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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







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.





What is Big Data?

Larger or Voluminous, Complex data set's

From different sources

Different Types

Traditional Database cant handle it.





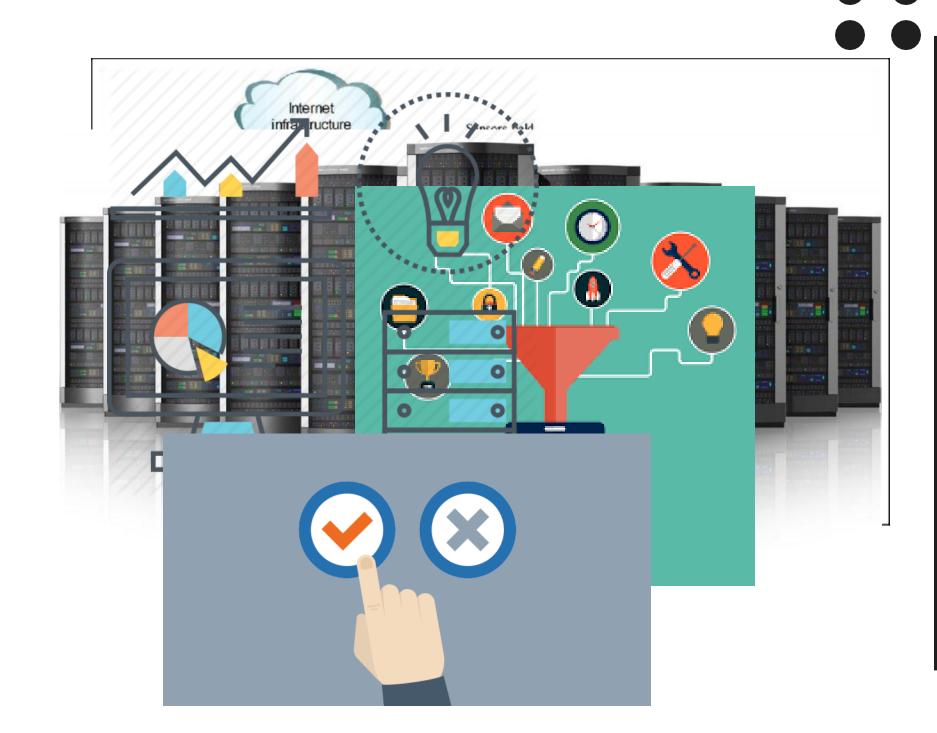




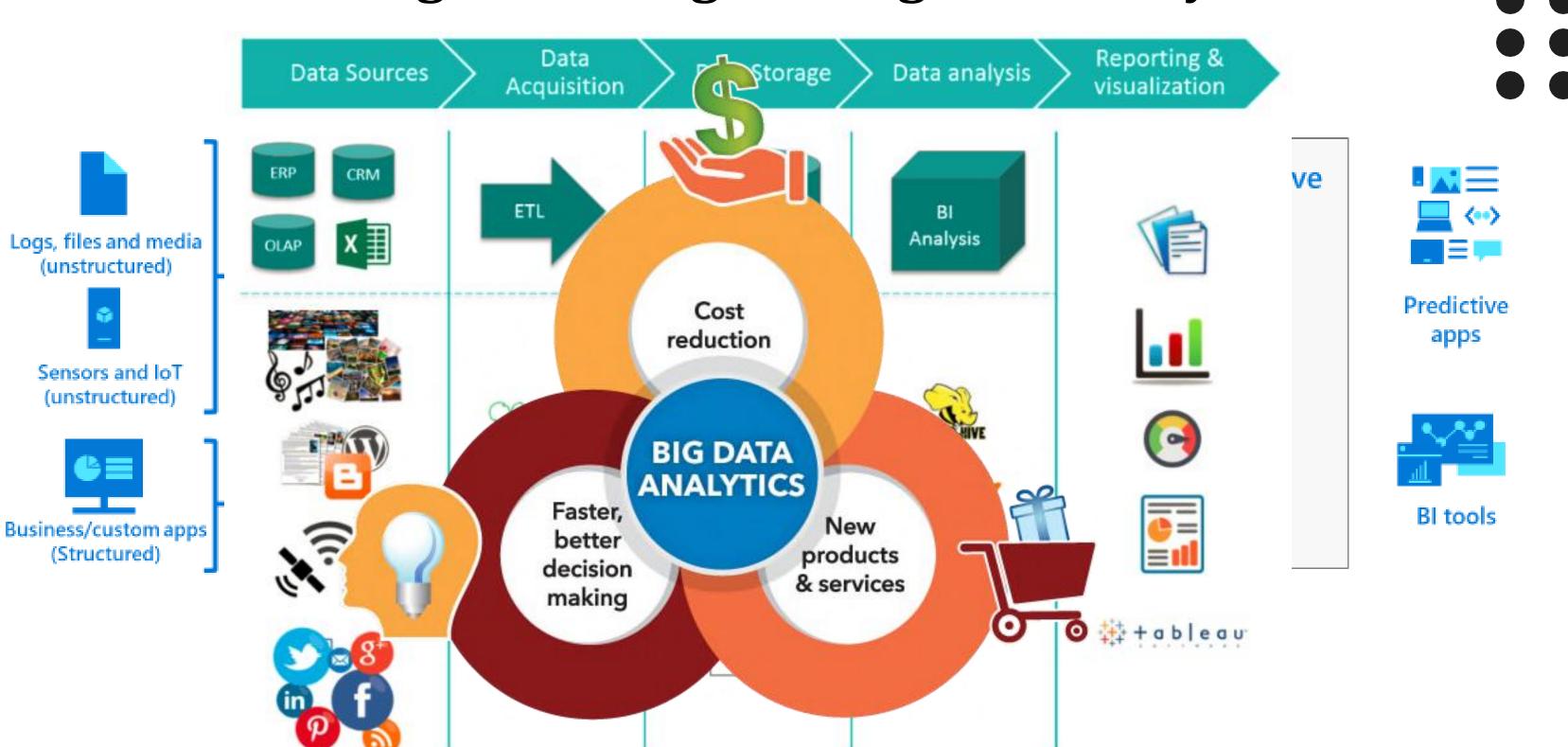


What can be done using Bigdata?

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











Types of Big Data



TYPES OF BIG DATA

Structured

- Main Frame
- SQL Server
- Oracle
- DB2
- Sybase
- Access, Excel, txt, etc.
- Teradata
- Neteeza, Other mpp
- SAP, JDE, JDA, Other ERP.

Un-Structured

- Social Media
 - Chatter, Text
 Analytics, Blogs,
 Tweets,
 Comments, Likes,
 Followers, Social
 Authority, Clicks,
 Tags, etc.
- Digital, Video, QR
- Audio
- Geo-Spatial

Multi-Structured /Hybrid

- Emerging Market Data
- Loyalty
- E-Commerce
- Other Third Party Data
 - Weather
 - Currency Conversion
 - Demographic
 - Panel
- POS, POL, IR, EDI, RFID, NFC, QR, IRI, Rsi, Nielsen, Other Syndicated, IMS, MSA, etc.





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





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.

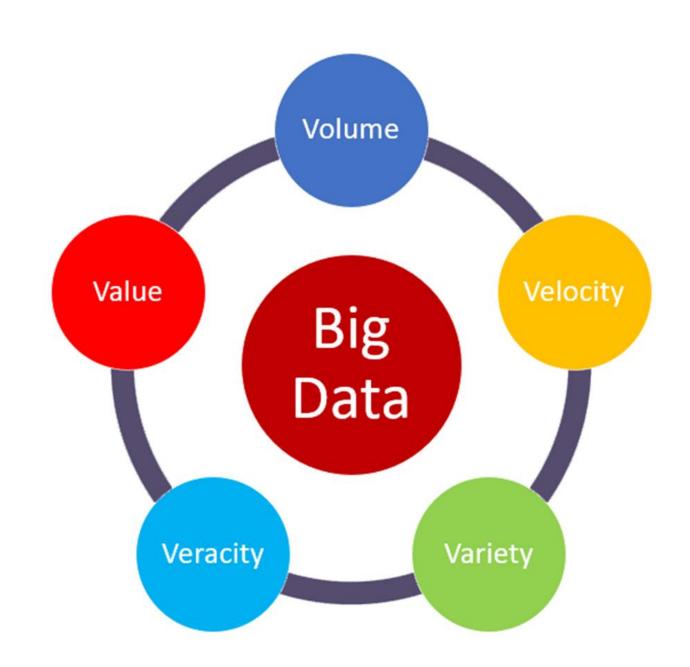
Heterogeneous Data

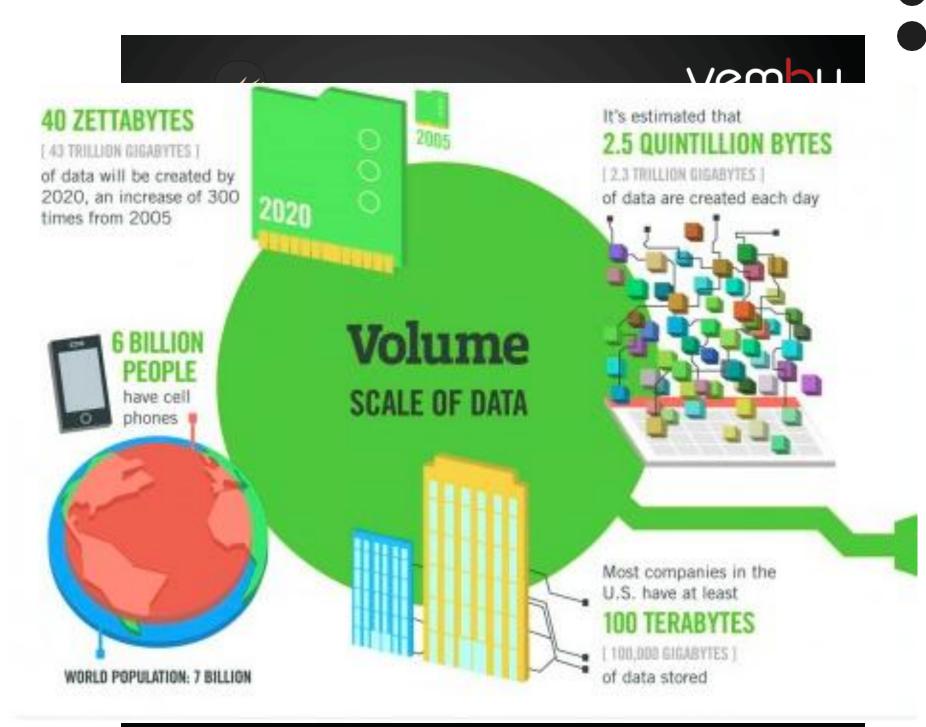
Text file, Images, Videos, Audio





Characteristics of Big Data





Yes! The proposed standards are named to be Hellabyte and Brontobyte.





Characteristics of Big Data

Velocity

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



2020 This Is What Happens In An Internet Minute facebook You Tube 1.3 Million 19 Million Texts Sent ogging In 4.7 Million 4.1 Million Videos Viewed Coogle play **NETFLIX** 764,000 Apps Downloaded Watched \$1.1 Million Spent Online Scrolling Instagram 2.5 Million People Tweeting Created SECONDS 59 Million 1.6 Million tinder 190 Million **Emails Sent** 1.2 Million imgur 1,400 Smart Speakers Download: Shipped amazon echo witch

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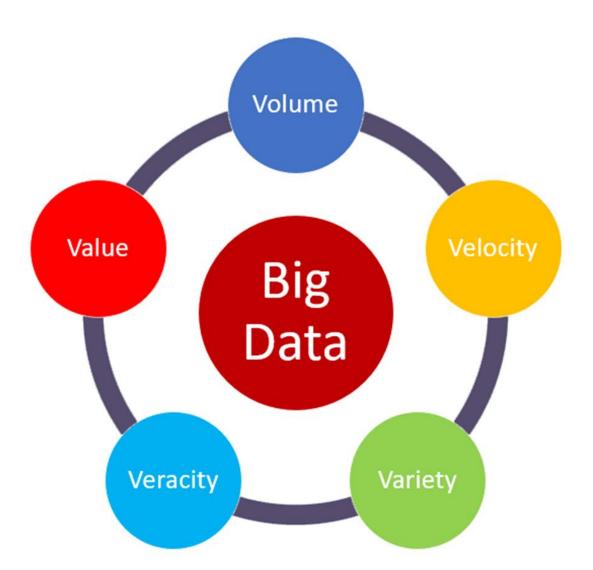


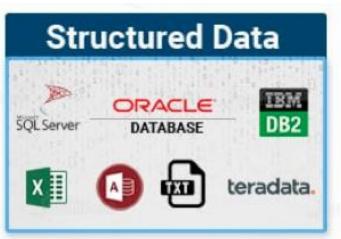


Characteristics of Big Data

Variety

- Different types of Data
- Various forms of data









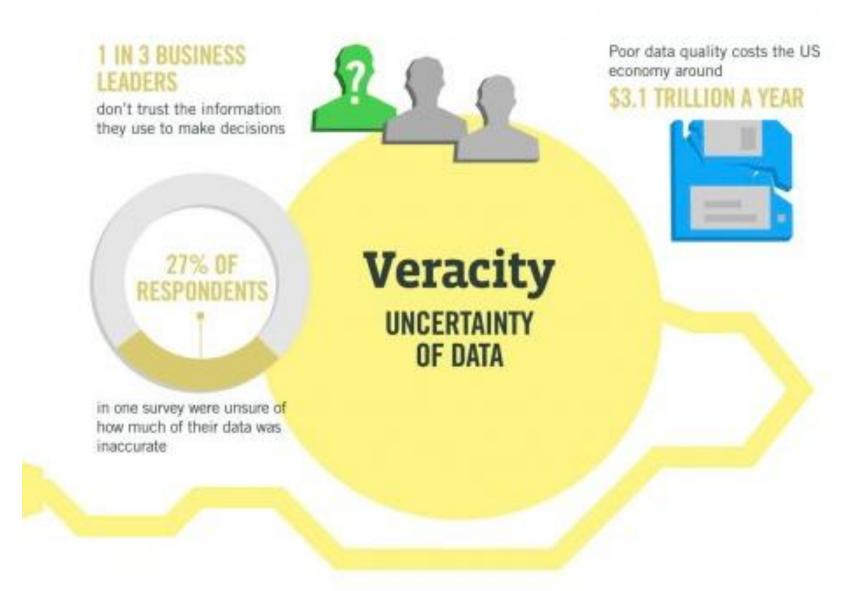




Veracity

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









Value

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



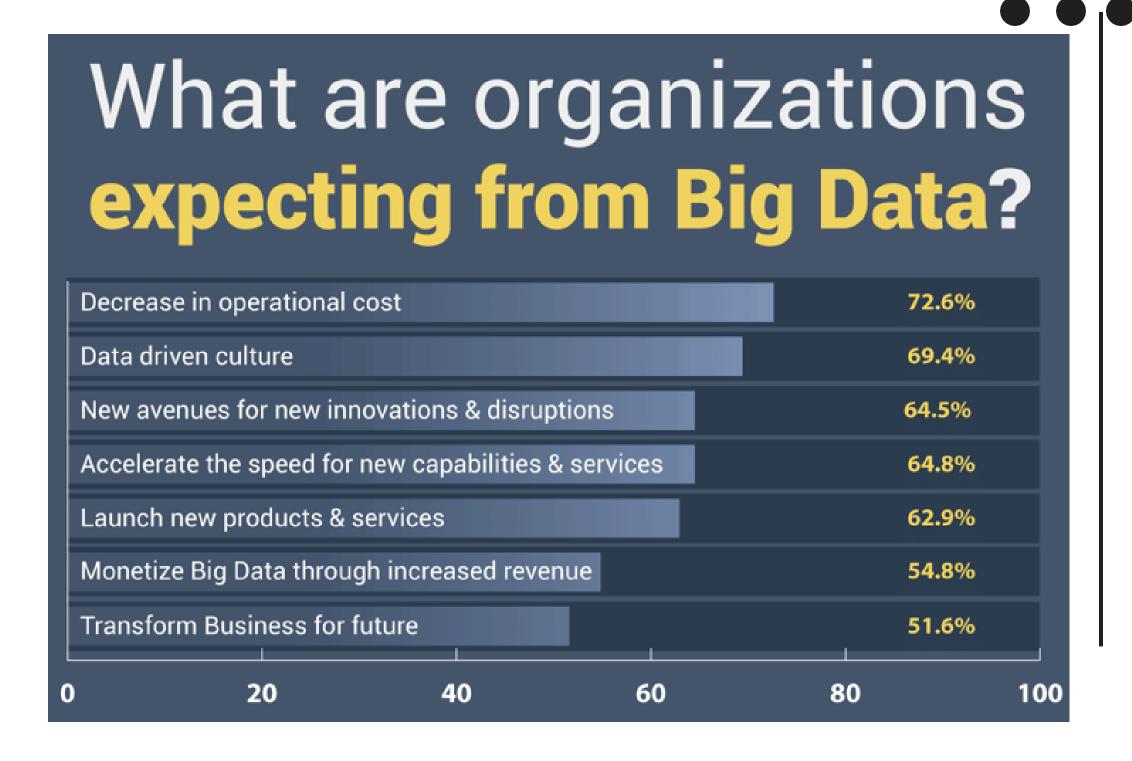






Why Big Data Analytics?

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







THANK YOU