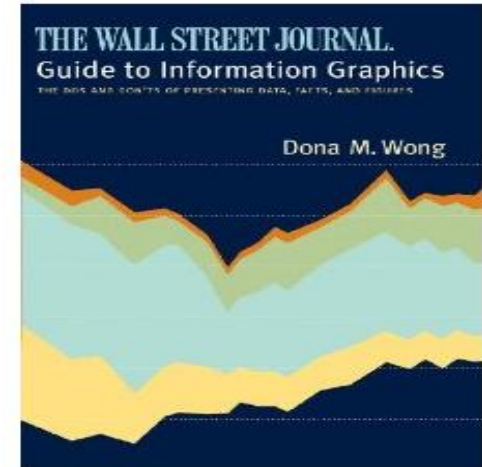
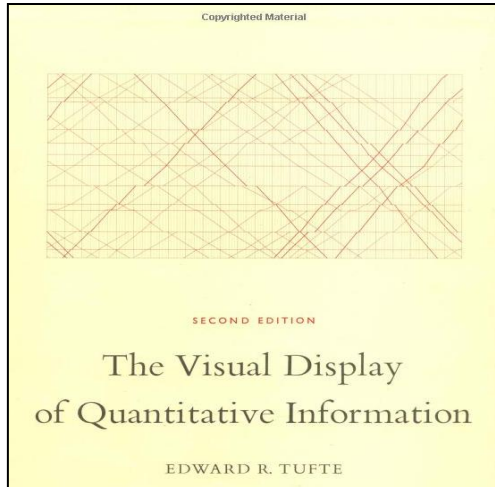
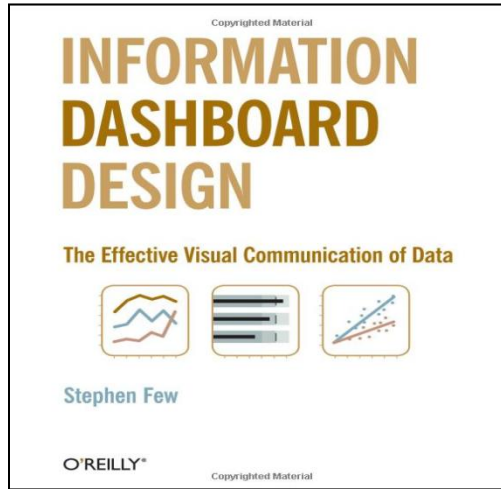
The screenshot shows the Birst user interface. At the top left is the Birst logo. The main header area includes the text "HOME" and a user profile icon. A dropdown menu is open, showing options: "settings", "support" (with a mouse cursor over it), "help", and "logout". On the left side, there is a section titled "My Spaces (Total Size: 34.0MB)" with a list of spaces including "Partner Space Master", "Partner Training Master Space", and "1 A SupremEats Writeback test space". The main content area displays "01-15-16 Karn's Partner Space" with details like "Owner: sschellenberg@birst.com" and "Space Size: 2.0MB". Below this are sections for "Dashboards" and "Dashboards 2.0". A red "New" badge is visible in the bottom right corner of the dashboard section.

The screenshot shows the Birst support portal interface. At the top right, it says "Logged in as kull@birst.com". The main header area features a search bar and a "New Case" button. Below this is a table of cases with columns: "Action", "Case Number", "Contact Name", "Subject", "Status", and "Date/Time Opened". The table contains several rows of case data. On the left side, there is a "Quick Links" section with links for "Birst", "Birst Community", and "Service Level Objectives".

Action	Case Number	Contact Name	Subject	Status	Date/Time Opened
Edit	00081975	Markus	Transfer Data from Birst to SAP	Resolved - Pending	1/15/2016 10:41 AM
Edit	00081916	Steve Linn	Sign at 3.0.1.1 update	Resolved - Pending	1/15/2016 10:41 AM
Edit	00081770	Markus	Support logs returned	Code Change	1/15/2016 10:41 AM
Edit	00081198	Markus	SQL Server (Database)	Code Change	1/15/2016 10:41 AM
Edit	00081166	Markus	Sign at 3.0.1.1 update	Code Change	1/15/2016 10:41 AM
Edit	00077647	Steve Linn	Support logs returned	Code Change	1/15/2016 10:41 AM
Edit	00076254	Gunn, Carl	Processing Error	Code Change	1/15/2016 10:41 AM



# For further reading





For a **free, no-obligation** dashboard assessment or for anything else, please contact our advisor:



**Simranjit Deol**

Lead UX/UI Consultant  
Praesto Consulting UK Ltd



Præsto  
CONSULTING

**Thank you for your time**

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