Big Data

Disusun oleh:

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Capaian Pembelajaran

Mahasiswa mampu menjelaskan fenomena keberlimpahan data atau big data beserta karakteristik dan penggunaannya.

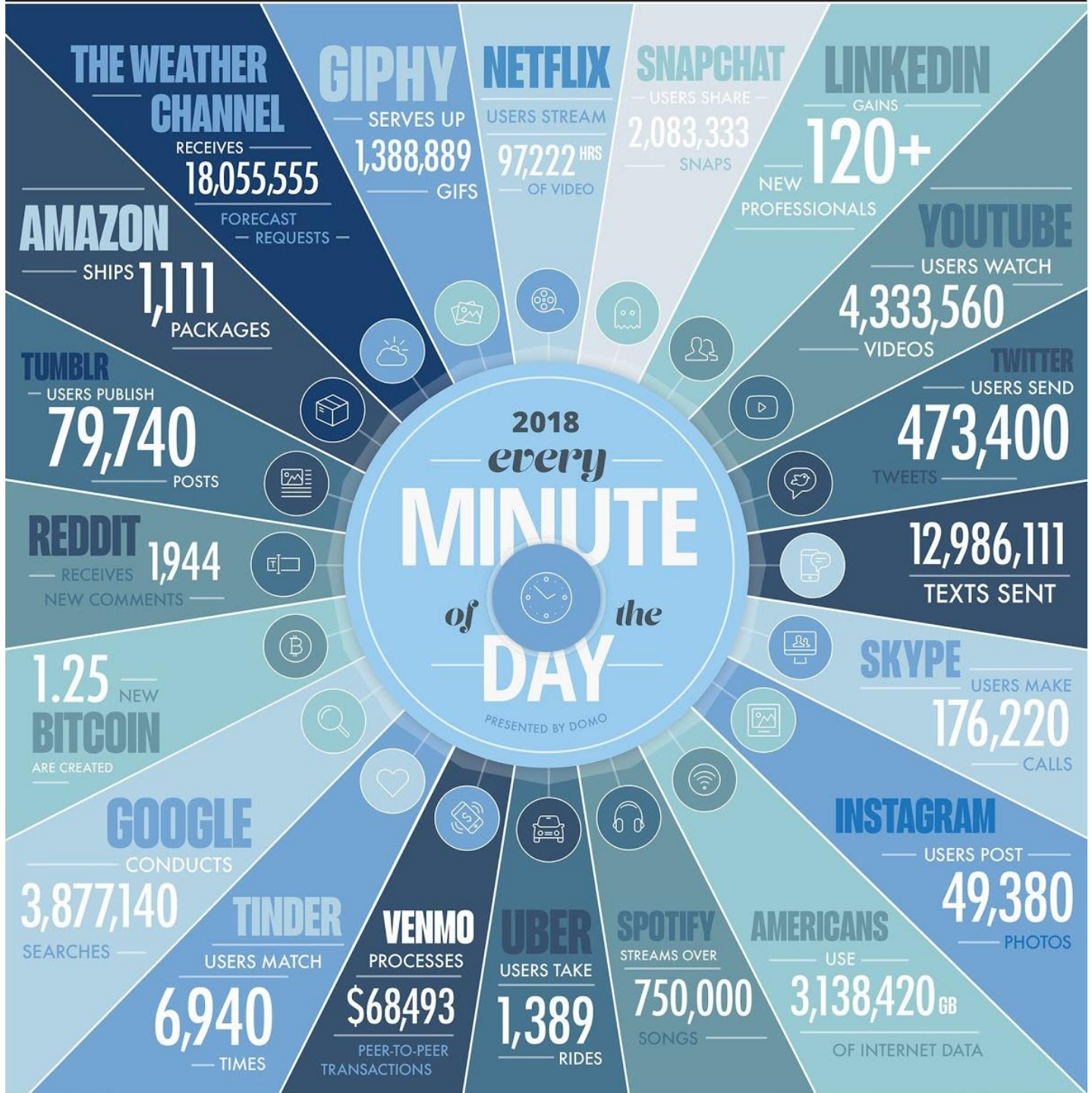
Topik

- Fenomena Big Data
- Karakteristik Big Data
- Pemanfaatan Big Data

Fenomena Big Data

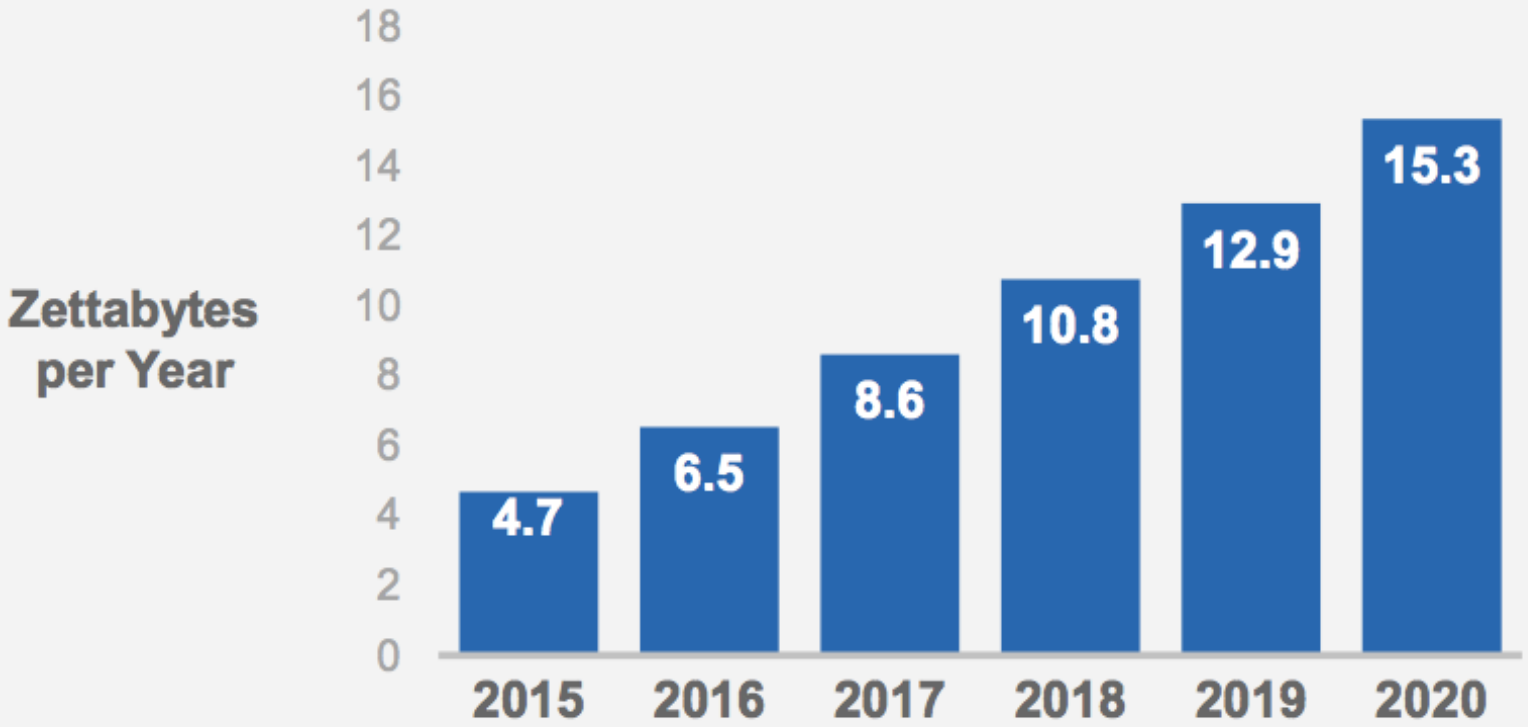
Background

- Setiap orang dapat menghasilkan data dari berbagai aktivitasnya


2018
every
MINUTE
of the
DAY
PRESENTED BY DOMO
THE WEATHER CHANNEL
RECEIVES
18,055,555
FORECAST REQUESTS
GIPHY
SERVES UP
1,388,889
GIFS
NETFLIX
USERS STREAM
97,222 HRS
OF VIDEO
SNAPCHAT
USERS SHARE
2,083,333
SNAPS
LINKEDIN
GAINS
120+
NEW PROFESSIONALS
AMAZON
SHIPS
1,111
PACKAGES
YOUTUBE
USERS WATCH
4,333,560
VIDEOS
TUMBLR
USERS PUBLISH
79,740
POSTS
TWITTER
USERS SEND
473,400
TWEETS
REDDIT
RECEIVES
1,944
NEW COMMENTS
12,986,111
TEXTS SENT
1.25 NEW
BITCOIN
ARE CREATED
SKYPE
USERS MAKE
176,220
CALLS
GOOGLE
CONDUCTS
3,877,140
SEARCHES
INSTAGRAM
USERS POST
49,380
PHOTOS
TINDER
USERS MATCH
6,940
TIMES
VENMO
PROCESSES
$68,493
PEER-TO-PEER TRANSACTIONS
UBER
USERS TAKE
1,389
RIDES
SPOTIFY
STREAMS OVER
750,000
SONGS
AMERICANS
USE
3,138,420 GB
OF INTERNET DATA

Global Data Center Traffic Growth

Data Center Traffic More Than Triples from 2015 to 2020



27% CAGR
2015–2020

Back to Index

Source: Cisco Global Cloud Index, 2015–2020

Unit	Value	Size
bit (b)	0 or 1	1/8 of a byte
byte (B)	8 bits	1 byte
kilobyte (KB)	1000^1 bytes	1,000 bytes
megabyte (MB)	1000^2 bytes	1,000,000 bytes
gigabyte (GB)	1000^3 bytes	1,000,000,000 bytes
terabyte (TB)	1000^4 bytes	1,000,000,000,000 bytes
petabyte (PB)	1000^5 bytes	1,000,000,000,000,000 bytes
exabyte (EB)	1000^6 bytes	1,000,000,000,000,000,000 bytes
zettabyte (ZB)	1000^7 bytes	1,000,000,000,000,000,000,000 bytes
yottabyte (YB)	1000^8 bytes	1,000,000,000,000,000,000,000,000 bytes

Big Data

Karakteristik Big Data

The FOUR V's of Big Data

From traffic patterns and music downloads to web history and medical records, data is recorded, stored, and analyzed to enable the technology and services that the world relies on every day. But what exactly is big data, and how can these massive amounts of data be used?

As a leader in the sector, IBM data scientists break big data into four dimensions: **Volume, Velocity, Variety and Veracity**

Depending on the industry and organization, big data encompasses information from multiple internal and external sources such as transactions, social media, enterprise content, sensors and mobile devices. Companies can leverage data to adapt their products and services to better meet customer needs, optimize operations and infrastructure, and find new sources of revenue.

By 2015
4.4 MILLION IT JOBS
will be created globally to support big data, with 1.9 million in the United States

Volume
SCALE OF DATA

40 ZETTABYTES
[43 TRILLION GIGABYTES]
of data will be created by 2020, an increase of 300 times from 2005

It's estimated that
2.5 QUINTILLION BYTES
[2.3 TRILLION GIGABYTES]
of data are created each day

6 BILLION PEOPLE
have cell phones

WORLD POPULATION: 7 BILLION

Most companies in the U.S. have at least
100 TERABYTES
[100,000 GIGABYTES]
of data stored

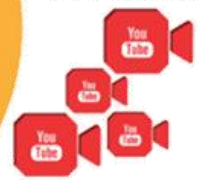
Variety
DIFFERENT FORMS OF DATA

As of 2011, the global size of data in healthcare was estimated to be
150 EXABYTES
[161 BILLION GIGABYTES]

30 BILLION PIECES OF CONTENT
are shared on Facebook every month

By 2014, it's anticipated there will be
420 MILLION WEARABLE, WIRELESS HEALTH MONITORS

4 BILLION+ HOURS OF VIDEO
are watched on YouTube each month



400 MILLION TWEETS
are sent per day by about 200 million monthly active users

Velocity
ANALYSIS OF STREAMING DATA

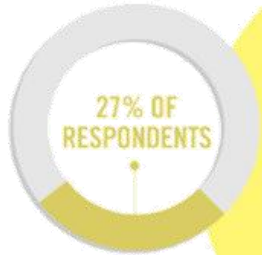
The New York Stock Exchange captures
1 TB OF TRADE INFORMATION
during each trading session

Modern cars have close to
100 SENSORS
that monitor items such as fuel level and tire pressure

By 2016, it is projected there will be
18.9 BILLION NETWORK CONNECTIONS
– almost 2.5 connections per person on earth

Veracity
UNCERTAINTY OF DATA

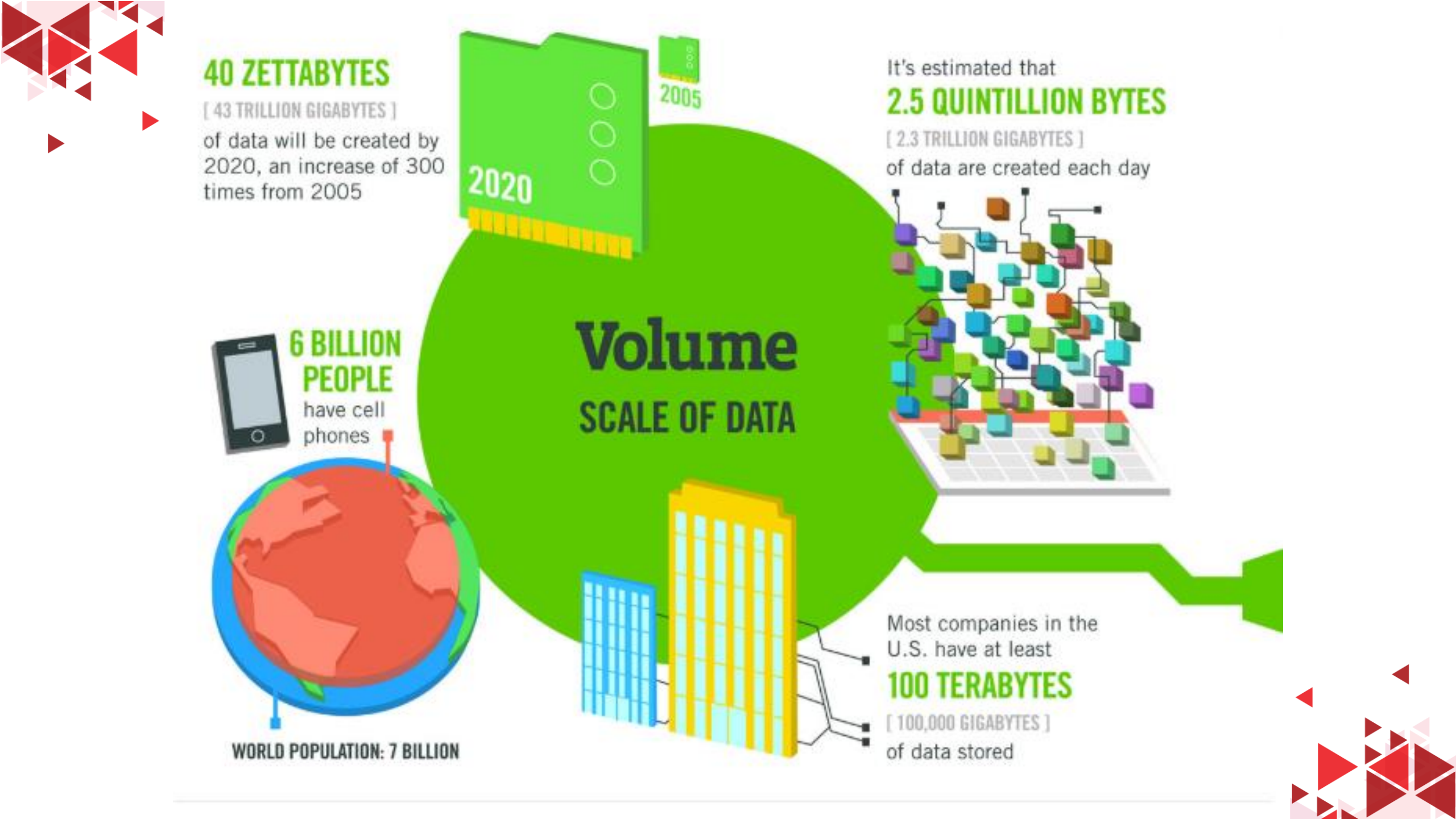
1 IN 3 BUSINESS LEADERS
don't trust the information they use to make decisions



in one survey were unsure of how much of their data was inaccurate

Poor data quality costs the US economy around
$3.1 TRILLION A YEAR

Sources: McKinsey Global Institute, Twitter, Cisco, Gartner, EMC, SAS, IBM, MEPTEC, QAS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Variety

Velocity

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BIG DATA

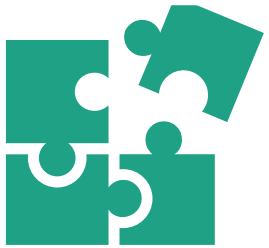
to

BIG VALUE

Big data is high-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation. (Gartner)

Pemanfaatan Big Data

Pemanfaatan Big Data

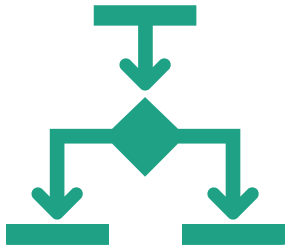


Product Development

Predictive Maintenance

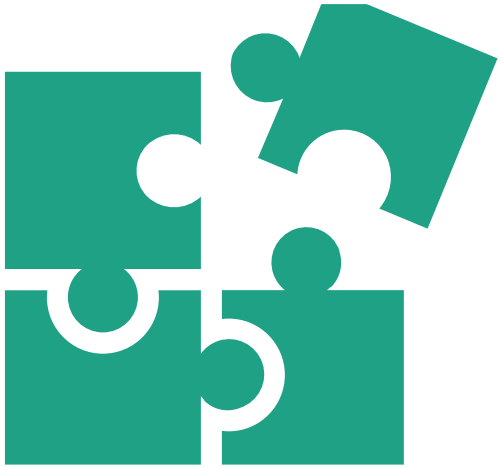
Customer Experience

Machine Learning



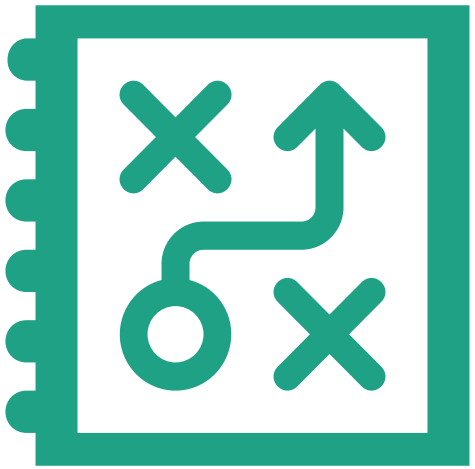
Operational Efficiency

Drive Innovation



Product Development

- ✓ Mengantisipasi kebutuhan customer
- ✓ Memprediksi produk dan layanan baru



Predictive Maintenance

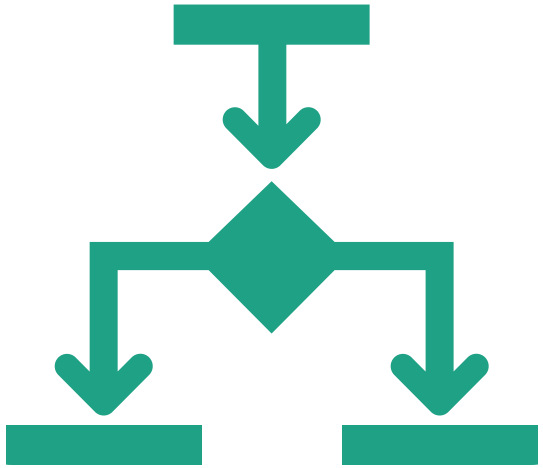
- ✓ Menghemat biaya pemeliharaan mesin
- ✓ Memaksimalkan waktu kerja komponen dan peralatan

Customer Experience

- ✓ Menawarkan produk secara personal
- ✓ Meningkatkan loyalitas pengguna
- ✓ Menangani permasalahan secara proaktif

Machine Learning

- ✓ Melatih mesin untuk belajar



Operational Efficiency

- ✓ Menekan biaya operasional
- ✓ Mengantisipasi kebutuhan ke depan
- ✓ Meningkatkan pengambilan keputusan yang sejalan dengan kebutuhan pasar

Drive Innovation

- ✓ Memberikan sudut pandang baru dalam pengambilan keputusan terkait keuangan dan perencanaan

Terimakasih