

Data analysis is a technique that typically involves multiple activities such as gathering, cleaning, and organizing the data. These processes, which usually include data analysis software, are necessary to prepare the data for business purposes. Data analysis is also known as data analytics, described as the science of analysing raw data to draw informed conclusions based on the data. Data comes in different structures, formats, and types, including the following:

- **Big data.** Big data is defined as a huge data set that continues to grow at an exponential rate over time. The four fundamental characteristics of big data are volume, variety, velocity, and variability. Volume describes quantity, velocity refers to the speed of data growth, and variety indicates different data sources. Veracity speaks to the quality of the data, determining if it provides business value or not.
- **Structured/unstructured data.** Structured data is a predefined data model such as a traditional row-column database. Unstructured data comes in a format that does not fit in rows and columns and can include videos, photos, audio, text, and more. A comparison of structured data versus unstructured data reveals that structured data is easier to manage and analyse.
- **Metadata.** Metadata is a form of data that describes and provides information about other data. For example, metadata for an image can include the author, image type, and date created. Metadata enables users to organize unstructured data into categories, making it easier to work with.
- **Real-time data.** Data that is presented as soon as it is acquired is known as real-time data. This type of data is useful when decisions require up-to-the-minute information. For example, a stockbroker can use a stock market ticker to track the most active stocks in real time.
- **Machine data.** Thanks to the Internet of Things (IoT), sensors, and other technologies, data can be automatically generated by factory systems and other machines, information technology and telecommunications infrastructure, smart cars, hand-held devices, and more. This type of data is known as machine data because it is produced wholly by machines without human instruction.

Data analysis methods and techniques are useful for finding insights in data, such as metrics, facts, and figures. The two primary methods for data analysis are qualitative data analysis techniques and quantitative data analysis techniques. These data analysis techniques can be used independently or in combination with the other to help business leaders and decision-makers acquire business insights from different data types.