

Business Intelligence

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ENTERPRISE REPORTING AND DATA VISUALIZATION



Forms of Report

- **List Reporting**

- The most common usage of Enterprise Reporting is the formatted displays or presentations of organizational data lists through list, text, graphics or other rendering formats for periodic business operation.
- Various levels of itemized rows and aggregated summaries are typically used in List Reporting.
- Data rows and summaries might be assembled from one or more than one functional discipline areas within the enterprises.



Forms of Report

- **Interactive Analysis**

- Enterprise users needs to perform analysis upon large set of data to understand or find presentation of the data.

These analysis typically are interactive and allow users to directly select dimensions (location, department, time, etc) to compare measurements (sales growth, cost distributions, amount etc).

The interactive analysis requires data readily available when different dimensions, measurement are chosen so typically data are pre-calculated or aggregated using specific data model like OLAP.



Forms of Report

- **Ad-hoc Querying**
 - Ability to allow advanced business users for ad-hoc data needs and play "what-if" scenarios to determine what are the best use of enterprise data.



Forms of Report

- **Metric Management**

- In many organizations, business performance is managed and measured through outcome-oriented metrics.
- These metrics are agreed measurement to track and compare the business performance over a period of time.
- Within the organization, these are mostly called Key Performance Indicators (KPIs).
- For external organizations, they are Service Level Agreement (SLAs).



Forms of Report

- **Dashboard**
 - Another way for enterprise to consume their reporting data is publishing them into customized dashboard views, mostly hosted within enterprises' internet portal.
 - These dashboards might use graphic to mimic color-coded auto dashboard indicator for easy but grand overview of enterprise's key performance.



Forms of Report

- **Balance Scorecards**
 - A method attempts to present an integrated view of success in an organization.
 - In addition to financial performance, they also include customer, business process and learning and growth perspectives.



Types of Report

- **Standard versus Ad-hoc**
- **Condensed versus Detailed**
- **Key Figures versus Master Data**
- **Replication in the Data Warehouse versus Direct Access**
- **Replication in the Data Warehouse versus Direct Access**



Classification of Report

1. Parameterized Reports

- A parameterized report uses input values to complete report or data processing.
- With a parameterized report, you can vary the output of a report based on values that are set when the report runs.
- Parameterized reports are frequently used for drill through reports, linked reports, and subreports, connecting and filtering reports with related data.



Classification of Report

2. Linked Reports

- is a report server item that provides an access point to an existing report. Conceptually, it is similar to a program shortcut that you use to run a program or open a file.
- is derived from an existing report and retains the original's report definition.
- always inherits report layout and data source properties of the original report.
- All other properties and settings can be different from those of the original report, including security, parameters, location, subscriptions, and schedules.
- You can create a linked report on the report server when you want to create additional versions of an existing report.
- For example, you could use a single regional sales report to create region-specific reports for all of your sales territories.



Classification of Report

3. Snapshot Reports

- is a report that contains layout information and query results that were retrieved at a specific point in time.
- are processed on a schedule and then saved to a report server.
- When you select a report snapshot for viewing, the report server retrieves the stored report from the report server database and shows the data and layout that were current for the report at the time the snapshot was created.
- are not saved in a particular rendering format. Instead, report snapshots are rendered in a final viewing format (such as HTML) only when a user or an application requests it. Deferred rendering makes a snapshot portable. The report can be rendered in the correct format for the requesting device or Web browser.



Classification of Report

4. Cached Reports

- is a saved copy of a processed report
- are used to improve performance by reducing the number of processing requests to the report processor and by reducing the time required to retrieve large reports.
- They have a mandatory expiration period, usually in minutes



Classification of Report

5. Clickthrough Reports

- is a report that displays related data from a report model when you click the interactive data contained within your model-based report.
- generated by the report server based on the information contained within the report model.
- The person who created the model determines which fields are interactive and which fields are returned when a clickthrough report is opened. These field settings cannot be changed in the report authoring tools.
- are autogenerated. However, you can create an alternative customized report to the model for interactive data items that is displayed instead. The custom report is a standard Reporting Services report.



Classification of Report

6. Drilldown Reports

- initially hide complexity and enable the user to toggle conditionally hidden report items to control how much detail data they want to see.
- must retrieve all possible data that can be shown in the report.
- For reports with large amounts of data, consider drillthrough reports instead.



Classification of Report

7. Drillthrough Reports

- are standard reports that are accessed through a hyperlink on a text box in the original report.
- work with a main report and are the target of a drillthrough action for a report item such as placeholder text or a chart.
- The main report displays summary information, for example in a matrix or chart.
- Actions defined in the matrix or chart provide drillthrough links to reports that display greater details based on the aggregate in the main report.
- Drillthrough reports can be filtered by parameters, but they do not have to be. Drillthrough reports differ from subreports in that the report does not display within the original report, but opens separately.
- They differ from clickthrough reports in that they are not autogenerated from the data source, but are instead custom reports that are saved on the report server.
- They differ from drilldown reports in that they retrieve the report data only for the specified parameters or for the dataset query.



Classification of Report

7. Subreport

- is a report that displays another report inside the body of a main report.
- is similar to a frame in a Web page.
- It is used to embed a report within a report.
- Any report can be used as a subreport.
- The subreport can use different data sources than the main report.
- The report that the subreport displays is stored on a report server, usually in the same folder as the parent report. You can set up the parent report to pass parameters to the subreport.
- Although a subreport can be repeated within data regions using a parameter to filter data in each instance of the subreport, subreports are typically used with a main report as a briefing book or as a container for a collection of related reports.
- For reports with many instances of subreports, consider using drillthrough reports instead.



The Role of Data Visualization In Business Intelligence

- Data visualization provides a quick and effective way to communicate information in a universal manner using visual information.
- The practice can also help businesses
 - identify which factors affect customer behavior;
 - pinpoint areas that need to be improved or need more attention;
 - make data more memorable for stakeholders; understand when and where to place specific products; and
 - predict sales volumes.

<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>



Other benefits of data visualization include:

- the ability to absorb information quickly, improve insights and make faster decisions;
- an increased understanding of the next steps that must be taken to improve the organization;
- an improved ability to maintain the audience's interest with information they can understand;
- an easy distribution of information that increases the opportunity to share insights with everyone involved;
- eliminate the need for data scientists since data is more accessible and understandable; and
- an increased ability to act on findings quickly and, therefore, achieve success with greater speed and less mistakes.

<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>

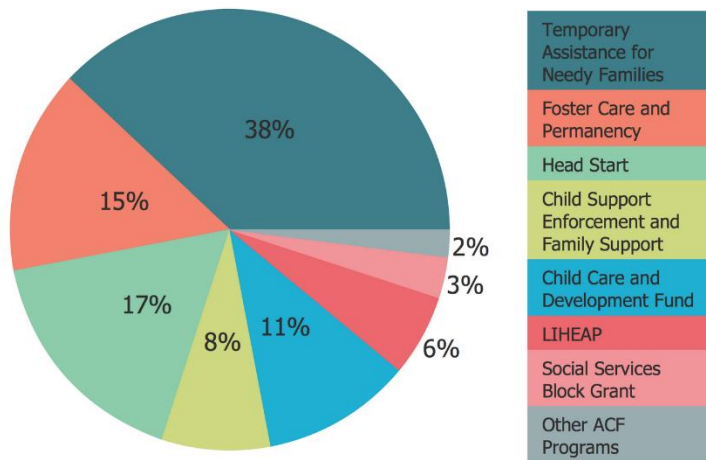


Examples of data visualization

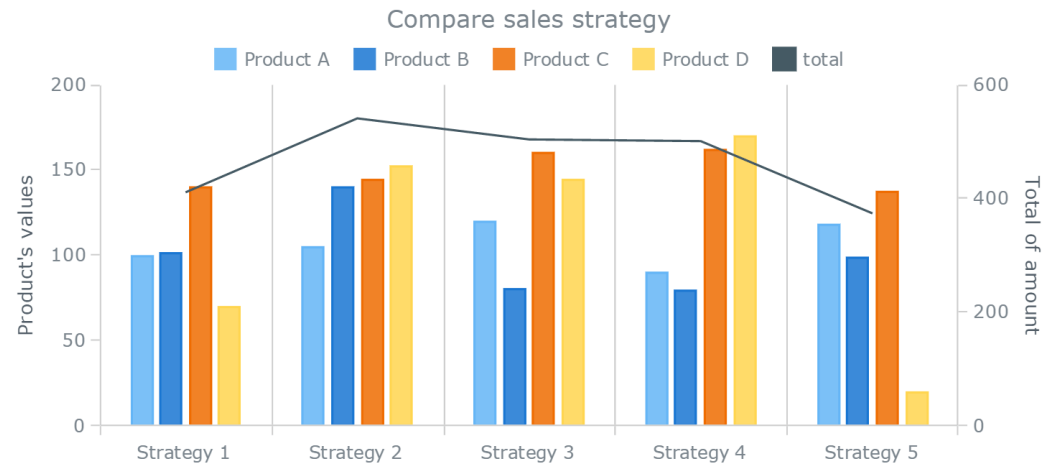
- Common:

<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>

— table, bar graph or pie chart



<https://www.conceptdraw.com/solution-park/resource/images/solutions/pie-charts/Graphs-and-Chatrs-Pie-Chart-OLAB-Fiscal-Year.png>

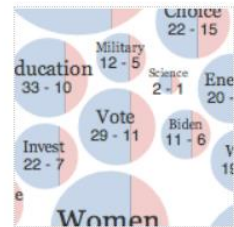
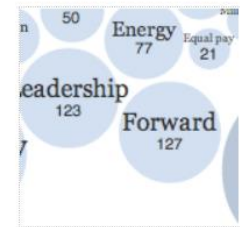
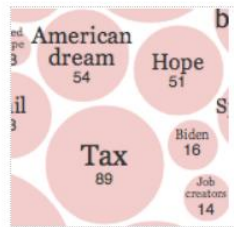


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Examples of data visualization

- Complicated techniques
 - Infographics
 - Bubble clouds



https://vallandingham.me/building_a_bubble_cloud.html#:~:text=%20Building%20a%20Bubble%20Cloud%20%201%20,share%20a%20particular%20view%20of%20a...%20More%20



<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>

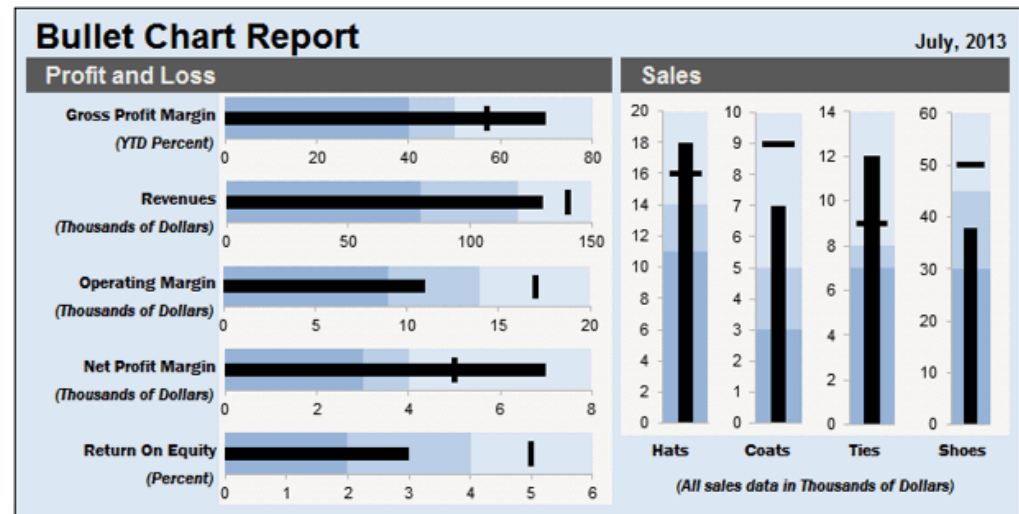


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Examples of data visualization

- Complicated techniques
 - Infographics
 - Bubble clouds
 - Bullet graphs



http://www.exceluser.com/blogdata/images/post_900_107/bullet-chart-report.gif

<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>



Examples of data visualization

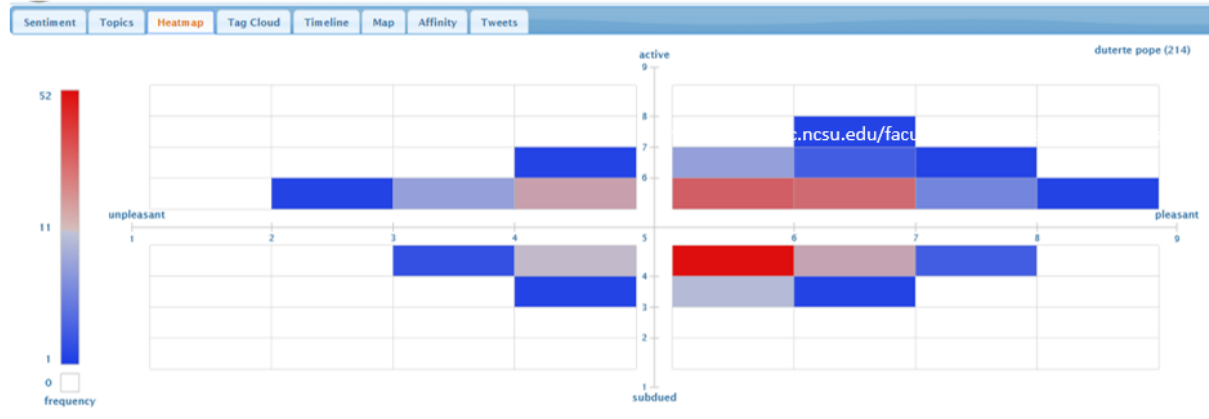
- Complicated techniques

- Infographics

- Bubble clouds

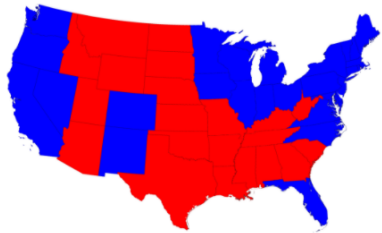
- Bullet graphs

- Heat maps



Pleasure and arousal are used to divide sentiment into a 8x8 grid. The number of tweets that lie within each grid cell are counted and used to color the cell: red for more tweets than average, and blue for fewer tweets than average. White cells contain no tweets.

In this election heat map, the red states are Republican and the blue states are Democrat.



<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>



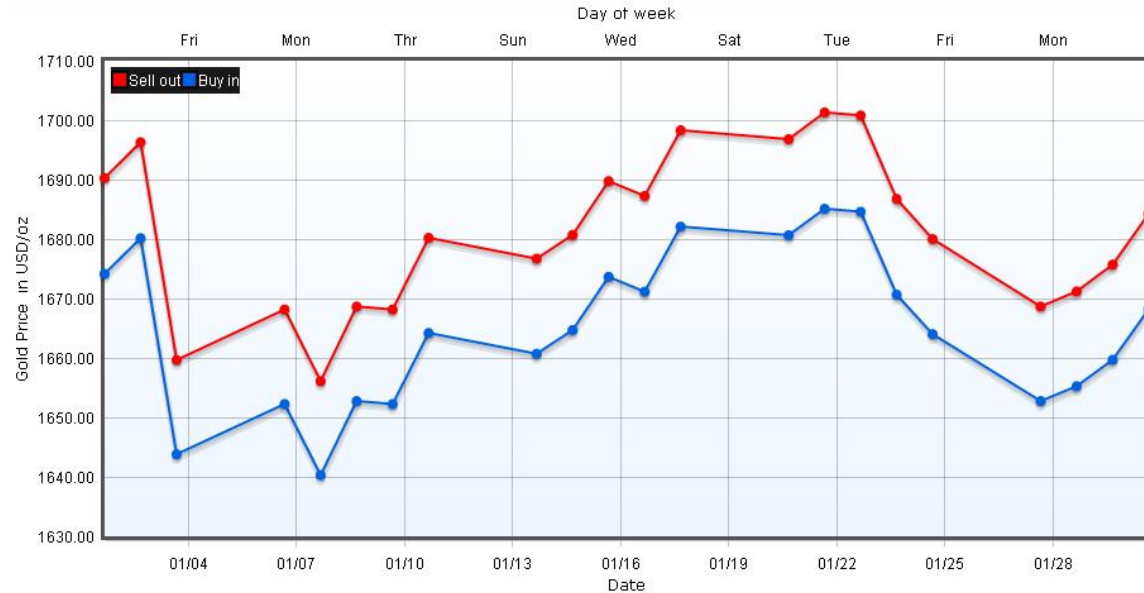
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Examples of data visualization

- Complicated techniques

- Infographics
- Bubble clouds
- Bullet graphs
- Heat maps
- Fever charts
- Time series charts



<http://www.jqueryflottutorial.com/images/og/how-to-make-jquery-flot-time-series-chart.jpg>



<https://searchbusinessanalytics.techtarget.com/definition/data-visualization>



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Examples of data visualization

- **popular techniques**

- **Line charts.** This is one of the most basic and common techniques used. Line charts display how variables can change over time.
- **Area charts.** This visualization method is a variation of a line chart; it displays multiple values in a time series -- or a sequence of data collected at consecutive, equally spaced points in time.
- **Scatter plots.** This technique displays the relationship between two variables. A scatter plot takes the form of an x- and y-axis with dots to represent data points.
- **Treemaps.** This method shows hierarchical data in a nested format. The size of the rectangles used for each category is proportional to its percentage of the whole. Treemaps are best used when multiple categories are present, and the goal is to compare different parts of a whole.
- **Population pyramids.** This technique uses a stacked bar graph to display the complex social narrative of a population. It is best used when trying to display the distribution of a population.





Excel 2016 - Charts

To know more about
Charts in MS Excel,
go to this link

Introduction

It can be difficult to interpret Excel workbooks that contain a lot of data. **Charts** allow you to illustrate your workbook data **graphically**, which makes it easy to visualize comparisons and trends.



Optional: Download our **practice workbook**.

<https://edu.gcfglobal.org/en/excel2016/charts/1/>



Watch the video below to learn more about charts.



Excel: Charts

EXCEL

CHARTS

Wat

- ❖ Once data is made interpretable, comes the “get value/spark action” moment.
- ❖ How do I communicate this data way that can be understood by everyone?
- ❖ Business leaders need the ability to easily drill down into the data to see where they can improve operational processes and to grow their business.
- ❖ **Data visualization brings business intelligence to life.**



<https://www.highcharts.com/blog/tutorials/role-data-visualization-business-intelligence/>

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