

## Analytics: Data → Intelligence → Insight

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Analytics is the transformation of data to insight. The transformation involves:

- Understanding the past and current performance to predict future performance.
- Understanding the relations, identifying patterns and translating them to meaningful, Useful and relevant business insights, and intelligent strategies
- Laying the foundation for a data driven decision making processs in an enterprise

## Business Intelligence (BI)

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- BI implies transformation of data to generate meaningful, relevant, and actionable intelligence about the business
- BI addresses an organization's need to answer:
  - What happened? – Status of business
  - How many, how often, and where? – Transaction summaries
  - What exactly is the problem? – Trends and alerts
  - What actions are needed? – Key Performance Indicators (KPIs)

## BI: Vanity Cosmetics

### Standard Report: Daily Sales

Daily Sales		
<u>Region</u>	<u>Sales \$ (000's)</u>	<u>Sales %</u>
Toronto	12,180	27%
Montreal	6,355	14%
Ottawa	4,674	10%
Edmonton	3,602	8%
Vancouver	3,582	8%
Halifax	3,221	7%
Quebec City	2,846	6%
Windsor	2,799	6%
Burlington	2,792	6%
Richmond	2,483	6%

### KPI Summary Snapshot

		Current Month	Last 3 Month Average	Last 12 Month Average	Target	% of Target
Finance Metrics	\$ Revenues	\$18,134 K	\$17,985 K	\$17,728 K	\$18,000 K	101%
	\$ Expenses	\$11,358 K	\$11,186 K	\$11,580 K	\$12,600 K	90%
	\$ Profits	\$6,776 K	\$6,799 K	\$6,147 K	\$5,400 K	125%
	% Market Share	44%	46%	45%	52%	85%

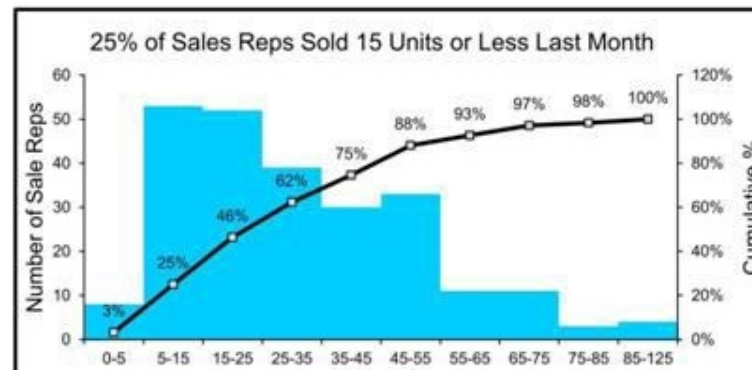
## Data Analysis

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- Data analysis answers the key business question of “Why is this happening?”
- Data analysis is done primarily for events that have already occurred and the data is available for the same
- The nature of data analysis can be
  - Descriptive: Use data to describe why events occurred
  - Inferential/Confirmatory: Use data to infer or confirm assumptions about relationships between data or events

## Data Analysis: Vanity Cosmetics

- From the monthly KPI Dashboard, it was observed that there was a lot of variation in sales from Stores in the Richmond region
- Data Analysis (Histogram) revealed that 25% of sales representatives sold less than 15 Units or less in the last month
- Further analysis from the field reports revealed that the competitor was running a sale (50% off) that impacted performance of sales representatives



## Data Mining

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- Practice of examining large pre-existing databases to generate new information
- Non-trivial extraction of implicit, previously unknown, and potentially useful information from data
- Exploration and analysis by automatic or semi-automatic means of large quantities of data in order to discover meaningful patterns



## Customer Segmentation: Vanity Cosmetics

- Vanity Cosmetics wants to launch a new range of herbal beauty care products and wants to understand the customer segments
- A segmentation analysis creates segments that can be targeted for specific products





## Analytics

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Analytics is discovering, understanding, and enriching historical patterns to predict and improve business performance.

Patterns of data are not discovered in isolation. Analytics is an all encompassing term as it:

- Uses **Data Mining** techniques
- Builds on statistical **data analysis**
- Complements **BI**
- Uses some aspects of **OLAP**
- Uses data **visualization**
- Employs supervised and unsupervised **machine learning** techniques



## Analytics Value Chain

