Business Intelligence and Analytics and Data Visualization for Efficient Business Management
Some people will be using Business Intelligence without even knowing it.

- Kurt Schlegel
What is Business Intelligence?

Technology + Application + Practices

USED FOR

Data Collection, Data Integration, Data Analysis, Presentation
Business Intelligence is not just about turning data into information, rather organizations need that data to impact how their business operates and responds to the changing marketplace.

- Gerald Cohen
Why Business Intelligence?

- Helps in defining growth strategies
- Gaining insights from huge data sets
- Better decision making leading to higher revenue
- Better understanding of customers
- Competitive advantage
uncover opportunities in your own operations that drive efficiency in both revenue and costs

predictive analytics to estimate how changes affect you

cohesive and consistent tools to inform and speed up your decision-making process.
Business Intelligence functions

- Reporting
- Process Mining
- Descriptive Analysis
- Business Performance
- Complex event processing
- Predictive Analysis
- Data Mining
- Text Mining
- Prescriptive Analysis
Descriptive Analytics

What has occurred?
Predictive Analytics

What will occur?
Prescriptive Analytics

What should occur?
### Business Intelligence vs Business Analytics

<table>
<thead>
<tr>
<th>Business Intelligence</th>
<th>Business Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Deals with <em>what</em> happened</td>
<td>• Deals with the <em>why’s</em> of what happened in the past</td>
</tr>
<tr>
<td>in the past and <em>how</em> it</td>
<td>by breaking it down into contributing factors.</td>
</tr>
<tr>
<td>happened leading up to</td>
<td>• It uses these <em>why’s</em> to make predictions of what will</td>
</tr>
<tr>
<td>the present moment.</td>
<td>happen in the future.</td>
</tr>
<tr>
<td>• It identifies big trends</td>
<td>• It identifies big trends and patterns without digging</td>
</tr>
<tr>
<td>and patterns without</td>
<td>too much into the <em>why’s</em> or predicting the future.</td>
</tr>
<tr>
<td>digging too much into the</td>
<td></td>
</tr>
<tr>
<td><em>why’s</em> or predicting the</td>
<td></td>
</tr>
<tr>
<td>future.</td>
<td></td>
</tr>
</tbody>
</table>
### Business Intelligence vs Business Analytics

<table>
<thead>
<tr>
<th>Analytics Type</th>
<th>Business Intelligence</th>
<th>Business Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive analytics: Creates summary of historical data to visualize</td>
<td>✔️</td>
<td>✗</td>
</tr>
<tr>
<td>Diagnostic analytics: Determines the source of issues discovered by Descriptive analytics</td>
<td>✔️</td>
<td>✗</td>
</tr>
<tr>
<td>Predictive analytics: Makes predictions based on collected data</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td>Prescriptive analytics: Offers solutions for issues found by descriptive analytics</td>
<td>✗</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Importance of Data Driven Insights in Effective Decision Making
The goal is to turn data into information, and information into insight.

- Carly Fiorina
Act today for better results tomorrow

Early View
Customer first
Data vs. Gut
Identify pattern

Any Guesses?
Information is the oil of the 21st century, and analytics is the combustion engine.

- Peter Sondergaard
Data will talk if you're willing to listen!

Step 1

Step 2

Step 3

Step 4
Hypothesis

• Dummy data that talks about a bank’s customers
• Tool used: Power BI
• 4 steps to represent our data and analyze
• Unfolding the advantages of Data Driven Insights
Step 1: Understanding the data

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customer 1</td>
<td>Customer 2</td>
<td>Customer 3</td>
<td>Customer 4</td>
<td>Customer 5</td>
<td>Customer 6</td>
<td>Customer 7</td>
<td>Customer 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td>Age</td>
<td>Balance</td>
<td>Age</td>
<td>Balance</td>
<td>Age</td>
<td>Balance</td>
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<td>Age</td>
</tr>
<tr>
<td>$10,000</td>
<td>20</td>
<td>$20,000</td>
<td>30</td>
<td>$30,000</td>
<td>40</td>
<td>$40,000</td>
<td>45</td>
<td>$50,000</td>
<td>50</td>
<td>$60,000</td>
<td>55</td>
<td>$70,000</td>
<td>60</td>
<td>$80,000</td>
<td>70</td>
</tr>
</tbody>
</table>
Step 2: Re-arranging the data

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Customer Name</td>
<td>Balance</td>
<td>Age</td>
</tr>
<tr>
<td>2 Customer 1</td>
<td>$10,000</td>
<td>20</td>
</tr>
<tr>
<td>3 Customer 2</td>
<td>$20,000</td>
<td>30</td>
</tr>
<tr>
<td>4 Customer 3</td>
<td>$30,000</td>
<td>40</td>
</tr>
<tr>
<td>5 Customer 4</td>
<td>$40,000</td>
<td>45</td>
</tr>
<tr>
<td>6 Customer 5</td>
<td>$50,000</td>
<td>50</td>
</tr>
<tr>
<td>7 Customer 6</td>
<td>$60,000</td>
<td>55</td>
</tr>
<tr>
<td>8 Customer 7</td>
<td>$70,000</td>
<td>60</td>
</tr>
<tr>
<td>9 Customer 8</td>
<td>$80,000</td>
<td>70</td>
</tr>
</tbody>
</table>
Step 3: Analysing the data

- Geographical concentration
- Distribution by Balance
- Distribution by Age
- Distribution by Gender
- Distribution by Profession
Step 4: Representation of data

Distribution by Account Balance

Distribution by age

Job classification

Region

Gender

United Kingdom

Other

Blue Collar

White Collar

1,95K

1,01K

1,05K
Act today for better results tomorrow

Early View
- React in advance
- Act swiftly
- Plan better
- Mitigate risk

Customer first
- Changing customer needs
- Enhanced servicing

Data vs. Gut
- Dynamic environment
- Analysis vs. Instincts

Identify pattern
- Connecting the dots
- Understanding the linkages
<table>
<thead>
<tr>
<th>Data visualization tools</th>
<th>Tableau</th>
<th>Power BI</th>
<th>Qlik BI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy of use</td>
<td>Very intuitive and user friendly (Non technical users can use easily)</td>
<td>User friendly – Knowledge of Microsoft Excel is enough</td>
<td>Easy to learn for people with Data Science background</td>
</tr>
<tr>
<td>Free version</td>
<td>Tableau Public is free, Tableau Server is licensed.</td>
<td>Desktop version is free, Power BI Pro is pay per month</td>
<td>Qlik Personal is free, Qlik Sense is paid</td>
</tr>
<tr>
<td>Advantage</td>
<td>Flexibility to create custom visuals gives it an edge</td>
<td>Inexpensive, complex visuals are easy to create</td>
<td>Provide deep range analytics and dataset support</td>
</tr>
</tbody>
</table>