# SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107
Accredited by NAAC-UGC with 'A' Grade
Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai

## Department of Information Technology

**Course Name – 19IT503 Internet of Things**

**III Year / V Semester**

**Unit 2 – FUNDAMENTAL MECHANISMS & KEY TECHNOLOGIES**

**Topic 7- IoT Enabling Technologies– Big Data Analytics**

# IoT Enabling Technologies – Big Data Analytics

What is Big Data?

- Big data is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making.

- Big data is a term applied to data sets whose size or type is beyond the ability of traditional relational databases to capture, manage and process the data with low latency.

Sources of Big Data

- Sensors used to gather climate information, posts to social media sites, digital pictures and videos, purchase transaction records and cell phone GPS signals, to name a few.

- Artificial intelligence (AI), Mobile, Social Media and the Internet of Things (IoT) are driving data complexity through new forms and sources of data.

- For example, big data comes from Sensors, Devices, Video/Audio, Networks, Log files, Transactional applications, Web, and Social media — much of it generated in real time and at a very large scale.

# IoT Enabling Technologies – Big Data Analytics

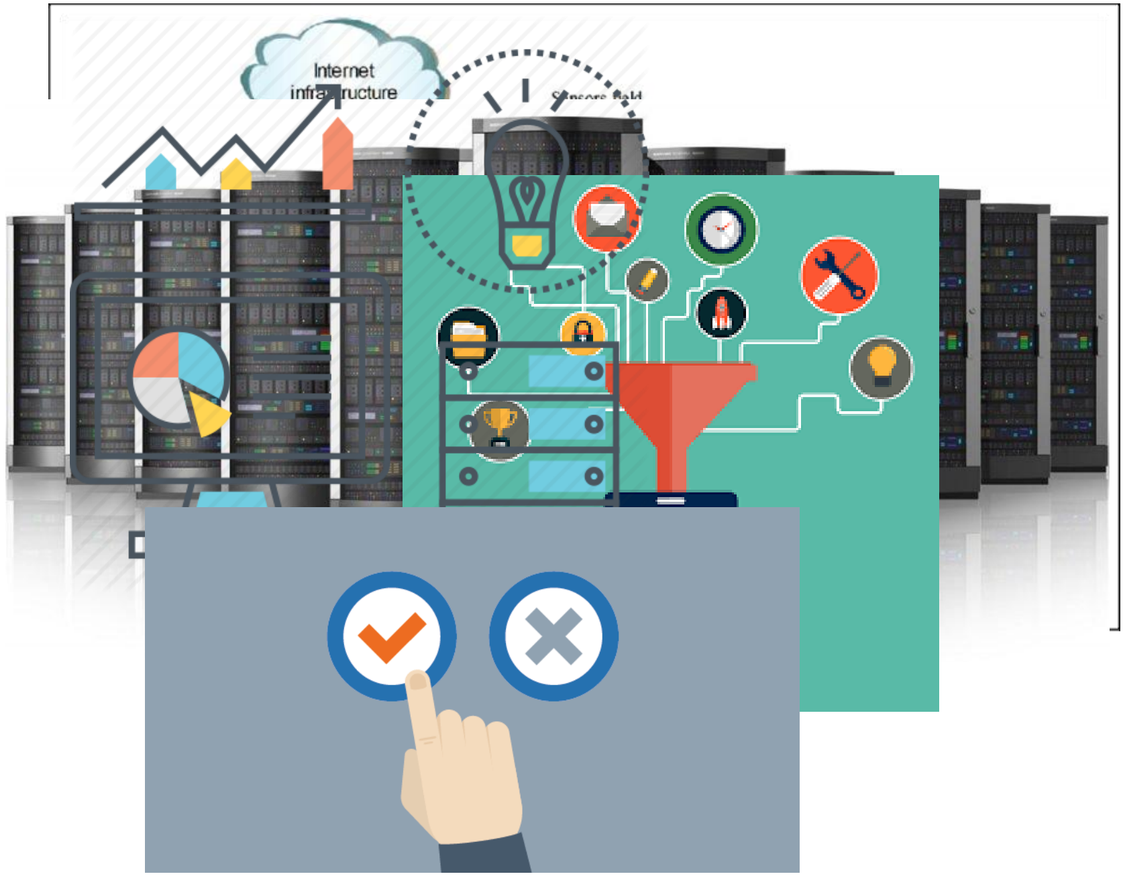
What is Big Data?

- Larger or Voluminous, Complex data set's
- From different sources
- Different Types
- Traditional Database cant handle it.

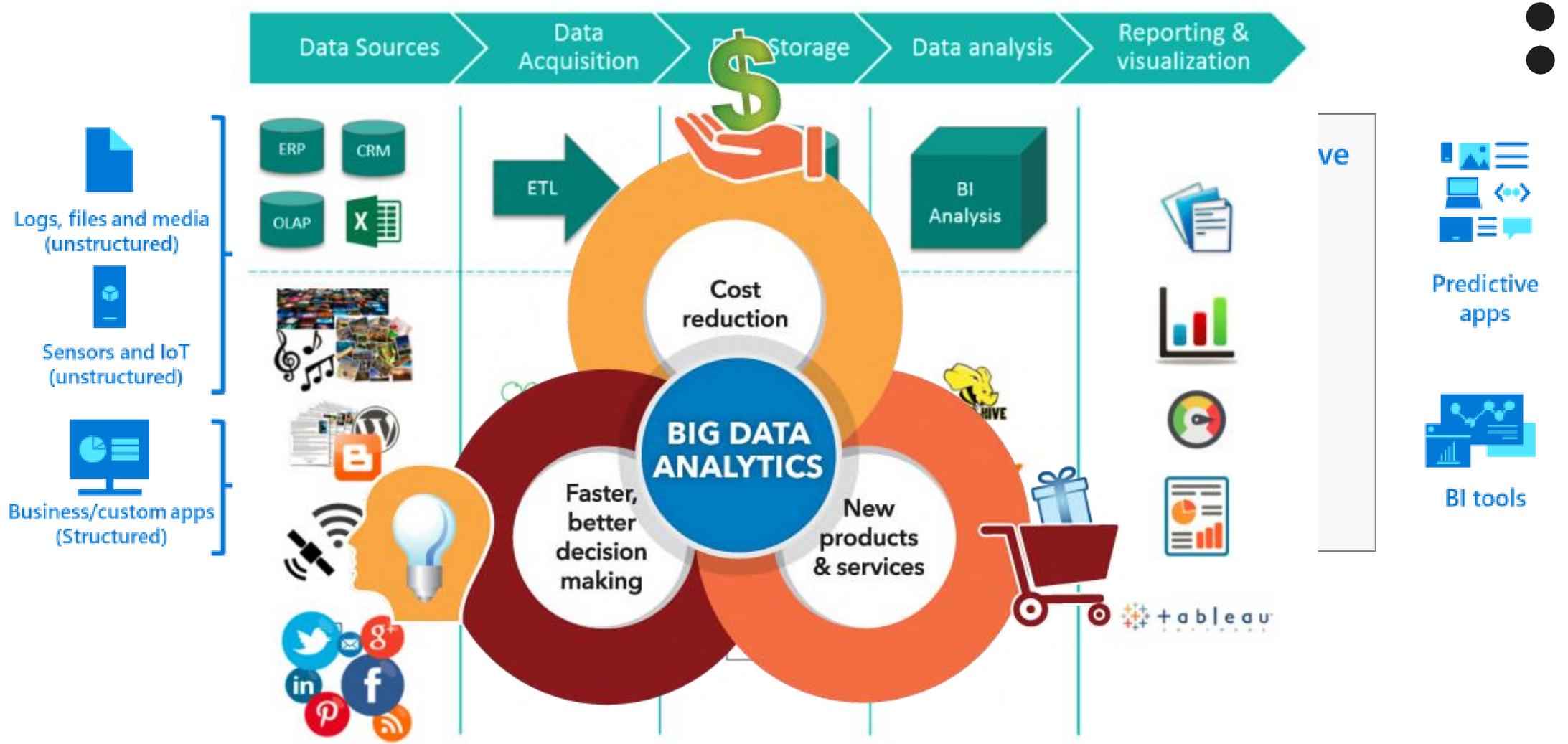
# IoT Enabling Technologies – Big Data Analytics

What can be done using Bigdata?

- Gathering Data
- Storing
- Analyzing or Processing
- Get Useful Business Intelligence
- To make better decisions for business growth.

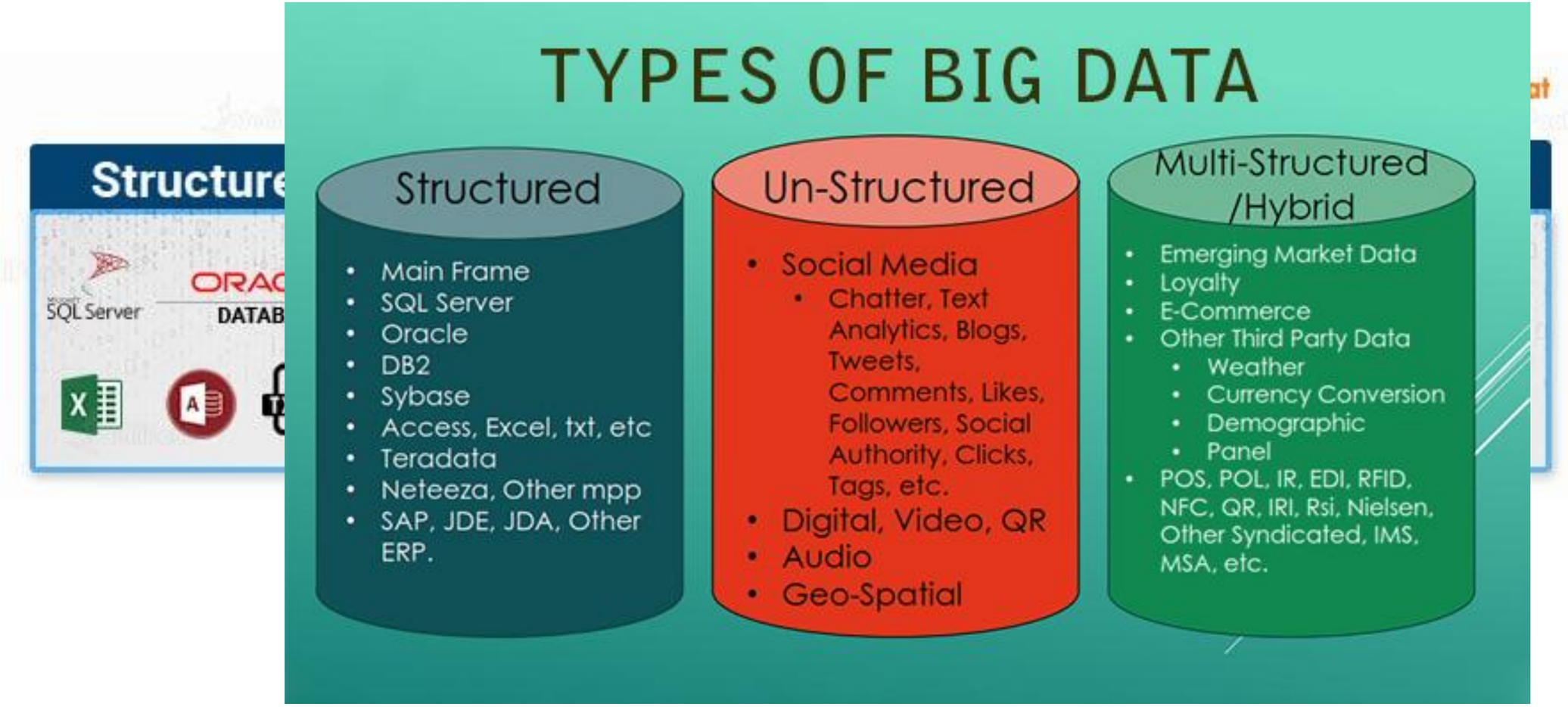


# IoT Enabling Technologies – Big Data Analytics



# IoT Enabling Technologies – Big Data Analytics

Types of Big Data



# IoT Enabling Technologies – Big Data Analytics

Types of Big Data

1.Structured Data

It owns a dedicated data model. It also has a well defined structure, it follows a consistent order and it is designed in such a way that it can be easily accessed and used by person or a computer. Structured data is usually stored in well defined columns and databases.

– Structured Schema

– Tables with rows and columns of data

– Example : DBMS,RDBMS

2.Semi-Structured Data

It is considered as another form of structured data. It inherits few properties of structured data, but major parts of this kind of data failures to have a definitive structure and also it does not obey the formal structure of data models such as RDBMS.

- Schema is not defined properly
- JSON, XML, CSV,RSS
- Ex: Transactional history file, Log file

# IoT Enabling Technologies – Big Data Analytics

3.Unstructured Data

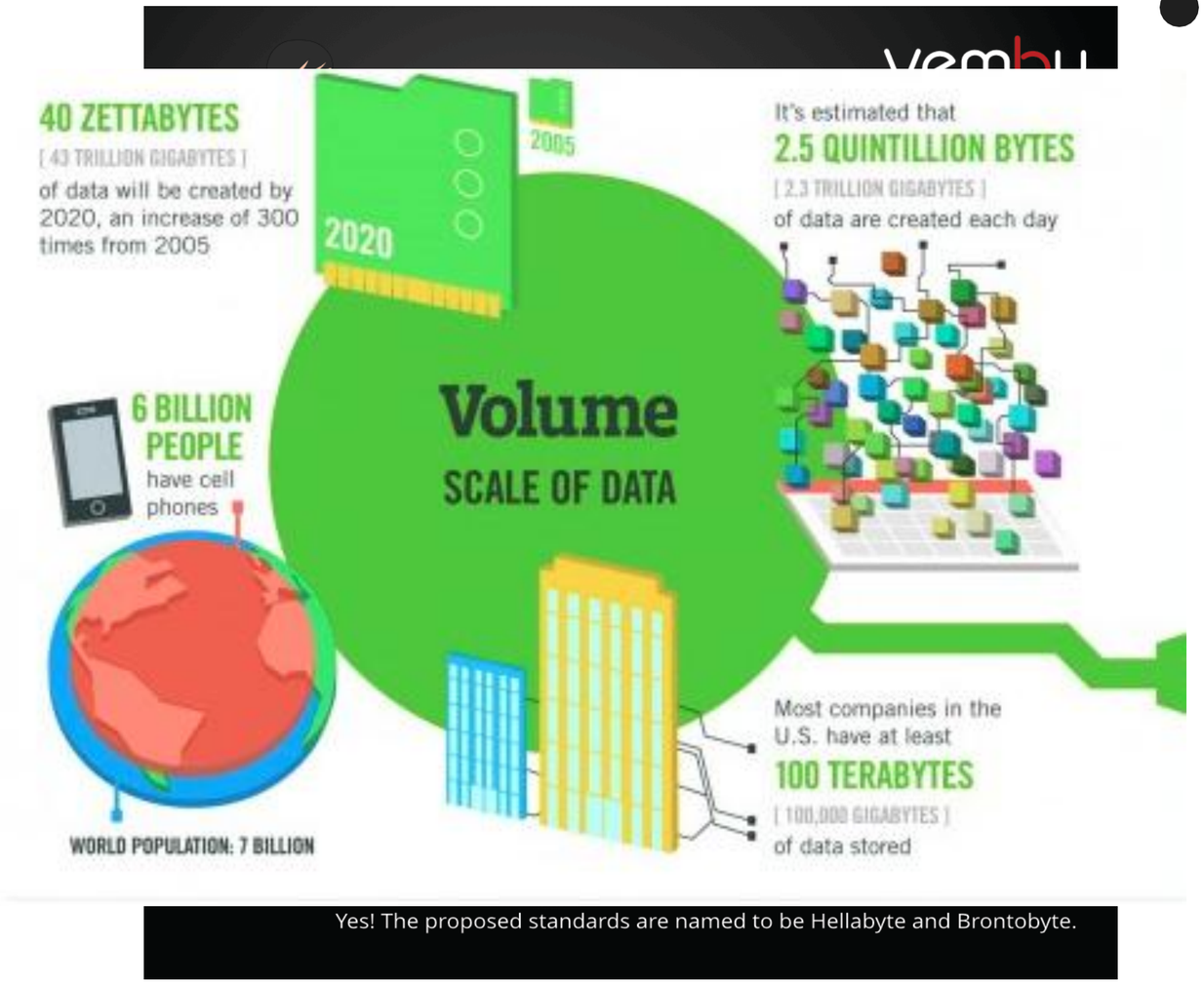
Unstructured data is completely different of which neither has a structure nor obeys to follow formal structural rules of data models. It does not even have a consistent format and it found to be varying all the time. But rarely it has information related to data and time.

Heterogeneous Data

Text file, Images, Videos, Audio

# IoT Enabling Technologies – Big Data Analytics

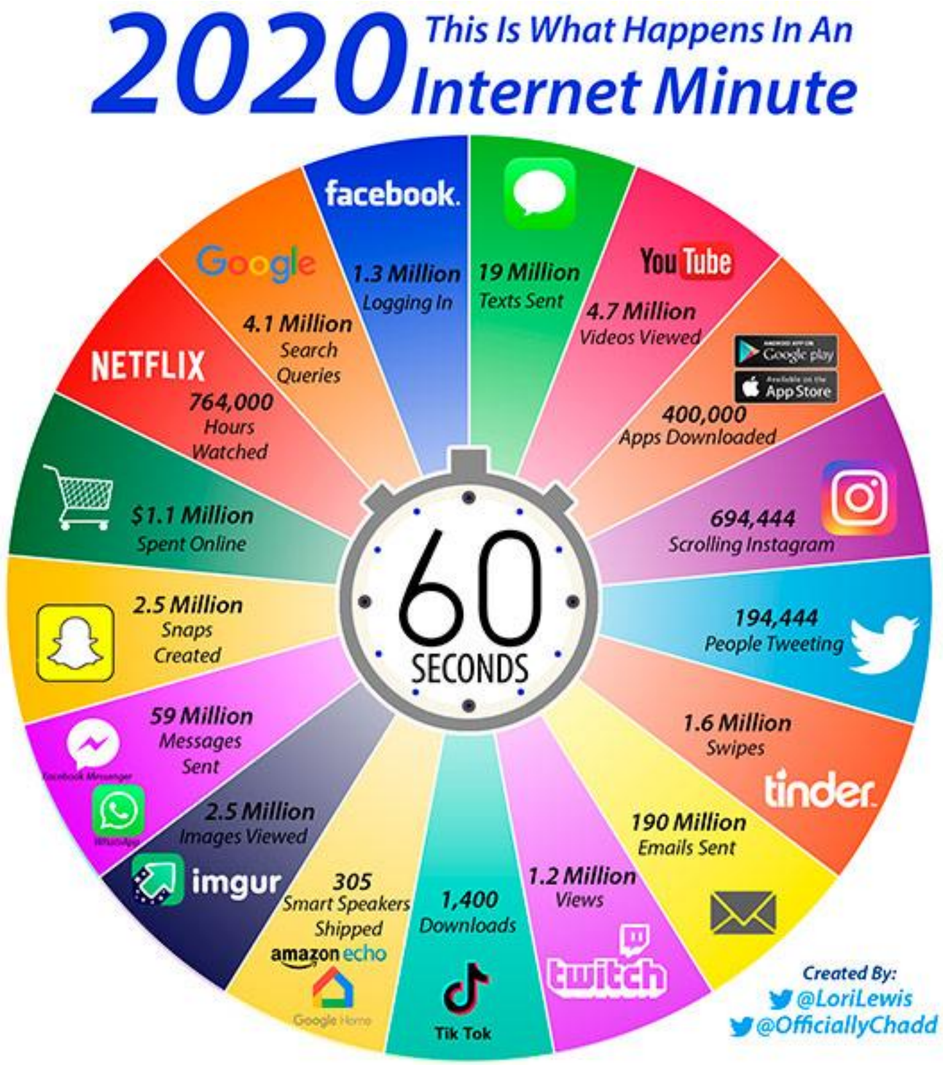
Characteristics of Big Data

# IoT Enabling Technologies – Big Data Analytics

Characteristics of Big Data

Velocity
- Rate at which data is received
- Speed at which data is generated

# IoT Enabling Technologies – Big Data Analytics

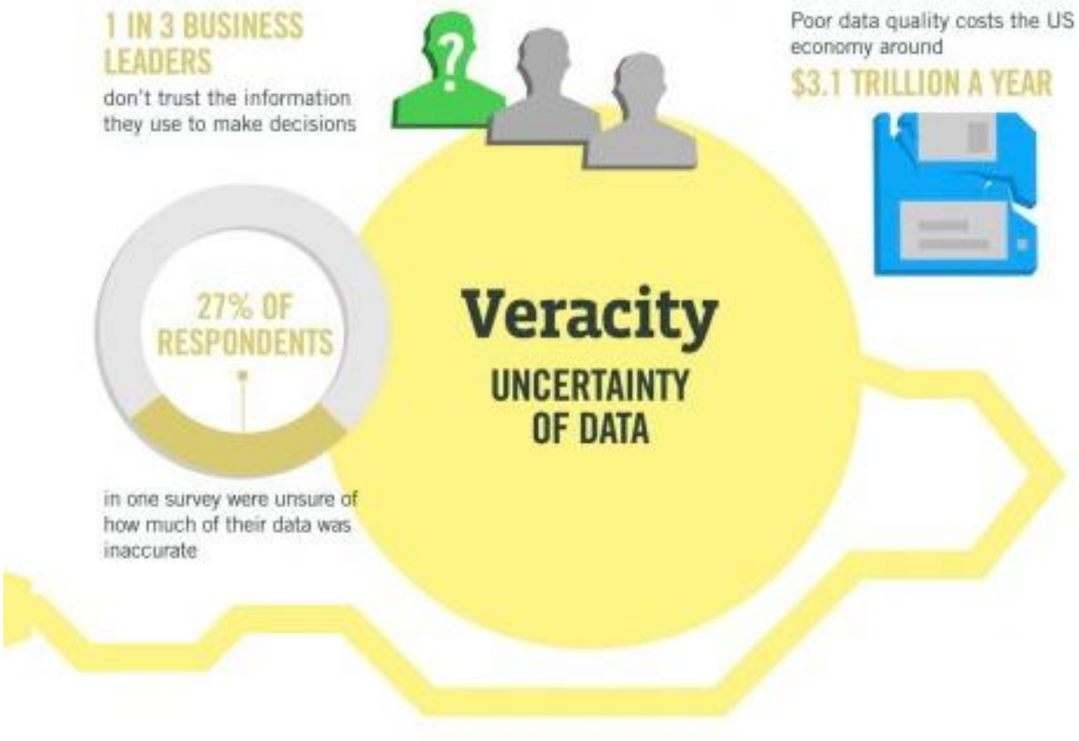
Characteristics of Big Data

Variety
- Different types of Data
- Various forms of data


# IoT Enabling Technologies – Big Data Analytics

Veracity

- Uncertainty
- Inconsistent or Incomplete
- Data quality is Unreliable
- How Accurate? Accuracy
- Truthfulness of data
- Data from different sources

# IoT Enabling Technologies – Big Data Analytics

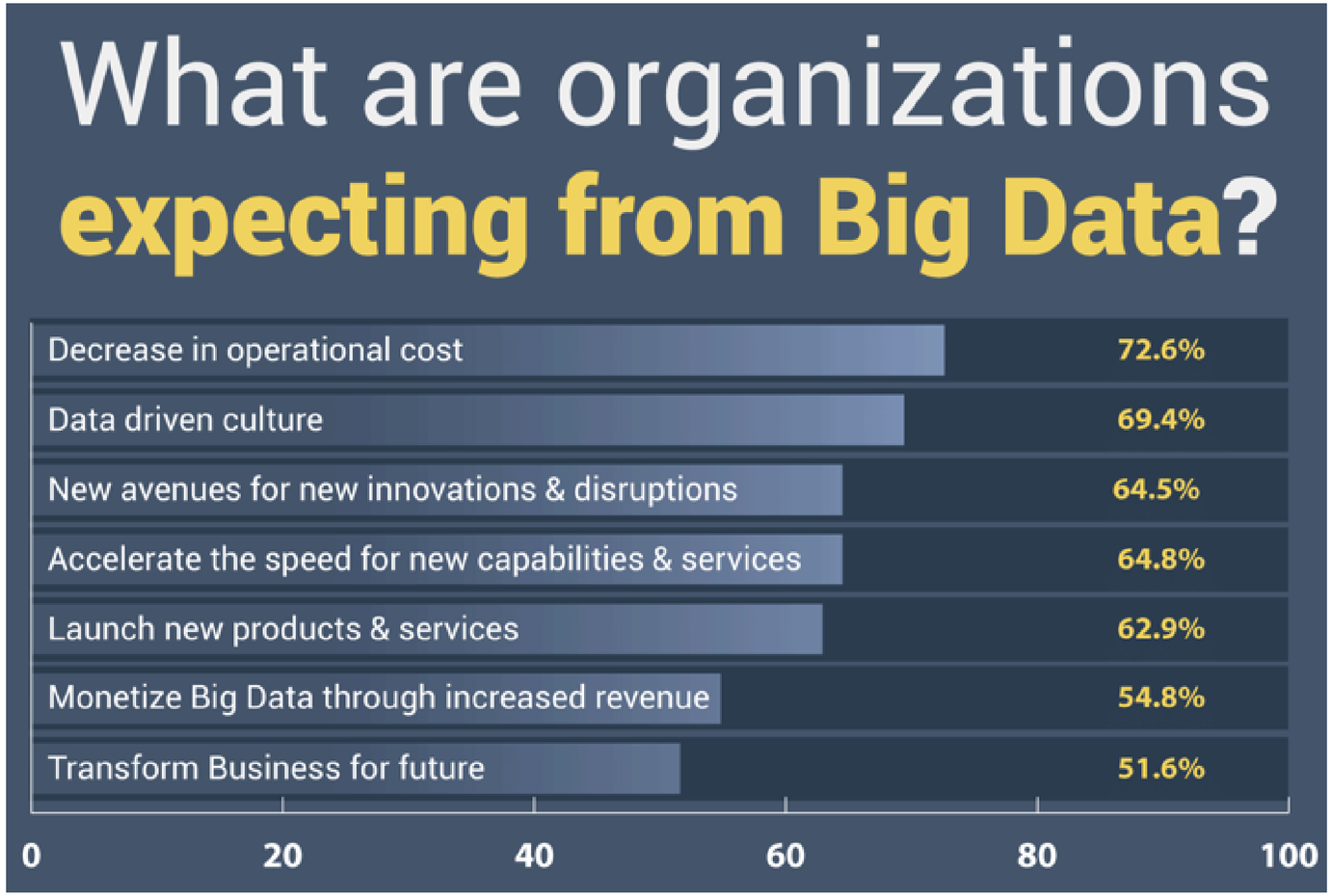
Value

- Social or economic value that the data might create.
- Represents benefit of data to your business
- Business Intelligence
- Insights
- Informed decision making


# IoT Enabling Technologies – Big Data Analytics

Why Big Data Analytics ?

- Advance analytics
- Business Intelligence
- Better Informed Decisions
- BI to increase sales, profit, customers
- Identify Business Risks
- Predict New Business Opportunities



# THANK YOU