



# SISTEM INFORMASI MANAJEMEN

## INDUSTRY 4.0

Cyber Physical  
Systems, Internet of  
things, networks

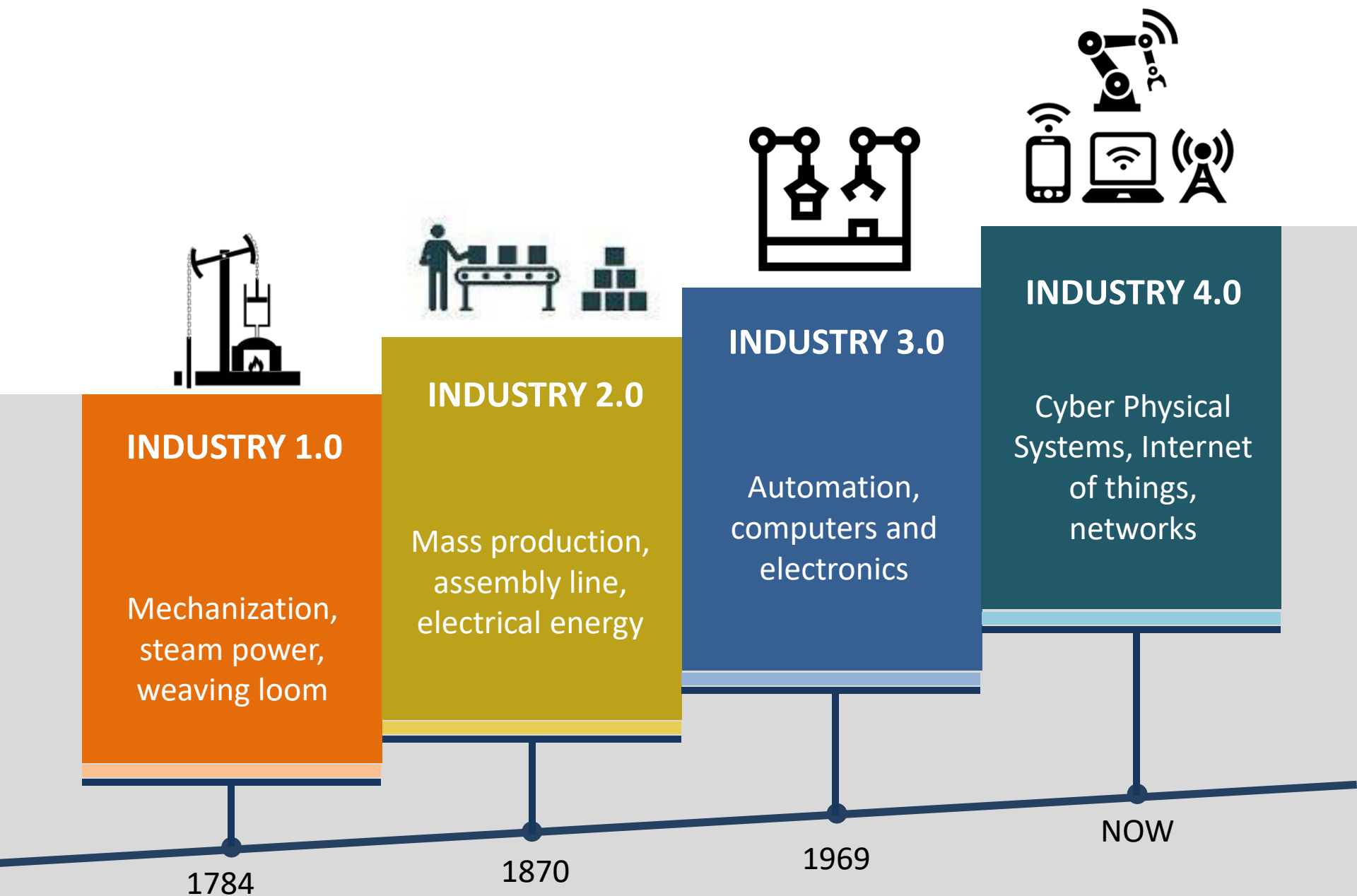
by: Prof. Dr. H. Deden Mulyana, SE., M.Si.

# Introduction to the Information System

**Revolusi Industri 4.0**  
**Mewarnai kehidupan**  
**termasuk **Sistem****  
****Informasi Manajemen.****

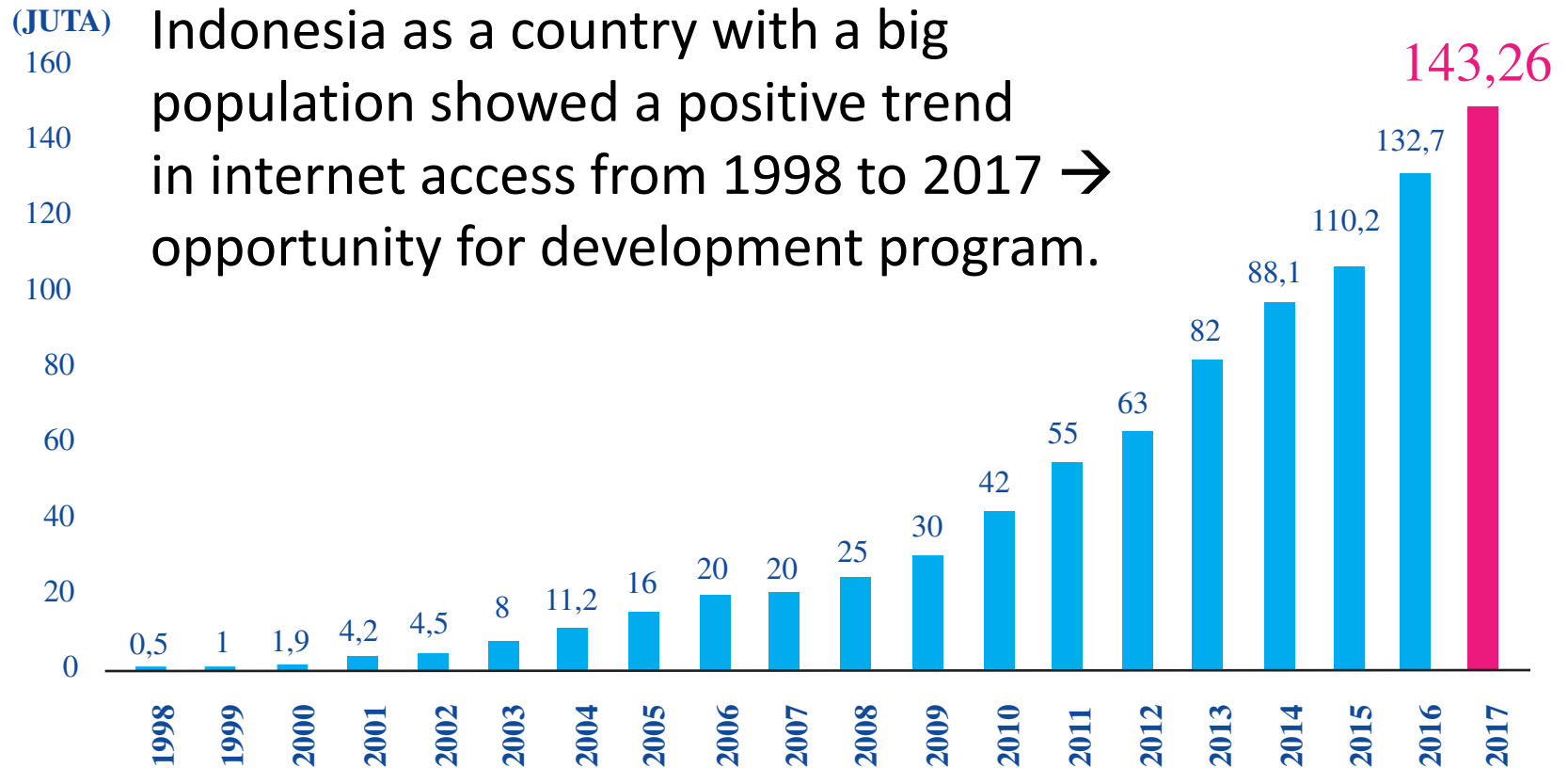


*internet of things, big data, robotic,  
artificial intelligence, 3D printing,  
biologi, molekuler, material*



Sumber: Hammelscale (2018)

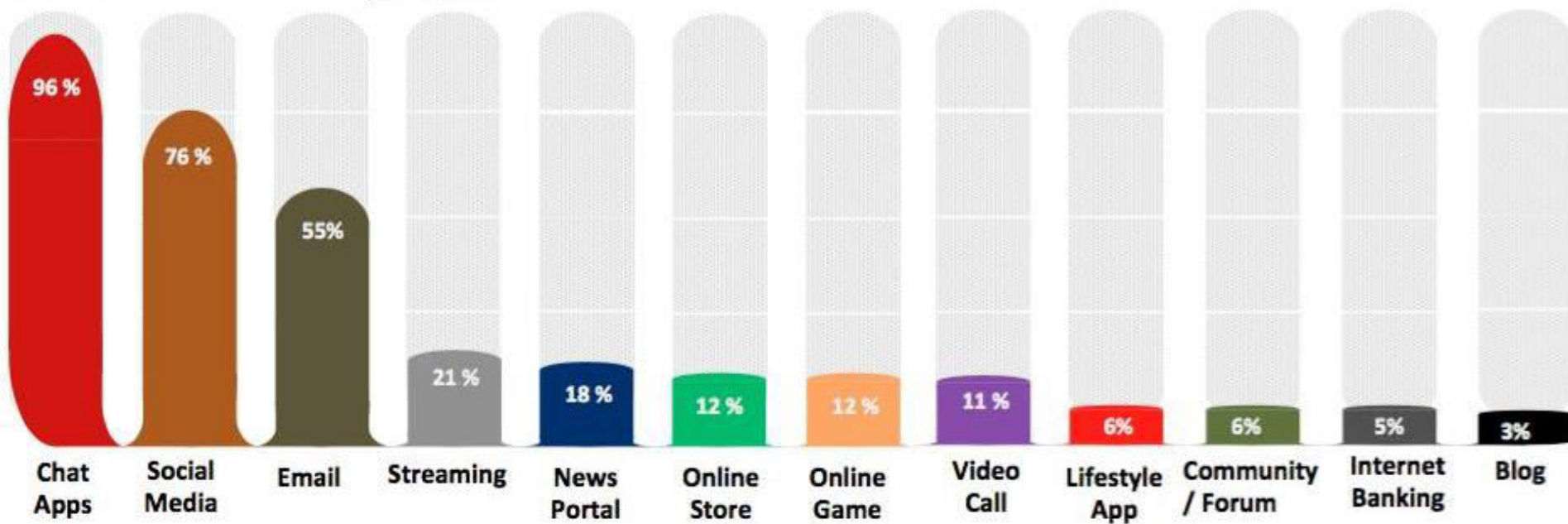
# TREND IT CONSUMPTION



Sumber: APJII (2018)

# DIGITAL PLATFORM PENETRATION

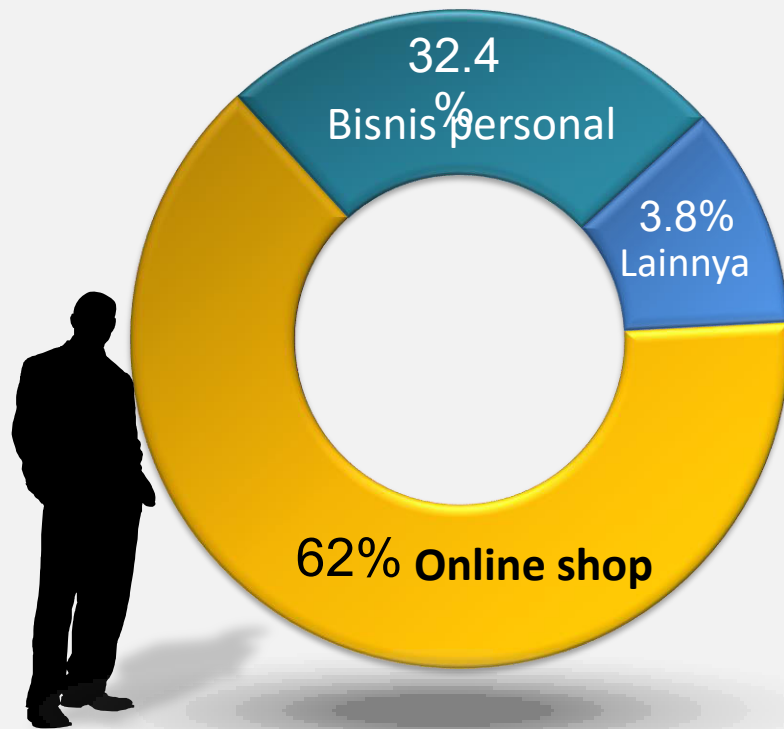
More than half of consumers are using chat app, social media, and email as a digital platform are often used. Consumer needs for communication, sharing of information, and facilitate the work became main reasons consumers are using that digital platform.



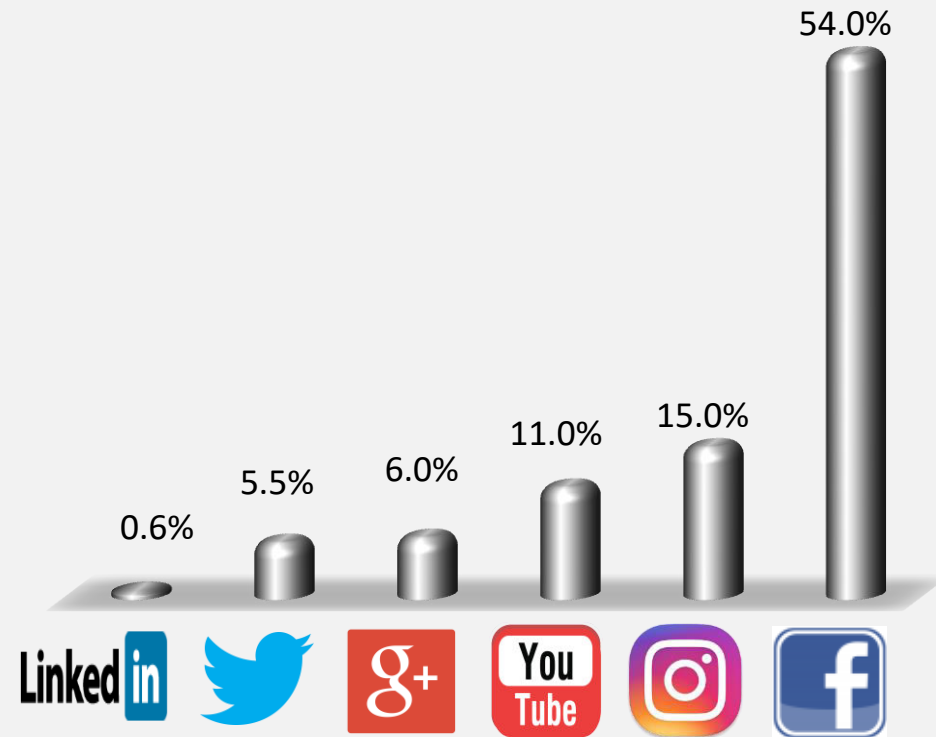
Source: IGLco Advisory (2015)

# PERILAKU PENGGUNA INTERNET INDONESIA

## Konten Komersial yang dikunjungi

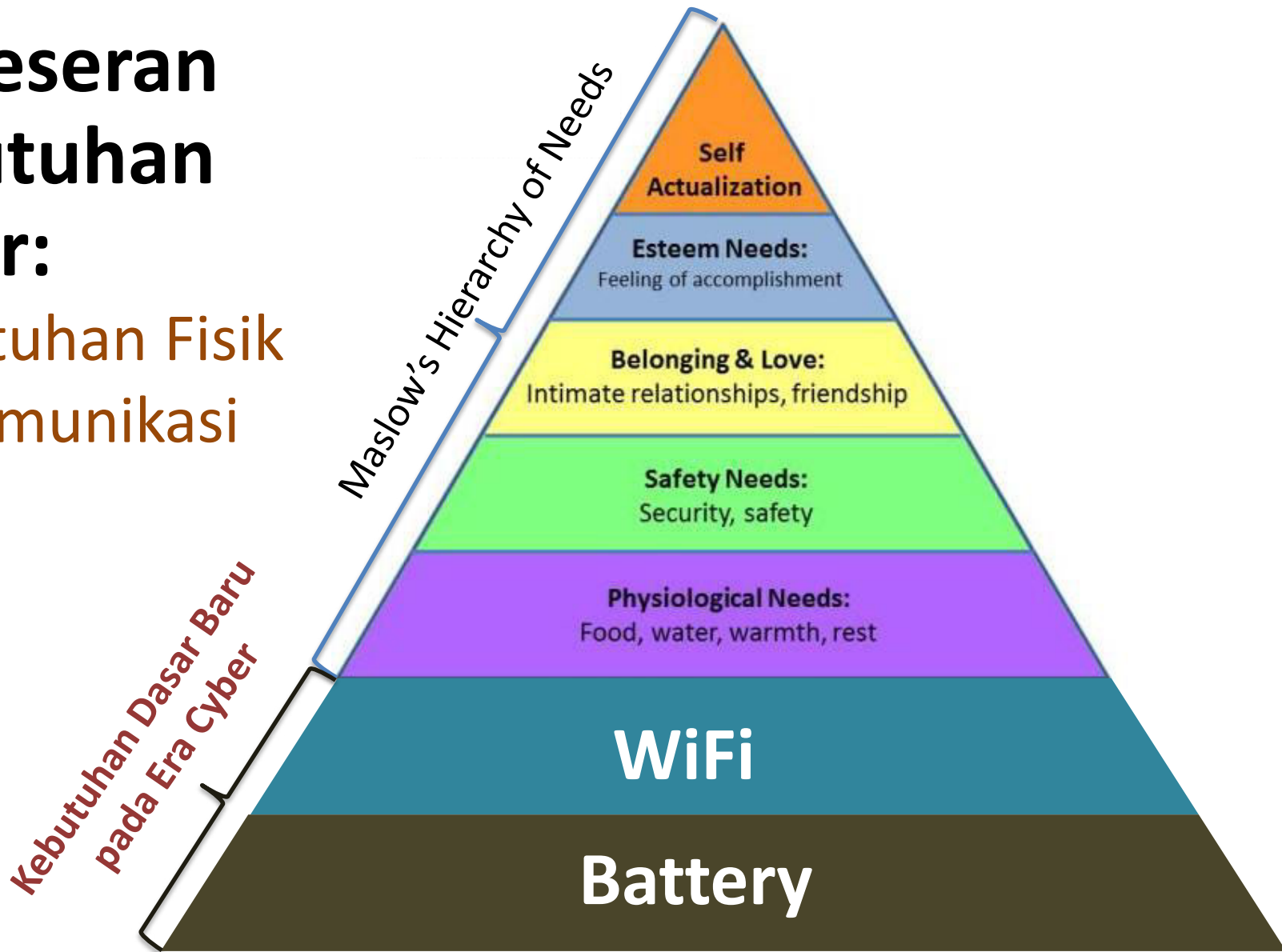


## Media sosial yang dikunjungi



# Pergeseran Kebutuhan Dasar:

Kebutuhan Fisik  
ke Komunikasi



# Disruption Era

Technological changes:



Artificial intelligence



Robotic development



Data sciences



Internet of things



Cloud



Bio technology



Big data



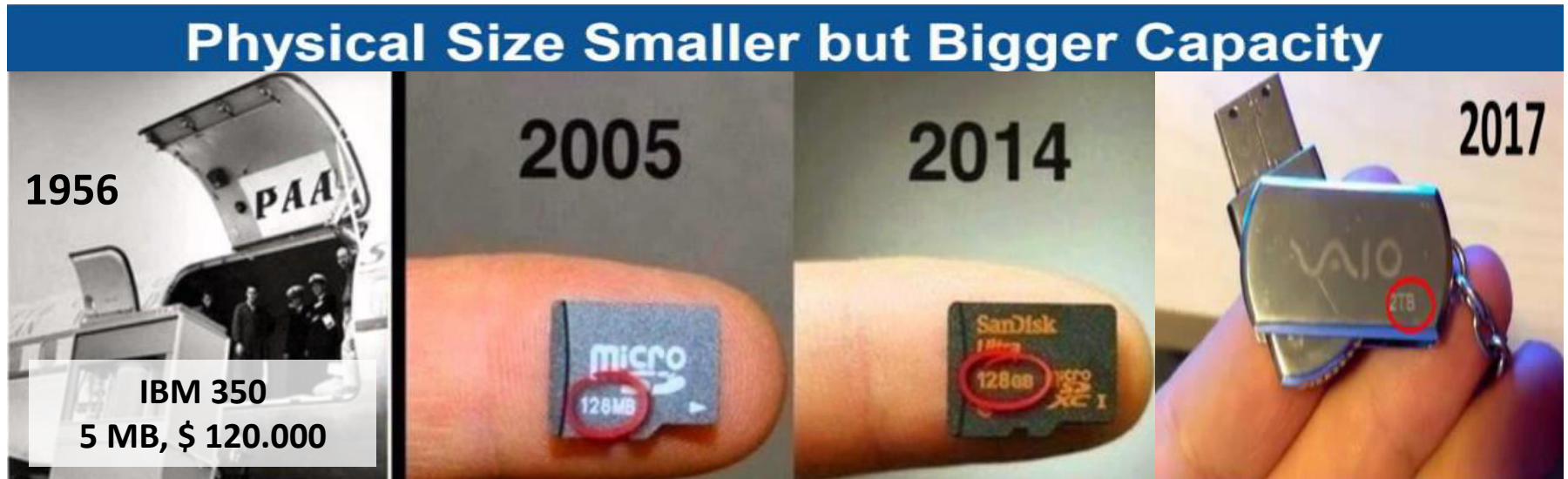
Drones



# ROBOTIC EDUCATION

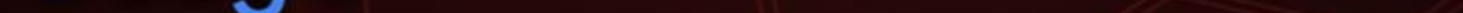


# The Changes



- Technology developments increasingly powerful and sophisticated;
- Will be perceived benefits while for other things can be detrimental;
- One is the ability of technology in data storage that begins with a very large form for large storage as well, but in the present era only requires a small form but can store large data.





Apple / Google ...the largest mobile software vendors... **WHO DON'T WRITE MOST APPS!**

# Competition



Digital Camera

NOKIA



ANDROID

APPLE



YAHOO!

Google



YouTube



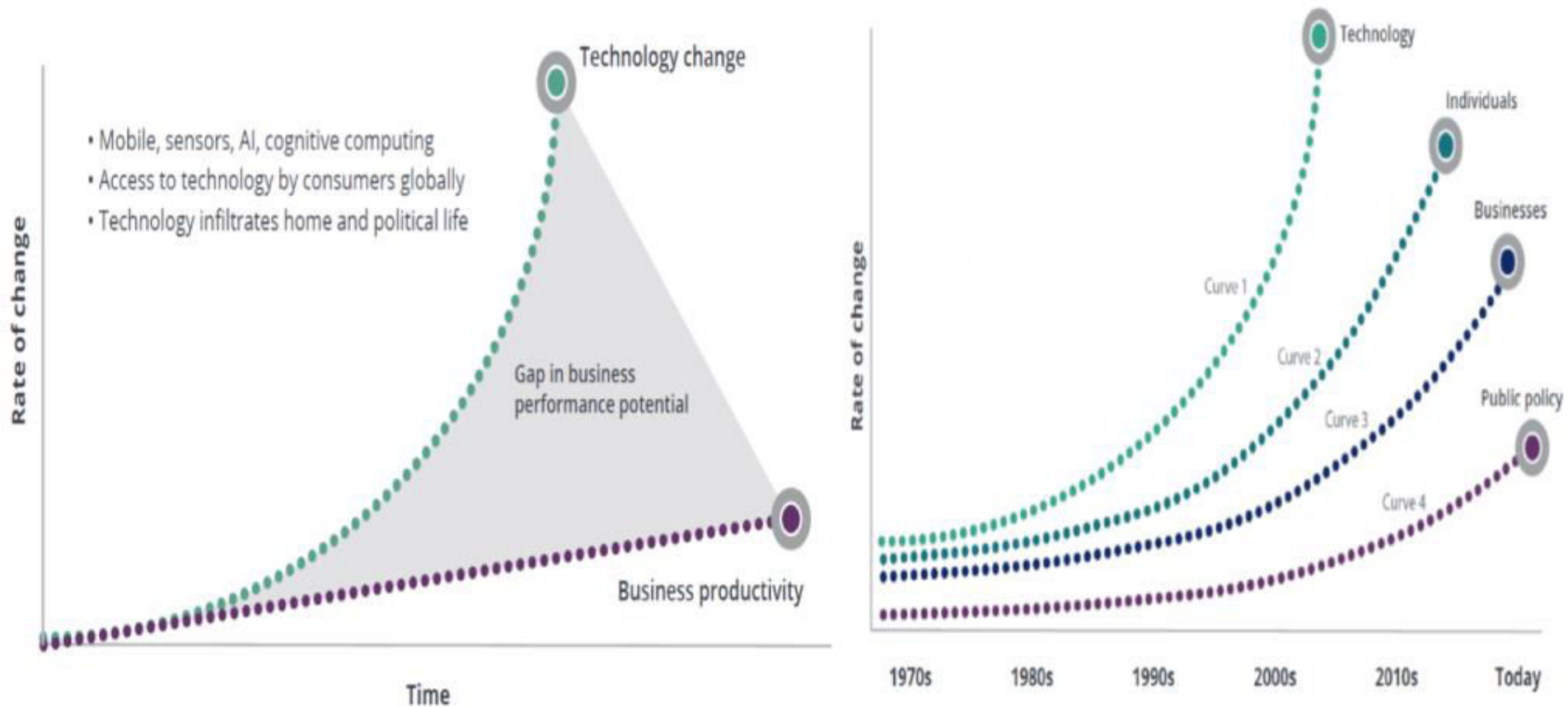
HONDA YAMAHA



TESLA

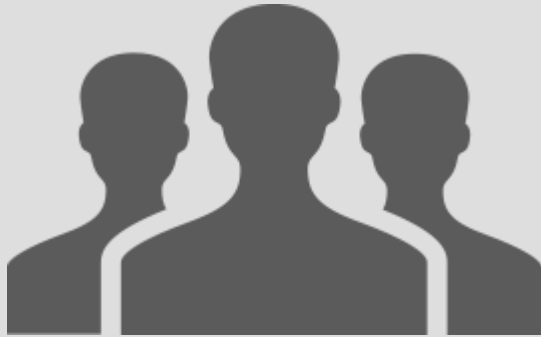


# Perkembangan **Teknologi** Lebih Cepat dibanding Bidang Lain



Sumber: Global Human Capital Trends (2017), M. Nuh (2018)





# Bring on the personal trainers

Probability that  
computerization will lead  
to job losses within the  
next two decades, 2013  
(1=certain)

| Job                         | Probability |
|-----------------------------|-------------|
| Recreational therapists     | 0.003       |
| Dentists                    | 0.004       |
| Athletic trainers           | 0.007       |
| Clergy                      | 0.008       |
| Chemical engineers          | 0.02        |
| Editors                     | 0.06        |
| Firefighters                | 0.17        |
| Actors                      | 0.37        |
| Health technologists        | 0.40        |
| Economists                  | 0.43        |
| Commercial pilots           | 0.55        |
| Machinists                  | 0.65        |
| Word processors and typists | 0.81        |
| Real estate sales agents    | 0.86        |
| Technical writers           | 0.89        |
| Retail salespersons         | 0.92        |
| Accountants and auditors    | 0.94        |
| Telemarketers               | 0.99        |

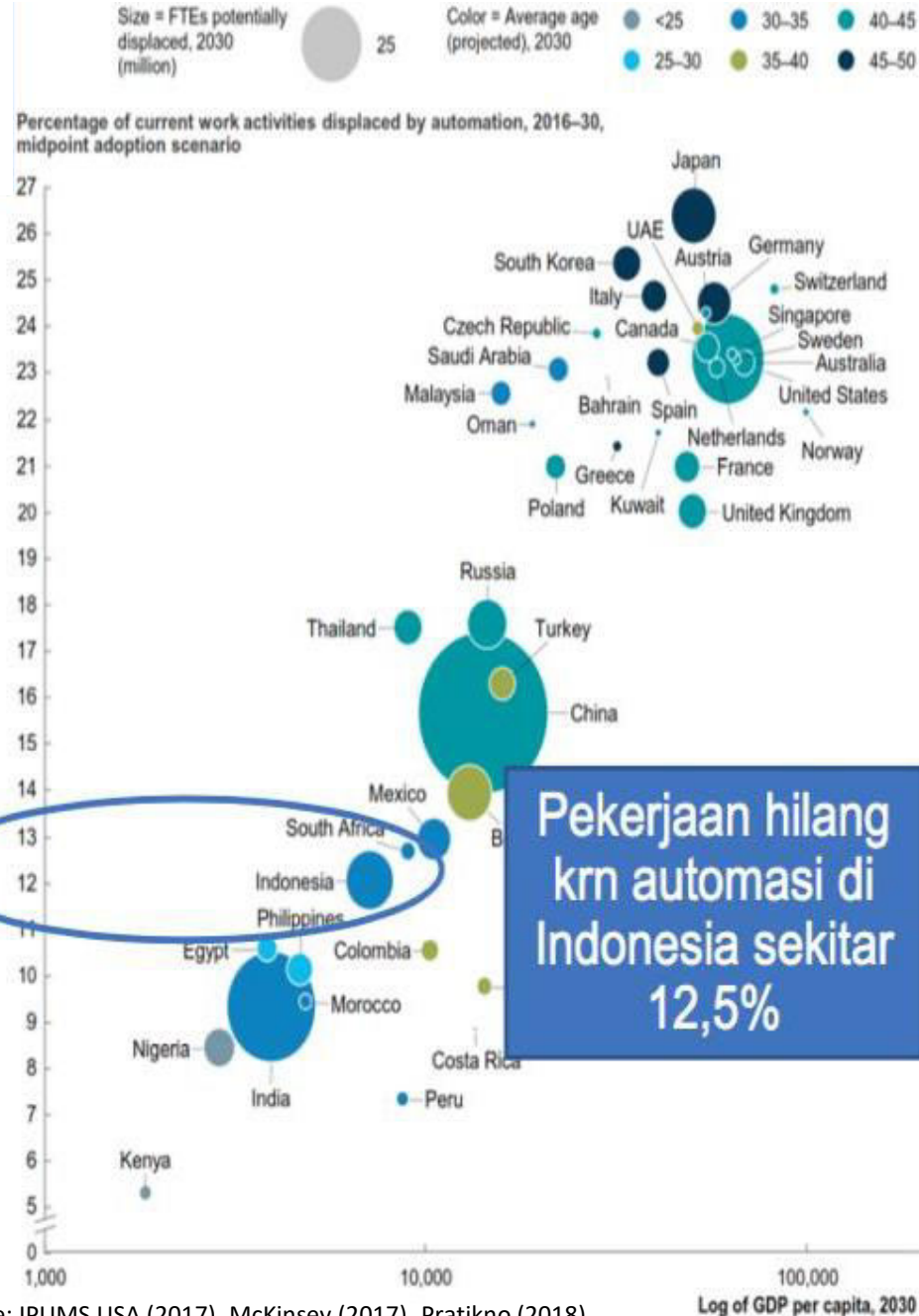
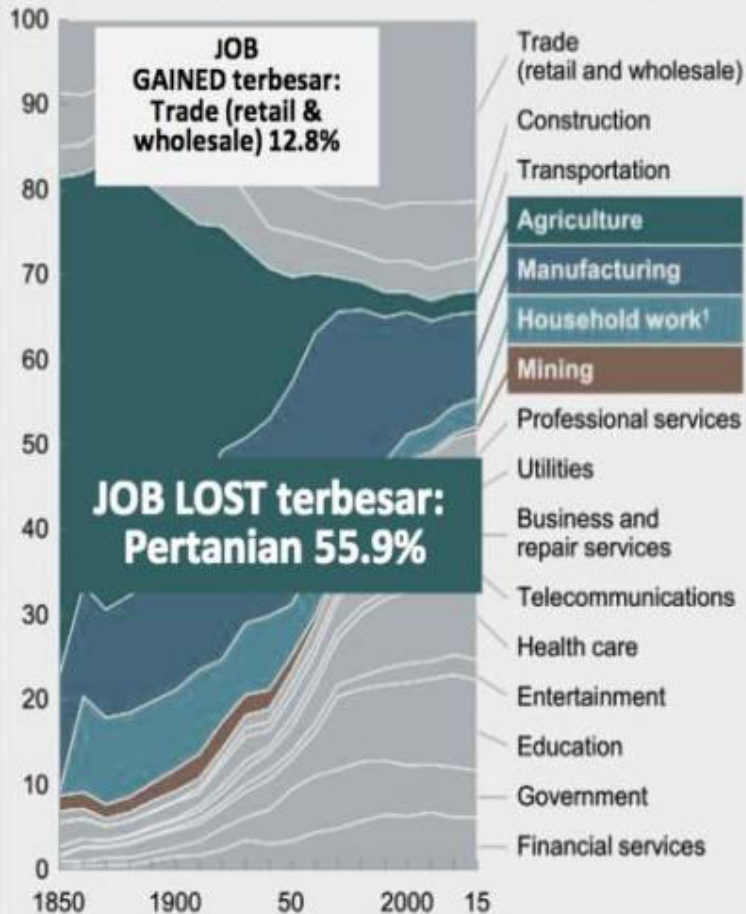
Sumber: C. Frey & M. Osborne (2013)



# Disrupt the Existing Jobs

Large-scale sector employment declines have been countered by growth of other sectors that have absorbed workers

Share of total employment by sector in the United States, 1850–2015



Source: IPUMS USA (2017), McKinsey (2017), Pratikno (2018)  
deden08m.com



# Disrupt the Existing Jobs

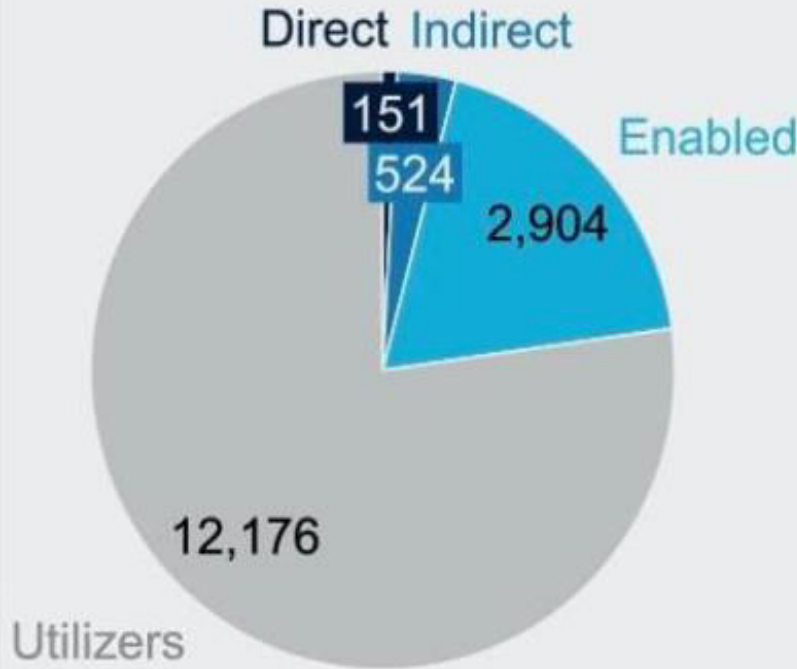


1. Farmers and ranchers
2. Postal mail staff
3. Sewing machine operators
4. Switchboard operators
5. Fast food cooks
6. Agricultural workers
7. Data entry keyers
8. Typists
9. News street vendors
10. Food service managers
11. Electrical assemblers
12. File clerks
13. Pre press technician
14. Computer operators
15. Post masters
16. Office machine operators
17. Textile and garment
18. florists
19. Pump and refinery operators
20. Loan interviewer/clerks

Source: <https://www.forbes.com/pictures/lmj45ighg/top-20-disappearing-jobs/#49c61e624bc5>



Example: Personal computers (total US jobs created, thousand)



**19,623**  
jobs created

**3,508**  
jobs destroyed

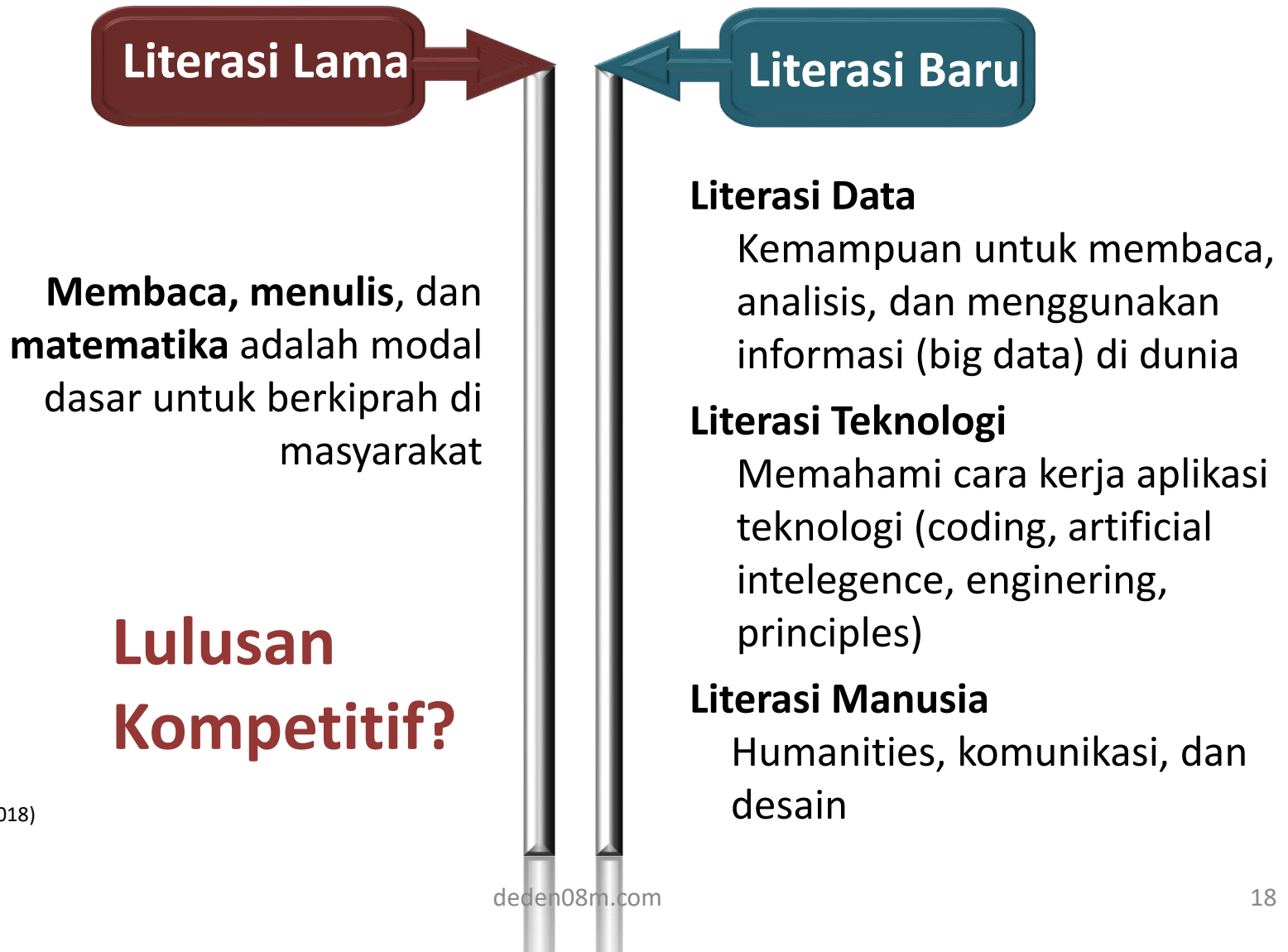


**Disrupt  
the Existing  
Jobs**

Technology...  
Creates **MORE JOBS**,  
Than it destroys..  
Mainly **OUTSIDE**  
the industry itself

Sumber: IPUMS USA (2017), McKinsey (2017), Pratikno (2018)

# Perlunya Literasi Baru Menghadapi Era Revolusi Industri 4.0



Sumber: I. Ahmad (2018)

# Skill Required in a Digital Age (21<sup>st</sup>- Century Skills)

## Competencies

(How student approach complex challenges)



Critical thinking/problem-solving



Creativity



Communication



Collaboration

OECD 2016





# 100 Faktor Sukses

- IQ di urutan ke-21.
- Bersekolah di **sekolah favorit**: urutan ke-23.
- Lulus dengan **nilai terbaik** : urutan ke-30.



Hasil penelitian Thomas J. Stanley, Ph.D

# 10 Faktor Sukses



- 
- ① Jujur
  - ② Disiplin
  - ③ Gaul (*Good Interpersonal Skill*)
  - ④ Dukungan dari pasangan hidup
  - ⑤ Bekerja lebih keras dari yang lain
  - ⑥ Mencintai apa yang dikerjakan
  - ⑦ Kepemimpinan yang baik dan kuat
  - ⑧ Semangat dan berkepribadian kompetitif
  - ⑨ Pengelolaan kehidupan yang baik
  - ⑩ Kemampuan menjual gagasan dan produk



“ In the **future is not** about the **competition of knowledge**, it's a **competition of creativity**, **competition of imagination**, **competition of learning**, **competition of independent thinking** ”

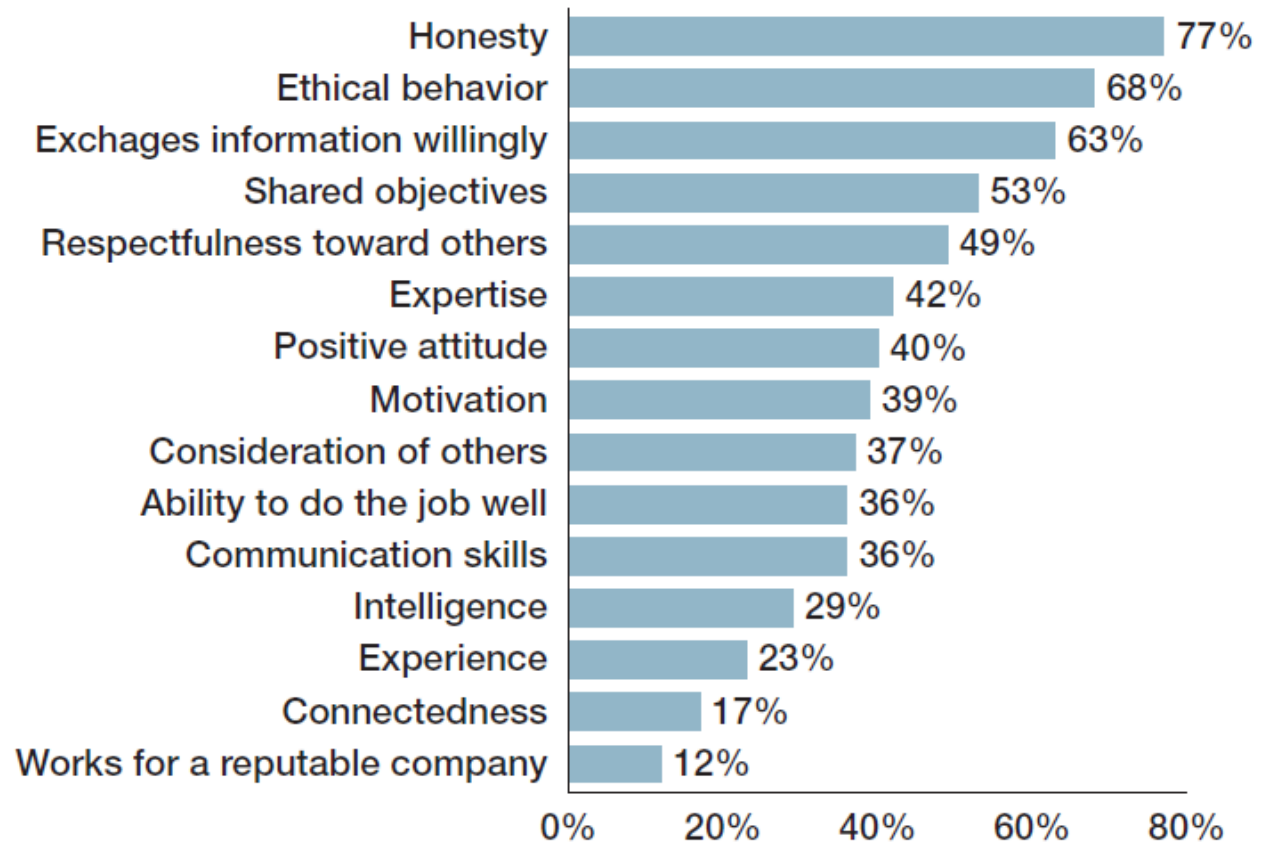
**-Jack Ma-**

# Video Jack Ma





# What Determines Trust in Individuals in the Workplace?

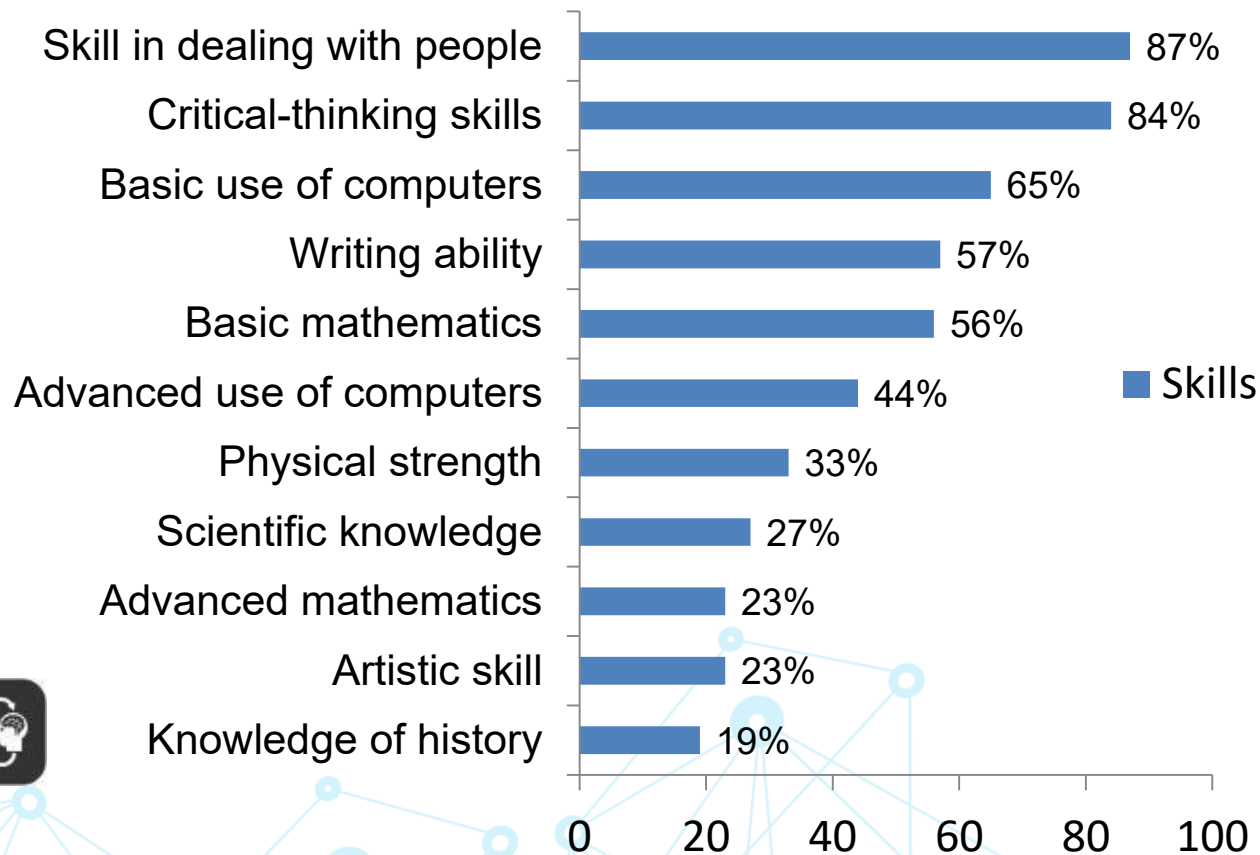


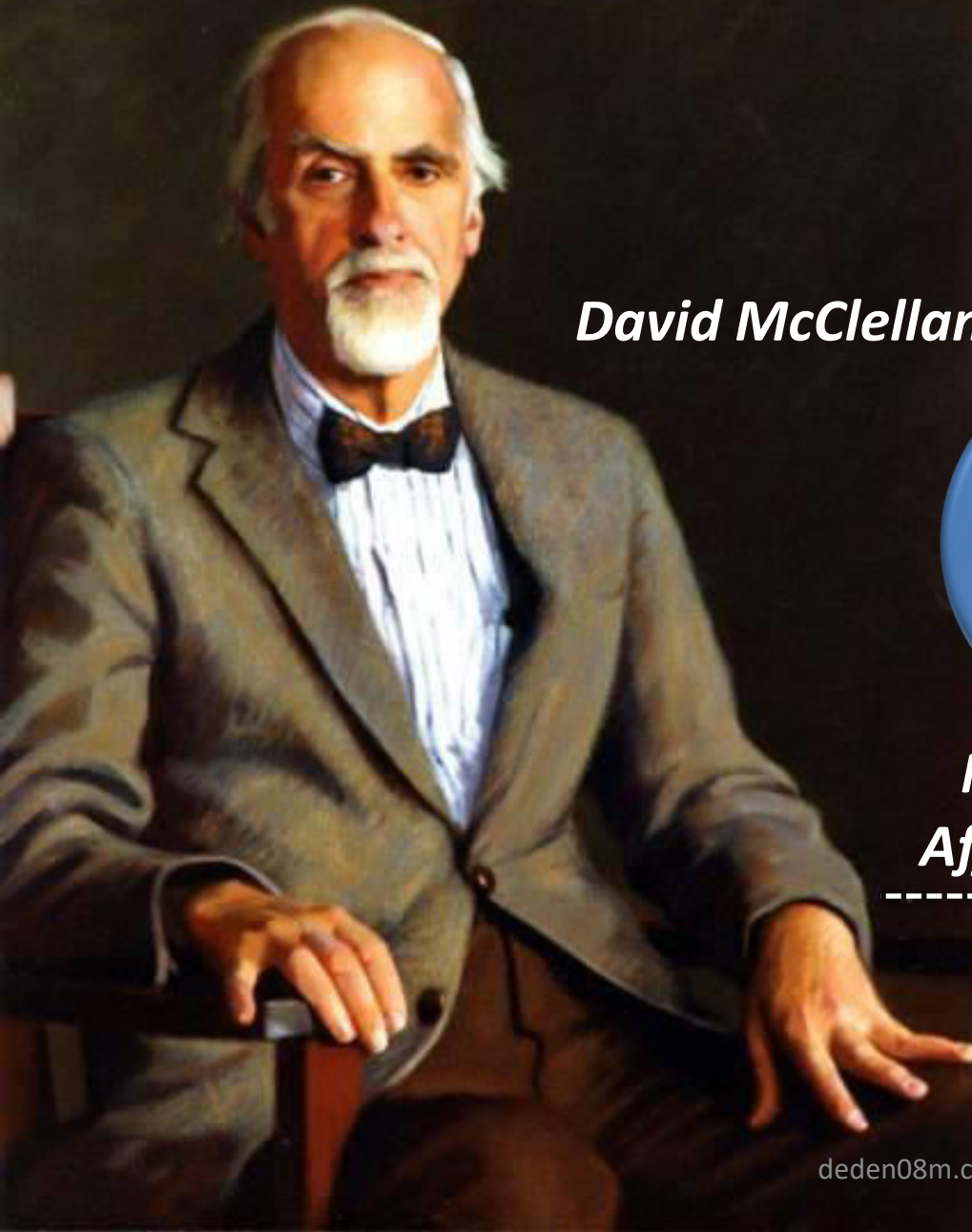




**“if we don’t have money  
we lost something.  
If we don’t have character  
we lost everything”**

# Skills That Determine Success





***David McClelland***

***Need of Power***



***Need of  
Affiliaton***

***Need of  
Achievement***

**The future leadership** is the empower, inspire,  
there is a proverbial **“good teacher explaining”,**  
**“great teacher inspiring”**



**Physical**  
(the body)



**Inspired**  
(the soul)



**Contextual**  
(the mind)



**Emotional**  
(the heart)

Source: Klaus Schwab (2016)

# Four types of intelligence in Leadership 4.0



If you do not innovate, others will do,  
if you do not disrupt, others will do.



Be a disruptor, otherwise you'll be disrupted.  
Disrupt or to be disrupted.

LEVERAGING  
**DISRUPTION**  
THROUGH STRATEGY IN ACTION

# MENTAL PEMBELAJAR





***KEBERUNTUNGAN = KESEMPATAN + PERSIAPAN***