THE POWER OF DATA

BIG DATA ANALYTICS AND VISUALISATION

IS NOT IN THE DATA ITSELF

- It is in how you use it.
- Simply collecting data or even analyzing it is not the end game of a data strategy.
- It is about:
  - The information you glean from the data.
  - The processes you improve.
  - The better decisions you can make.
  - The business value you add.
- Data for data's sake is meaningless.

DATA MUST

1. address a specific business need,
2. help organization reach its strategic goals, or
3. generate real value.

Never a good idea to capture huge mountains of data that you do not really need.

Collect only the data that you really need to meet your goals.

IT DOES NOT MATTER

- What data is out there,
- What data you are already collecting,
- What data your competitors are collecting,
- What new forms of data are becoming available, or
- Whether your business has mountains of analysis-ready data at your disposal, or next to none.

Instead of starting with the data, it is vital to start with a STRATEGY.

A GOOD DATA STRATEGY

- Is not determined by what data is readily or potentially available.
- It is about WHAT YOUR BUSINESS WANTS TO ACHIEVE, and HOW DATA CAN HELP YOU GET THERE.

DATA IS WORTH VERY LITTLE UNLESS YOU CAN TURN IT INTO INSIGHTS AND ACTION!

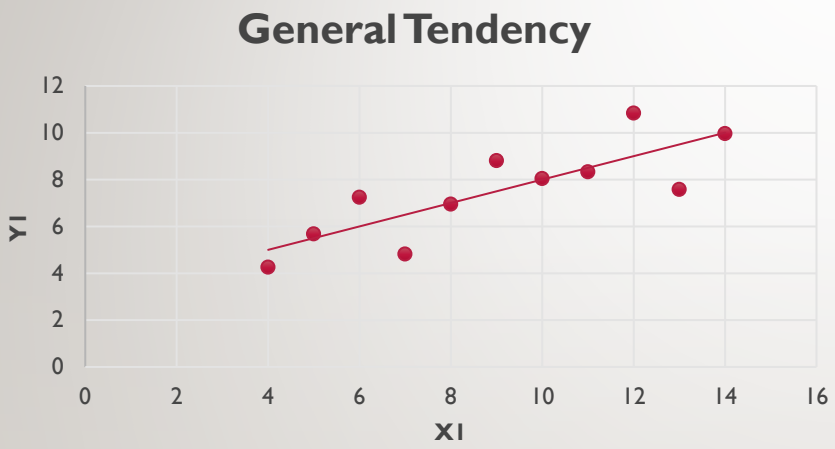
INSIGHTS

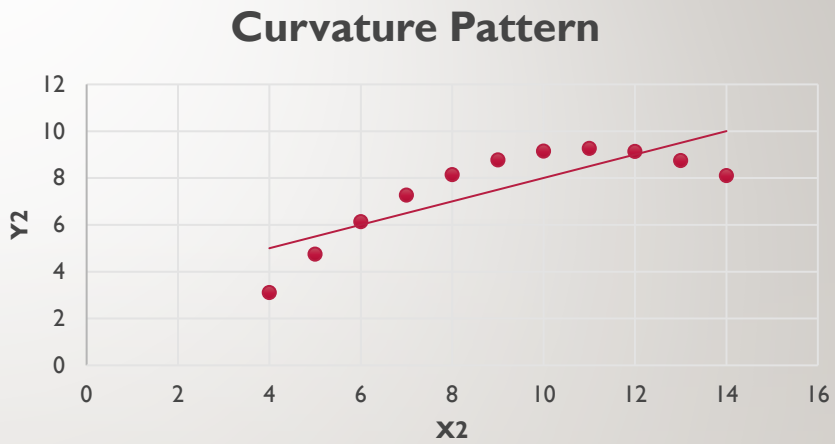
- The easier it is to understand the data and pull out key insights, the easier it is for people to make decisions and act on that data.

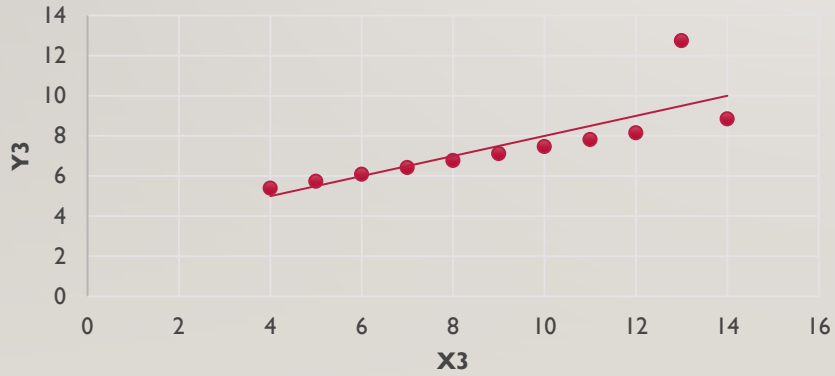
WHAT DO YOU SEE?

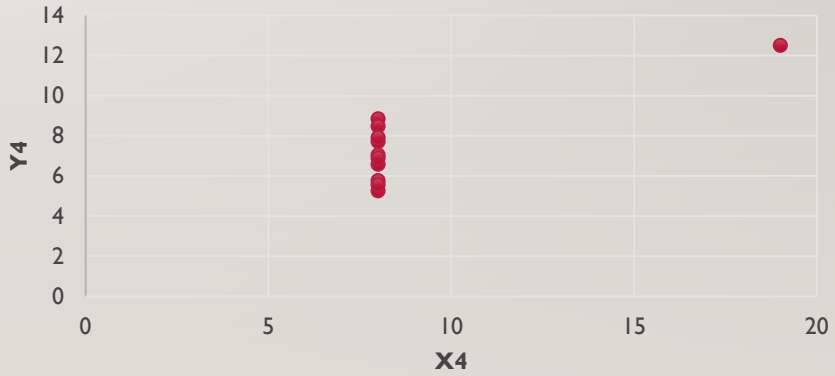
I		II		III		IV	
X	Y	X	Y	X	Y	X	Y
10.0	8.04	10.0	9.14	10.0	7.46	8.0	6.58
8.0	6.95	8.0	8.14	8.0	6.77	8.0	5.76
13.0	7.58	13.0	8.74	13.0	12.74	8.0	7.71
9.0	8.81	9.0	8.77	9.0	7.11	8.0	8.84
11.0	8.33	11.0	9.26	11.0	7.81	8.0	8.47
14.0	9.96	14.0	8.10	14.0	8.84	8.0	7.04
6.0	7.24	6.0	6.13	6.0	6.08	8.0	5.25
4.0	4.26	4.0	3.10	4.0	5.39	19.0	12.50
12.0	10.84	12.0	9.13	12.0	8.15	8.0	5.56
7.0	4.82	7.0	7.26	7.0	6.42	8.0	7.91
5.0	5.68	5.0	4.74	5.0	5.73	8.0	6.89

VISUALISING DATA









HOW TO COMMUNICATE DATA?

- Through data visualization that make the data attractive and easy to understand

DATA ANALYTICS

DATA ANALYTICS

- is the process of collecting, processing and analysing data to generate insights that help you improve the way you do business.
- Analytics allows us to:
  - learn new things,
  - understand more about the world in which we operate, and
  - make improvements across the organization.

TYPES OF ANALYTICS ..1

1. Text analytics
2. Sentiment analytics
3. Image analytics
4. Video analytics
5. Voice analytics
6. Data mining
7. Business experiments
8. Visual analytics
9. Correlation analysis

TYPES OF ANALYTICS ..2

10. Regression analysis
11. Scenario analysis
12. Forecasting/time series analysis
13. Monte Carlo simulation
14. Linear programming
15. Cohort analysis
16. Factor analysis
17. Neural network analysis
18. Meta analytics/literature analysis

ADVANCED ANALYTICS

- Machine learning and deep learning involve feeding data into machines, which then decide the best course of action based on that data without human intervention.
- This means that computers do not have to be explicitly programmed but can change and improve their algorithms by themselves.

COMBINING ANALYTICS FOR MAXIMUM SUCCESS

COMBINING

- Often the value of data is not in any one huge data set or one flashy analytic tool – it is in the insights that can be gained from **combining different types of data and analytics**.

- Example:
  - Correlation analysis says sell more Pop-Tarts when there's a hurricane warning, but it won't tell you *why* that is so.
  - To understand why people turned to Pop-Tarts specifically (say, if you wanted to target similar products), could carry out some text or sentiment analysis looking at what people say about Pop-Tarts on social media platforms.

Frosted Strawberry

S'mores

HOW CAN WE USE DATA IN DATA ANALYTICS?

3 BROAD CATEGORIES OF USE

1. Using data to improve decision making.
2. Using data to improve operations.
3. Using data as business asset.

USING DATA TO IMPROVE DECISION MAKING

CASE STUDIES:

- FASHION RETAIL COMPANY
- CAESARS ENTERTAINMENT

FASHION RETAIL COMPANY

- No data other than their traditional sales data.
- Wanted to increase sales but had no data to draw on to help them achieve that goal.
- Questions needed to answer include:
  - How many people pass our shops?
  - How many stop to look in the window and for how long?
  - How many of them then come into the shop?
  - How many then buy?

WHAT WERE DONE?

- Installed a small, discreet device into the shop windows that tracked mobile phone signals, counting everyone who walked past the shops (or rather, everyone with a mobile phone on them, which, these days, is almost everyone) – thereby answering the first question.
- The sensors also measured how many people stopped to look at the window and for how long, and how many people then walked into the store – answering the second and third questions.
- Used ordinary sales data to record how many people bought something.

REALIZATIONS

- By combining the data from the sensors placed in the window with transaction data, able to measure conversion ratio and test window displays and various offers to see which ones increased the conversion rate.
- Not only did the retailer increase sales by understanding what drew customers to stop and come into their stores, but they also used the insights to make a significant saving by *closing one of their stores*.
  - The footfall reported by the market research company prior to opening in that location was wrong and the passing traffic was insufficient to justify keeping the store open.

CAESARS ENTERTAINMENT ..1

- Caesars (formerly known as Harrah's).
- Used data analytics to understand customer profiles and how money was being spent in their resorts.

- Introduced Caesars Total Rewards
  - Used to gather data on customers' behaviour as they move around the facilities and partake in the various entertainments and refreshments.
- Result:
  - The company went from being able to trace the journey of 58 per cent of the money spent in their casinos to 85 per cent.

CAESARS ENTERTAINMENT ..2

- Findings:
  - Vast majority of the business's income did not come from high-rollers, holidaying super-rich or Hollywood stars.
  - It came from everyday visitors spending an average of US$100 to US$500 per visit.
- By recognizing the lifetime value of its most loyal customers, and rewarding them on that basis, the business has been able to drive customer satisfaction, and repeat spending.

CAESARS
ENTERTAINMENT®

USING DATA TO IMPROVE OPERATIONS

CASE STUDIES:

- SAGE STORES

- MACY

- WALMART

OPTIMIZED PRICING EXAMPLES ..1

- Stage Stores uses predictive analytics to determine the rise and fall of demand for a product.
  - Beat traditional approach 90% of the time.
- Macy changes pricing frequently to react to retail trends and demand.
  - Save 26 hours every time it optimizes pricing for its 73 million products.

OPTIMIZED PRICING EXAMPLES ..2

- Walmart
  - Has a refreshed database consisting of 200 billion rows of transactional data.
  - It also pulls in data from 200 other sources, including meteorological data, economic data, telecoms data, social media data, gas prices and a database of events taking place in the vicinity of Walmart stores.
  - All of this data is used to determine which products people are most likely to want, and where, and what is the most competitive price.

USING DATA AS BUSINESS ASSET

CASE STUDIES:

- IBM AND WEATHER
- MICROSOFT AND LINKEDIN

IBM AND WEATHER ..1

- In 2015, IBM acquired The Weather Company which owns Weather.com and Weather Underground for US$2B.
- Why? For the company's weather-related data; gathered from: 3 billion weather forecast reference points, 50,000 flights and more than 40 million smartphones per day.

IBM AND WEATHER ..2

- IBM can sell the data to other companies who need to know about the weather.
  - Agriculture
  - Transportation
  - Retail shopping
  - Construction
  - Insurance
  - Pharma (to predict demand for flu and cold medicines)

MICROSOFT AND LINKEDIN

- Microsoft acquired LinkedIn for US$26.2B.
- Microsoft has access to the professional network's more than 400 million users.
- This allows great scope for personalization within Microsoft's tools.

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