Advanced Data Visualization

Advanced Charts

Geographic Information Systems Charts

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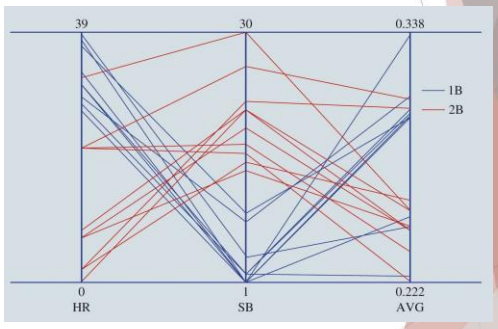
Advanced Data Visualization

- **Parallel-coordinates plot**: Chart for examining data with more than two variables:
  - Includes a different vertical axis for each variable.
  - Each observation is represented by drawing a line on the parallel-coordinates plot connecting each vertical axis.
  - The height of the line on each vertical axis represents the value taken by that observation for the variable corresponding to the vertical axis.

Figure 3.33: Parallel-Coordinates Plot for Baseball Data



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Advanced Data Visualization

- **Treemap**:
  - Useful for visualizing hierarchical data along multiple dimensions.
- Each rectangle represents a particular company
- Color of the rectangle represents the overall performance
- The size provides information on the company's market capitalization size
- Useful to quickly get an idea of the performance of individual companies relative to other companies

Figure 3.34: SmartMoney's Map of the Market as an Example of a Treemap

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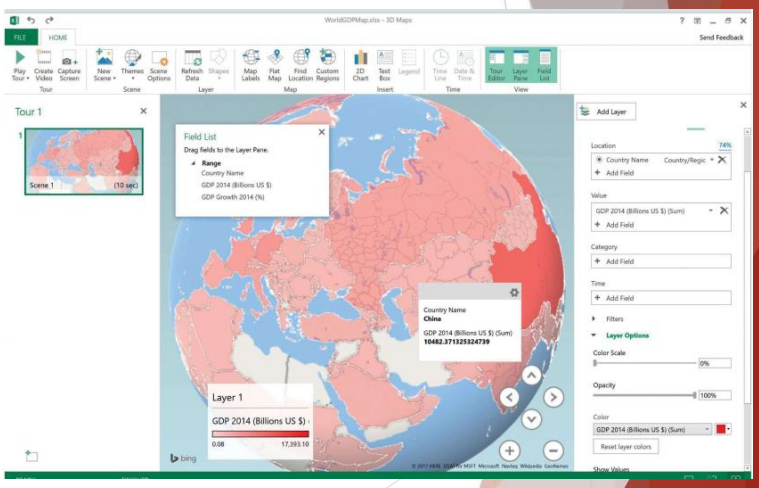
Advanced Data Visualization

- Geographic Information Systems Charts: (Maps)
  - Geographic information system (GIS):
    - A system that merges maps and statistics to present data collected over different geographic areas.
  - Helps in interpreting data and observing patterns.



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Data Dashboards

Principles of Effective Data Dashboards

Applications of Data Dashboards

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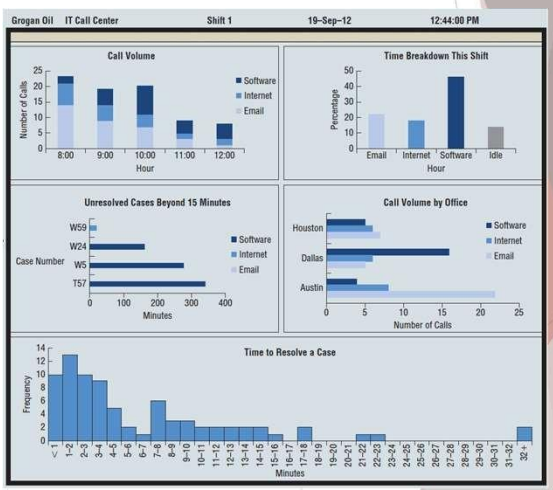
Data Dashboards

- **Data dashboard**:
  - Data-visualization tool that illustrates multiple metrics and automatically updates these metrics as new data become available.
- Example: Grogan's IT call center
  - Dashboard developed to monitor the performance of the call center
  - Different charts to track:
    - Call Volume
    - Percent of Time solving problems
    - Call Volume by problem for locations
    - Time of unresolved problems

Figure 3.39: Data Dashboard for the Grogan Oil Information Technology Call Center



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Principles of Effective Data Dashboards:

- **Key performance indicators (KPIs)** in dashboards:
  - Automobile dashboard: Current speed, Fuel level, and oil pressure.
  - Business dashboard: Financial position, inventory on hand, customer service metrics.

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Principles of Effective Data Dashboards:

Principles Continued:

- Should provide timely summary information on KPIs that are important to the user.
- Should present all KPIs as a single screen that a user can quickly scan to understand the business's current state of operations.
- The KPIs displayed in the data dashboard should convey meaning to its user and be related to the decisions the user makes.
- A data dashboard should call attention to unusual measures that may require attention.
- Color should be used to call attention to specific values to differentiate categorical variables, but the use of color should be restrained.

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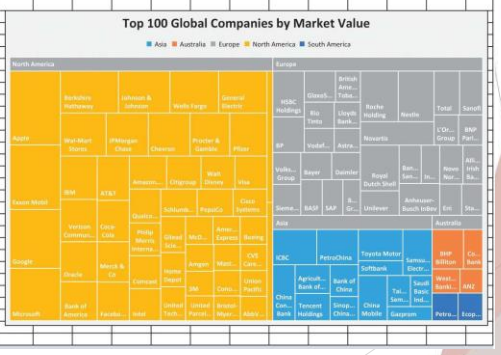
Advanced Data Visualization in Excel

Figure 3.35: Treemap Created in Excel for Top 100 Global Companies Data

	Continent	Country	Company	Market Value (Billions US $)
2	Asia	China	Agricultural Bank of China	141.1
3	Asia	China	Bank of China	124.2
4	Asia	China	China Construction Bank	174.4
5	Asia	China	ICBC	215.6
6	Asia	China	PetroChina	202
7	Asia	China	Sinopec-China Petroleum	94.7
8	Asia	China	Tencent Holdings	135.4
9	Asia	Hong Kong	China Mobile	184.6
10	Asia	Japan	Softbank	91.2
11	Asia	Japan	Toyota Motor	193.5
12	Asia	Russia	Gazprom	88.8
13	Asia	Saudi Arabia	Saudi Basic Industries	94.4
14	Asia	South Korea	Samsung Electronics	186.5
15	Asia	Taiwan	Taiwan Semiconductor	102
16	Australia	Australia	ANZ	83.9
17	Australia	Australia	BHP Billiton	182.3
18	Australia	Australia	Commonwealth Bank	114.5
19	Australia	Australia	Westpac Banking Group	99
20	Europe	Belgium	Anheuser-Busch InBev	171.2
21	Europe	Denmark	Novo Nordisk	119.6
22	Europe	France	BNP Paribas	98.6
23	Europe	France	L'OrÃ©al Group	98.7
24	Europe	France	Sanofi	137.1
25	Europe	France	Total	149.8
26	Europe	Germany	BASF	102.3
27	Europe	Germany	Bayer	111.3
28	Europe	Germany	BMW Group	83.4
29	Europe	Germany	Daimler	102.9



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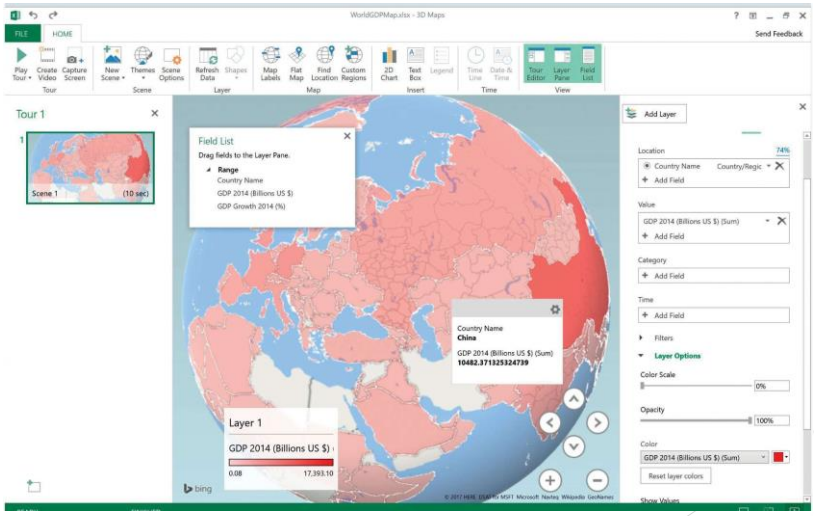
Advanced Data Visualization in Excel



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