

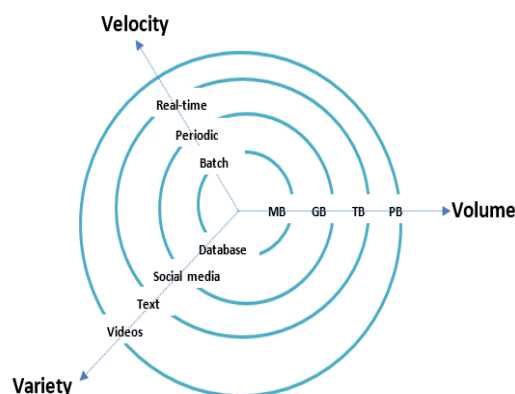


# The Era of Big Data: A Big Change to Human Interaction

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## 1.1 Introduction

Big data is an evolving term which describes an enormous volume of data generated from daily life activities (Mayer-Schonberger, Cukier 2014). In a business context, Big Data is seen as an enormous opportunity. The world generates 2.5 Quintillion bytes of data daily; this is equivalent to the size of 10 million Blu-ray discs as mentioned by IBM. These data are generated from sensor readings, social media posts, digital pictures, business transaction records, cell phone signals, and many others. Big Data has proved its value and importance in various areas, such as organizations leveraging data analysis technologies to derive value from the generated data for business decision making. Big data is known for its 3 Vs; Volume, Velocity and Variety.



**Fig. 1. Big Data Properties**

**1.2 Volume:** There is a colossal volume of data generated every second of every single day from various sources ranging from people's activities, machine processes and electronic devices.

**1.3 Velocity:** For many areas, data is streamed at an unprecedented speed that requires timely processing. As a result, scholars like Dr. Andrew Starkey of Aberdeen University commended the need of automated methods for extracting knowledge from the ever growing Big Data (Sharda, Delen et al. 2015).

**1.4 Variety:** Big data comes in various forms ranging from text, numbers, images, videos and audio, coming as structured (numerical data saved in traditional databases) or unstructured (text, images, videos, audio, social media posts, and sensor generated data).

## 2. The Change to E-commerce

The volume of business data is ever increasing, the hidden knowledge in this deluge of big data enables companies to stay at the top of competitors by making wise business decisions that leads to optimized business process, improved customer service and reduced business risk and loss (Sharda, Delen et al. 2015). One of the two most widely used big data technologies in this area is the Recommender Systems and Sentiment Analysis Tools.

**Recommender Systems** have gained a wide attention in the big data world. If you've ever used Netflix, Amazon or eBay for shopping, then you've witnessed Recommender Systems in action. These sophisticated functions make use of customer behavioural data to detect pattern and gain an understanding of what customers are likely to purchase and make suggestions (Aggarwal 2016). These systems use various approaches to make recommendations, such as: 1) making recommendations based on the properties of what customers have purchased in the past; 2) making recommendations based upon what items customers have looked at on their websites; and 3) making recommendations based on customer ratings, among others. The use of recommender systems enables organisations to have a better understanding of their customer's needs for a better and effective service provision (Sheikh 2013).

**Sentiment Analysis** of social media texts entails the use of natural language processing techniques for reading textual information, such as classifying text as positive, negative or neutral. This has been used to reveal insights on people's political opinions towards products and services that play a substantial role in guiding decision making and in improving customer service provision (Mate 2016).

### 3. Health & Well Being

Using Big Data, predictive analysis has been widely used to make future predictions in various areas. The healthcare organisations have been one of the major beneficiaries of this analysis, by analysing streamed patient's data to make predictions regarding the outbreak of disease, as well as identifying risks in becoming unhealthy, and by developing preventive measures (Chen, Zhang 2014).

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