OutLookS of E-Quality Assurance in 5G and 5.0 Society

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What Matters to be Talked ?!

A. MIS and AIM ?!
B. Superiority of 5G Tech.
C. What is 5.0 Society
D. What is E-QA
E. Role of E-QA in 5.0 Society
F. Challenges Due to 5G & 5.0 Society
G. Conclusions.
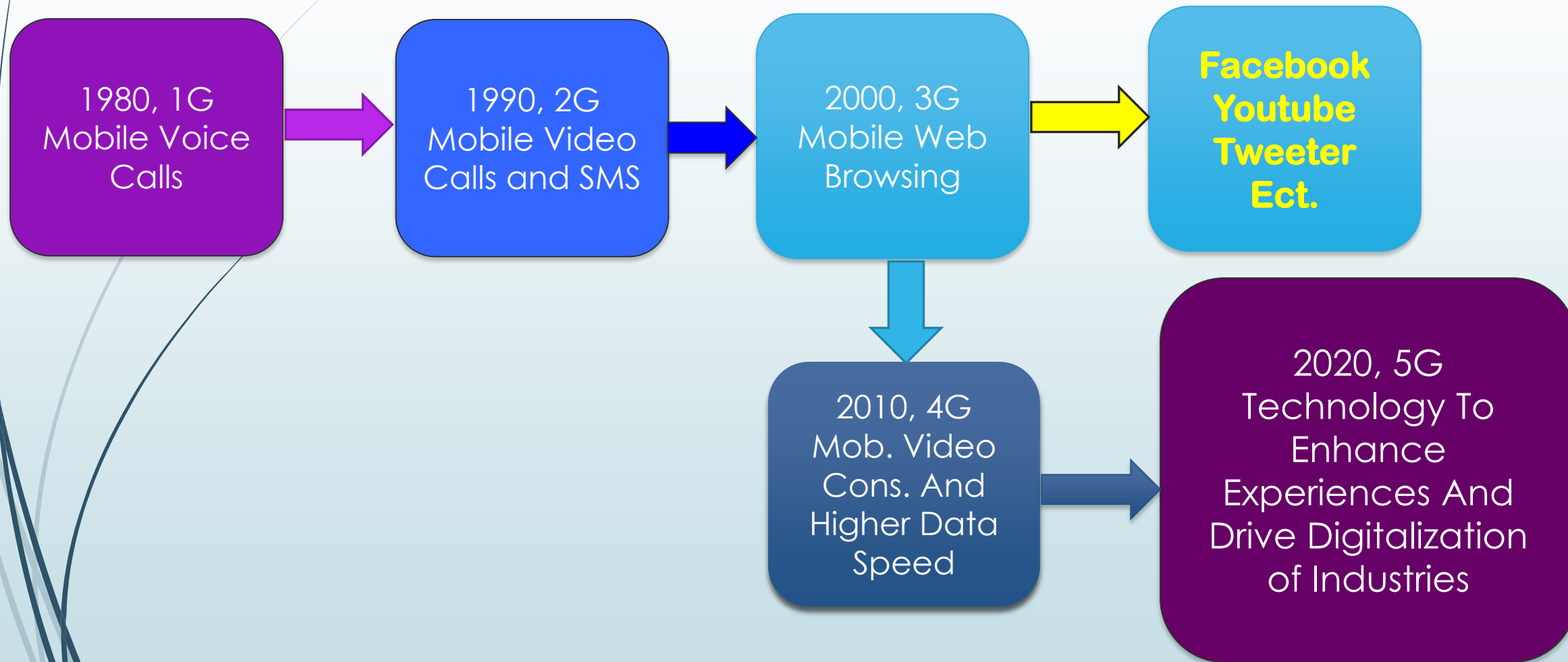
A. Management Information System (MIS)

An MIS is a computer system consisting of hardware and software that serves as the backbone of an organization's operations. The MIS gathers data from multiple online systems, analyzes the information, and reports data to aid in management decision-making.

A. AIM of Management Information System (MIS)

To provide information for decision makers on Planning, Organizing, Actuating and Controlling on a sub operation activity at a company and to provide a process of synergy organization.

B. Superiority of 5G Technology

1G to 5G Time Sequences

1980, 1G Mobile Voice Calls

→

1990, 2G Mobile Video Calls and SMS

→

2000, 3G Mobile Web Browsing

→

Facebook Youtube Tweeter Ect.

↓

2010, 4G Mob. Video Cons. And Higher Data Speed

→

2020, 5G Technology To Enhance Experiences And Drive Digitalization of Industries

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4G and 5G Differences (Simple Way)

Matter	4G	5G
Frequency	V	100 times faster
Capacity	V	Many-many devices connect to the network
Latency	ms	Virtually zero
Reliability	V	Super fast

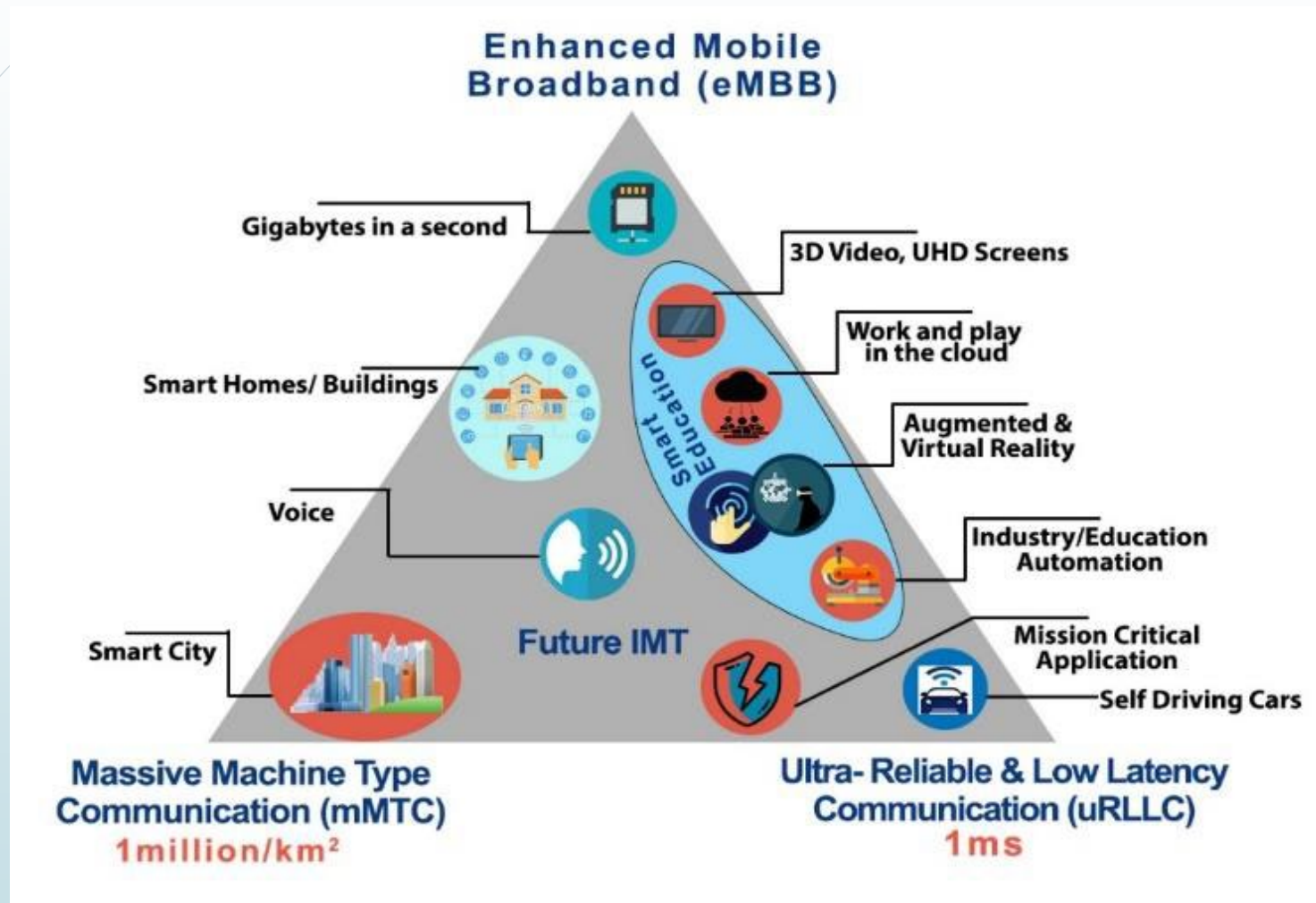11/29/2022

Superiority of 5G Technology

Figure 1. 5G-Huawei Model Based On IMT-2020

BREAKING NEWS
September 13, 2022 (Jakarta Post)

President Joko "Jokowi" Widodo, with much pride, launched the use of fifth generation (5G) technology for mining giant PT Freeport Indonesia.

The President said the national mining sector would not be left behind other countries and would be able to compete in the increasingly digitalized global economy.

The facts occurred in the United States, Sweden, China and Russia, increasing productivity up to 25% and reducing drilling cost, by 40% and reducing energy costs by 20%.
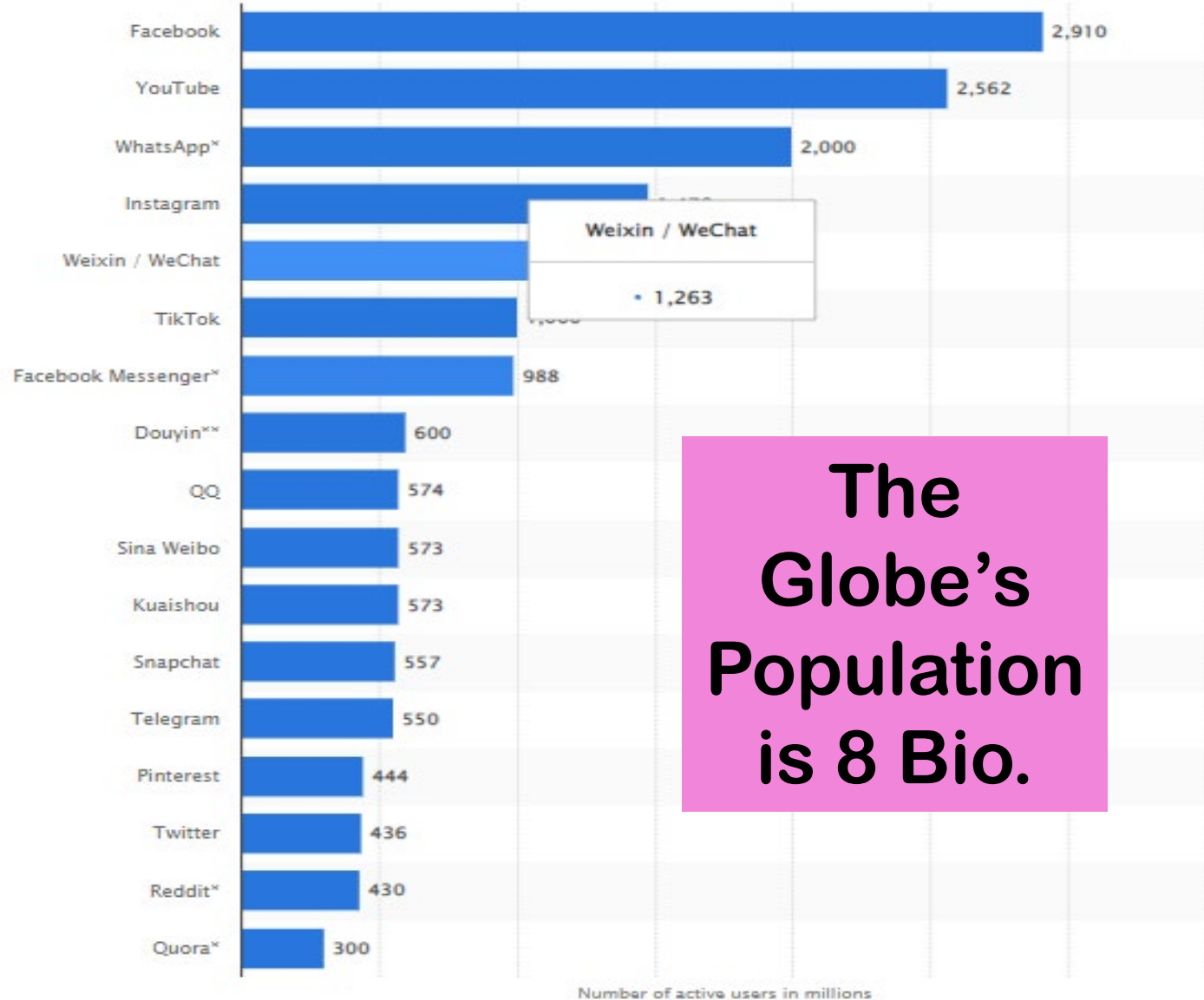
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BREAKING NEWS
Jakarta Post 31 March 2022

The industry is eagerly anticipating the allocation of new bands in the 5G spectrum range, as stipulated in the communications ministry's 2021-2024 strategic plan for massive 5G implementation.

The Ministry says that the plan to allocate low frequency bands in 2022, as the result of successful analog TV switch-off for mobile broadband, will bring 5G coverage to the wider public in this vast archipelagic nation.
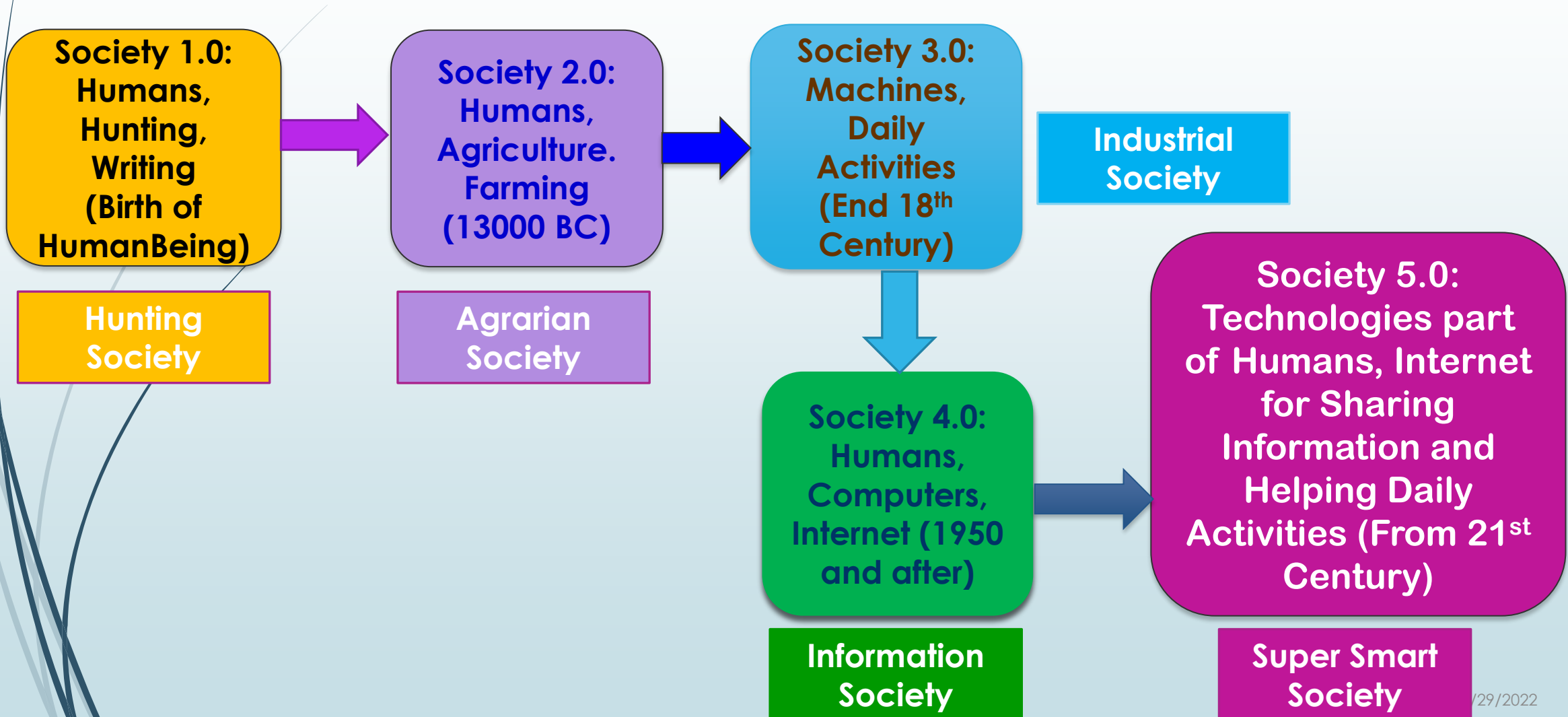
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Social Media Users in the Globe as of July 2022

The Progress of Social Media Users in the Globe as of July 2022 (Billions):

1. Facebook: 2.91
2. Youtube: 2.56
3. WA: 2.0
4. Instagram: 1.47
5. WeChat: 1.26
Etc.

The Globe's Population is 8 Bio.

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C. Society 1.0 to 5.0

Society 1.0: Humans, Hunting, Writing (Birth of HumanBeing)

Hunting Society

Society 2.0: Humans, Agriculture. Farming (13000 BC)

Agrarian Society

Society 3.0: Machines, Daily Activities (End 18th Century)

Industrial Society

Society 4.0: Humans, Computers, Internet (1950 and after)

Information Society

Society 5.0: Technologies part of Humans, Internet for Sharing Information and Helping Daily Activities (From 21st Century)

Super Smart Society

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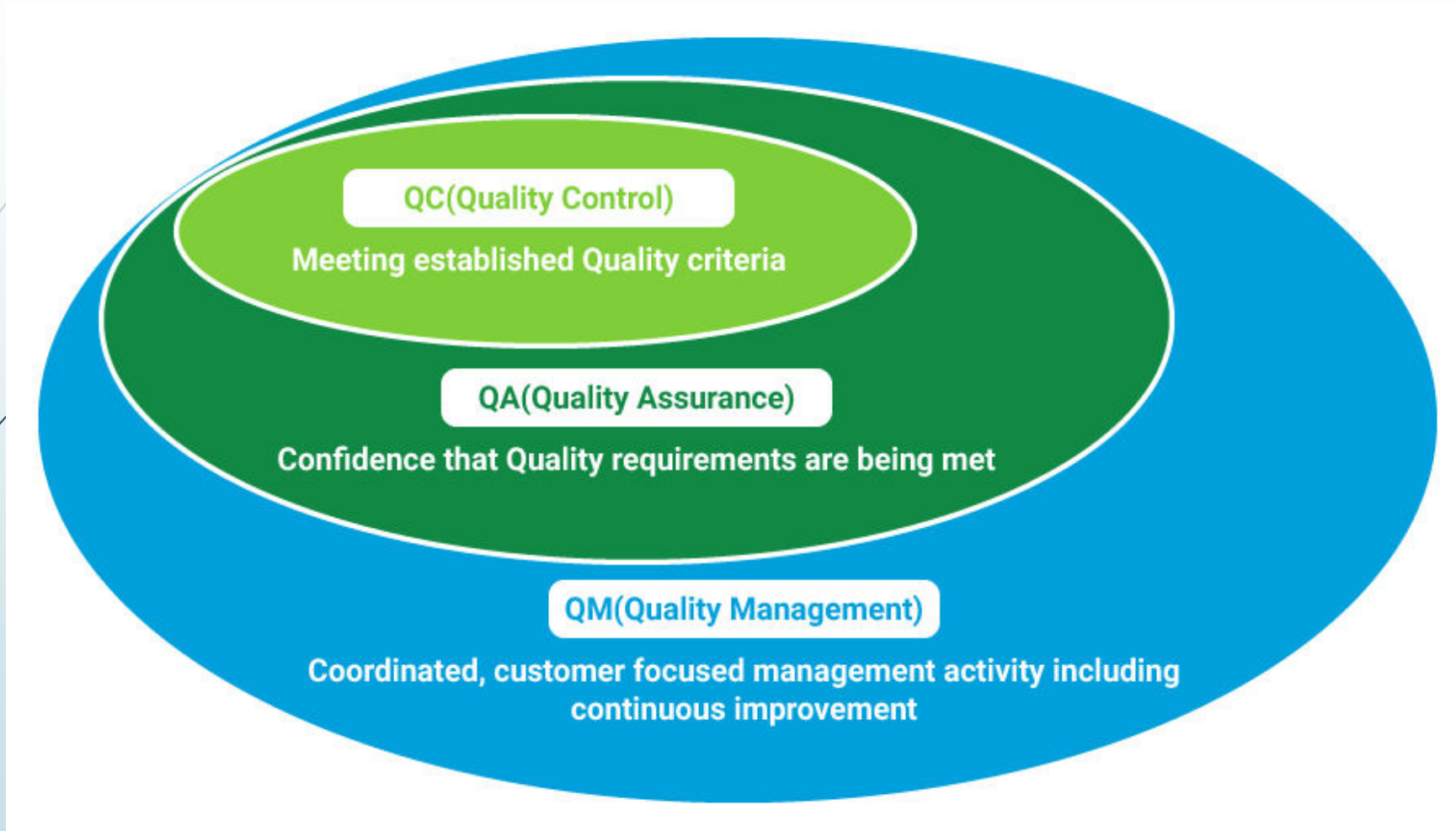# D. E-Quality Assurance

TQM, QA and QC

Figure 2. Relationship among QC, QA and QM.

Figure 3. Five Benefits of QA Inspection

E. QA Checklists

Quality assurance checklist

- ✓ Establish SQA facilitation
- ✓ Implement a quality management process
- ✓ Conduct a process review
- ✓ Create a report on the project status
- ✓ Perform a process compliance review
- ✓ Identify process improvement areas
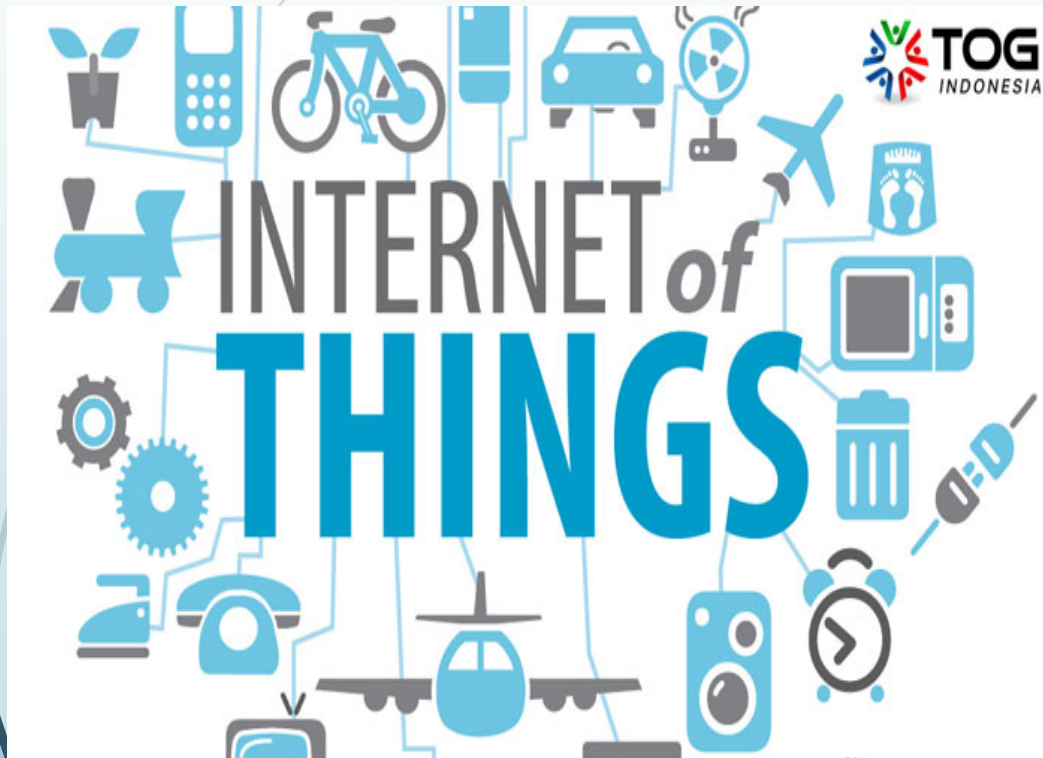- ✓ Create process trainings

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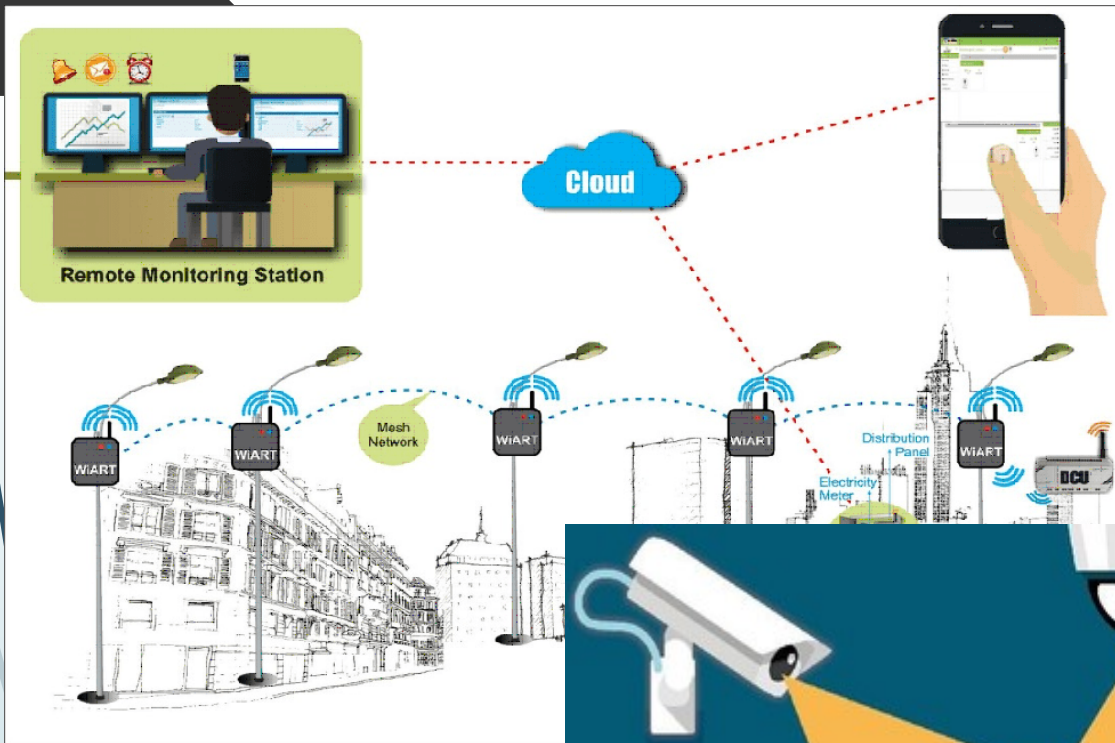
E. Role of E-QA in 5.0 Society

Internet-of-Things (IoT)

A concept where an object has the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

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IoT-Is-Around-Us
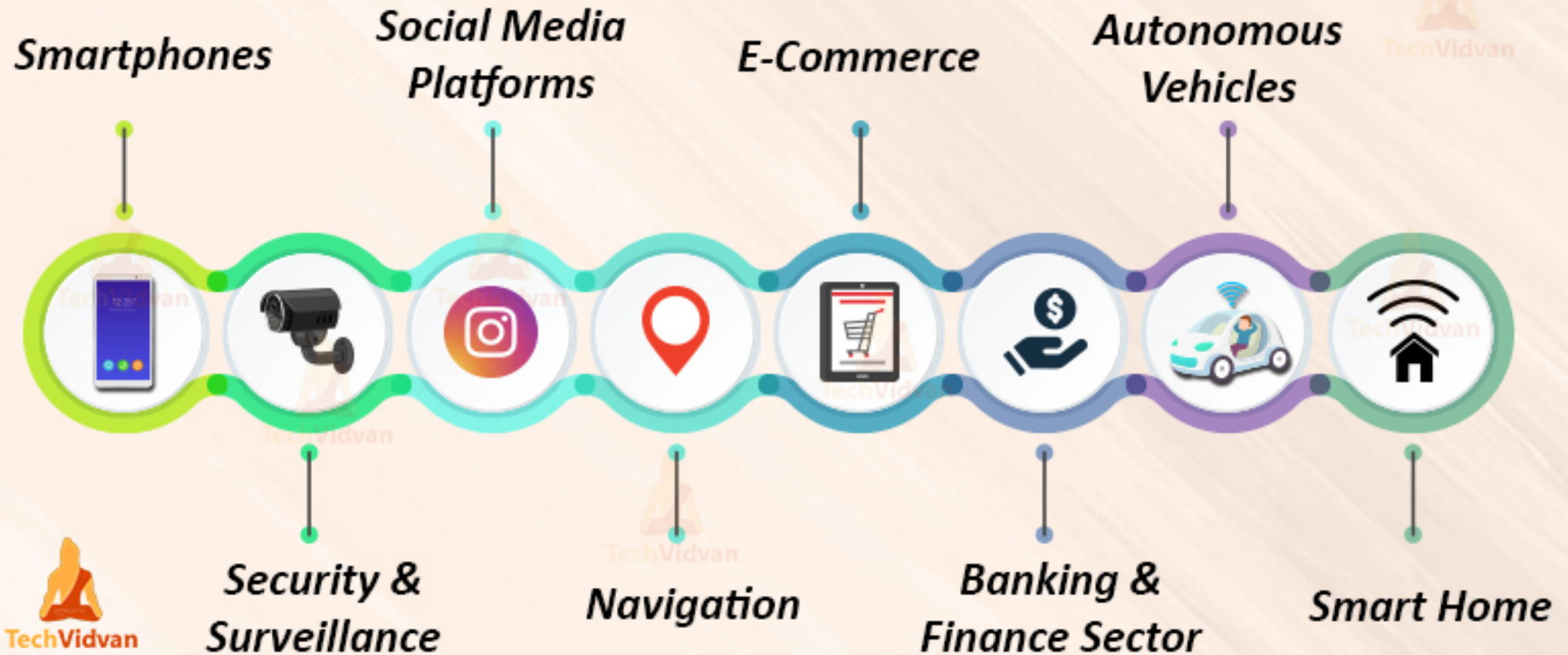
IoT Matters Around Us…..!!!

<u>Artificial Intelligence (AI)</u>

Artificial intelligence is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence.

IN SHORT: IA = MIS + HardWare
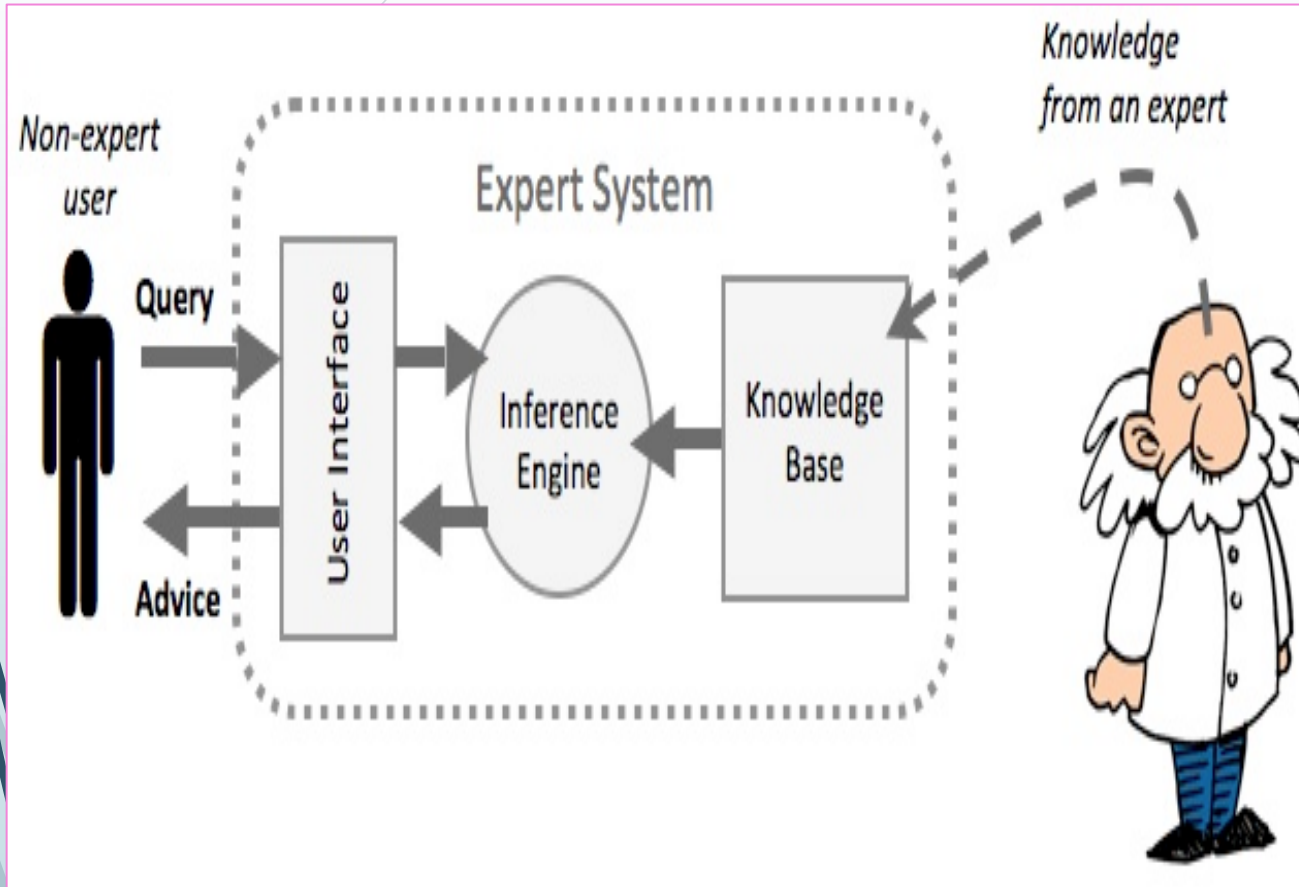
What AI Facts in Daily Lives ??

Expert System (ES)

An expert system is a <u>computer program</u> that uses Artificial Intelligence (<u>AI</u>) technologies to simulate the judgment and behavior of a human or an organization that has expertise and experience in a particular field.

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How ES Works ?

How Is Artificial Lawyers in USA ??!!

E. QA Main Checklists

# NUMBER	QA IMPLEMENTATION	TOOLS
1	Establishment of SQA Facilitation	ES/IoT
2	Implementation of a quality management process	ES/IoT
3	Conduct a process review	ES/IoT/AI
4	Create a report on a project status	IoT/AI

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E. QA Checklists

# NUMBER	QA IMPLEMENTATION	TOOLS
5	Perform a process compliance review	ES/IoT/AI
6	Identify process improvement areas	ES/IoT/AI
7	Create a process trainings	ES/IoT/AI

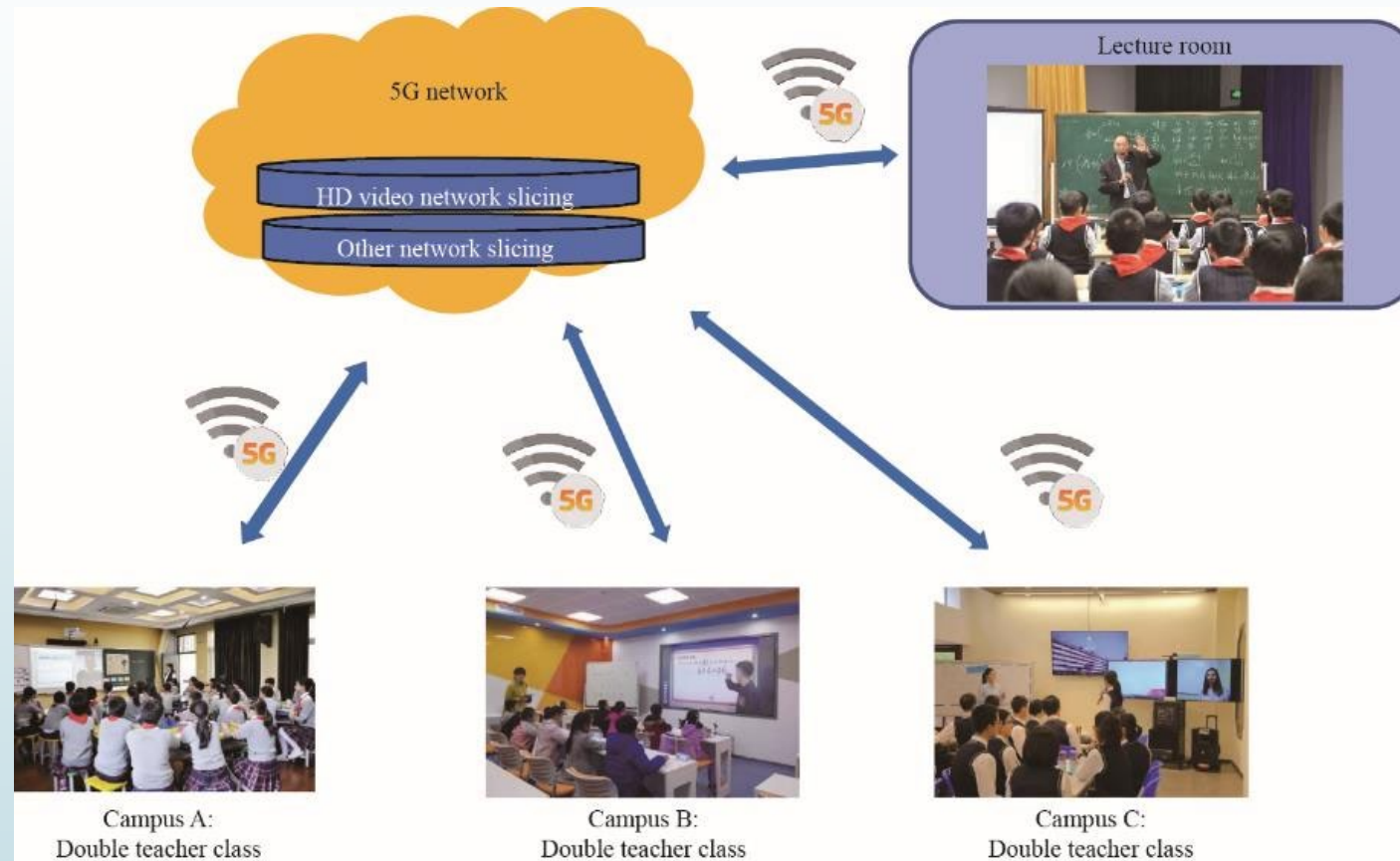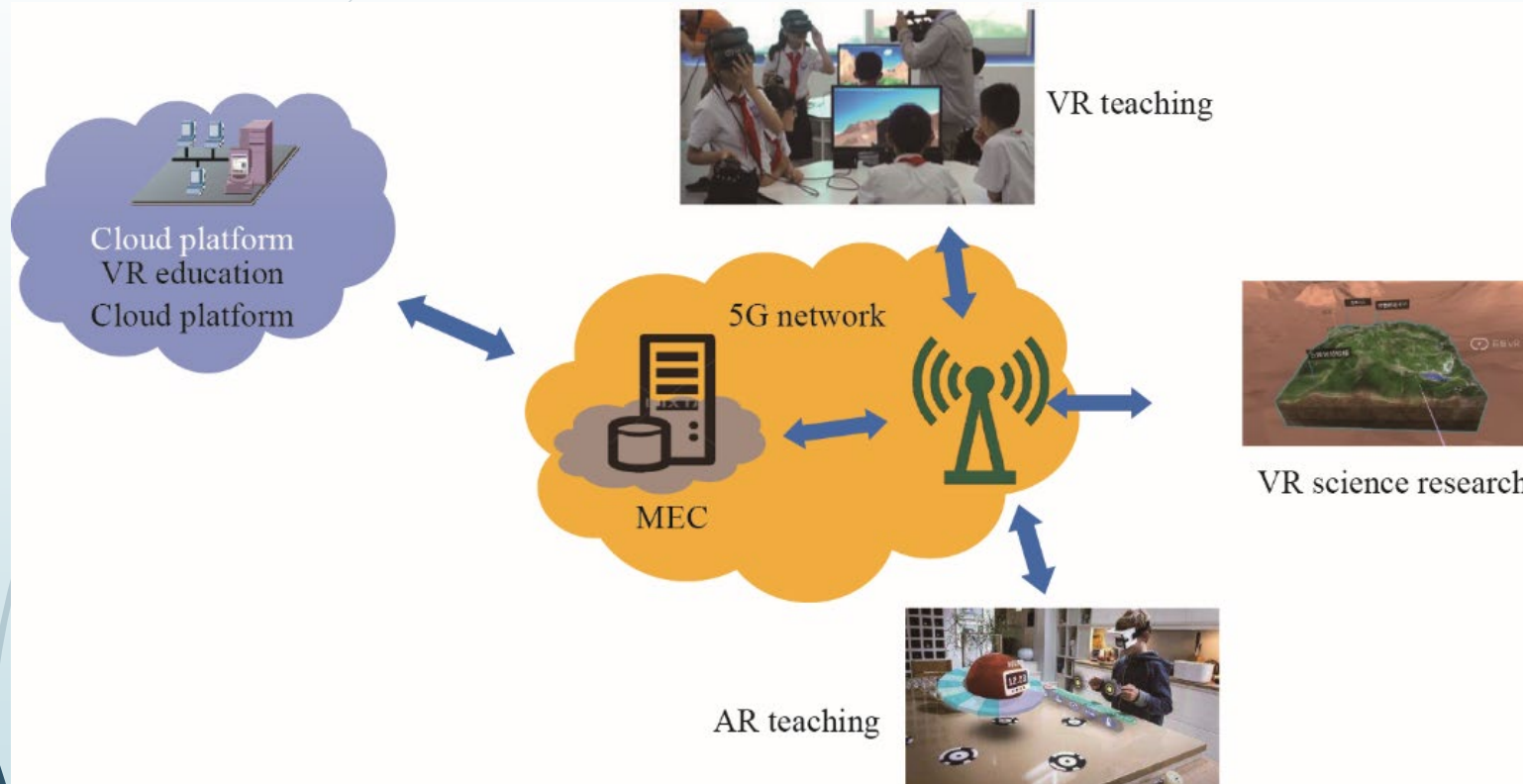# E. E-QA Education/Training in 5.0 Society

Figure 4. A Remote Interactive Teaching Based on A 5G Network.

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5G Technology for Inspection/Education

FACTS:
5G Can Reduce Cost Up To 59% and So E-QA Is…

Figure 5. VR/AR Teaching Based on The 5G Network.

F. Challenges Due to 5G Tech.

1. **In 2022, Indonesia's population is 275 Mio and 220 Mio are Internet Users (80%), Number 1 in the Globe.**

2. **The BI estimated RI Digit. Eco., Around 137.6 B USD (2025) and 192.0 B USD (2030) or almost 10% GDP (3,000 B USD).**

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F. Challenges Due to 5G Tech.

4. **Our experts and youth are able to develop a lot of innovative, creative IT economy, So Lots IT economy portion should be ruled by domestic companies.**

5. **The IT technology runs very fast, so The Future is Now Around Us; Realized or Not, Indonesia Must Then Establish All Applied IT Rules Very Soon.**

G. Conclusions

1. **Like or Dislike, 5G Technology should be accepted for multipurpose utilization in the near future, especially for QA in Industries, and E-QA hence should be prioritized.**

2. **Some Dev. Countries have made big efforts to apply 5G Tech. soon; Indonesia must soon establish 5G infrastructure, the 5G will then be applied.**

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G. Conclusions

3. IT goes very fast, so the Digital Future has already come. All 5G-related rules (5.0 Society) must be implemented very soon.

4. The government must massively spread out 5G, 5.0 Society to public due to having thousands of many small islands by providing 5G infrastructures soon.

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THANK YOU
TERIMA KASIH

ANY QUESTION?

REFERENCES

1. UNPAM, *Lecturing Materials on Management Information System (MIS*), Sept-Oct. 2020.

2. Dene Moore, *How 5G will help make classrooms smarter*, Special to the Globe and Mail Published on May 26, 2020

3. Guest Author of 5G Ed Tech Challenge, *Ways 5G Will Make Classrooms Smarter*, April 21, 2019.

4. Delali Kwasi Dake, Ben Adjei Ofosu, *5G Enabled Technologies for Smart Education*, (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 10, No. 12, 2019-201.

5. Lu Xianggun, Sun Yu, *Application of 5G Technology in Education Informatization*, Strategic Study of Chinese Academy of Engineering, Volume 21, Issue 6, 2019, Pages 120-128.

6. Dr.Amin Salih Mohammed, Dr. M.Sivaram, Suzan Tahsein Husein, V. Porkodi, V.Manikandan, *4G and 5G Communication Networks Future Analysis*, International Journal of Engineering Research and Technology. ISSN 0974-3154, Volume 12, Number 3 (2019), pp. 343-349 © International Research Publication House. http://www.irphouse.com.

7. Huawei Co Ltd, *5G Network Architecture: A High Level Perspectives*, 2019/2020.

11/29/2022

REFERENCES

8. The Jakarta Post, *Indonesians can expect 5G connectivity in 2022: Association*, November 28, 2019/04:35 pm.

9. Juan Pedro Tomas, *China to reach 200m 5G users, 800,000 5G sites by end-2020: Huawei*, August 27, 2020, [5G], [APAC], [Business], [Carriers], [Network Infrastructure], [Wireless].

10. Infocomm Media Development Authority, *IMDA has adopted a multi-prong approach to facilitate the development of 5G in Singapore*, May 7, 2019.

11. Juan Pedro Tomas, *South Korea reaches 8.65 million 5G subscribers at end-August 2020,* 5G APAC Business, Carriers, LTE Wireless, October 7, 2020.

12. B.G. Gopal, *A Comparative Study on 4G and 5G Technology for Wireless Applications*, December 2015. https://www.researchgate.net/publication/303371007.

13. Efa Wahyu Prastyaningtyas, *Dampak Ekonomi Digital Bagi Perekonomian Indonesia*, Seminar Nasional Manajemen Ekonomi dan Akuntansi (SENMEA) IV Tahun 2019.

14. Muhammad Pudhail and Imam Baihaqi, *Strategi Pengembangan Ekosistem Ekonom Digital Indonesia*, Jurnal Ilmiah - Vidya , Vol. 25 No. 1 69.

REFERENCES

15. **What Is Quality Assurance? (2020),** Https://Www.M-Inc.Com/Article/What-Is-Quality-Assurance/, Posted On   June 2020
16. Devi Lianovanda **Nov. 8, 2020** https://blog.skillacademy.com/tugas-dan-skill-quality-assurance
17. https://www.thejakartapost.com/opinion/2022/09/12/very-late-for-5g.html. **(2022), Very Late   for 5G, September 13, 2022**
18. **Yuko Harayama (2017), Society 5.0: Aiming for a New Human-centered Society. Hitachi Review, Vol. 66, No. 6 554–555.**
19. https://hellonimbly.com/5-benefits-of-quality-assurance-for-better-manufacturing/, **(2021), 5 Benefits of Quality Assurance for Better Manufacturing.**
20. https://id.wikipedia.org/wiki/Internet_untukSegala. **(2022). Assessed on Nov 13, 2022.**
21. https://www.techtarget.com/searchsoftwarequality/definition/quality-assurance. **Assessed on November 13, 2022.**
22. **NHS Shared Learning (2009). Quality Assurance Checklists for Evaluating Learning Objects and Online Courses February 2009.**
23. https://sis.binus.ac.id/2020/06/09/perkembangan-society-1-0-hingga-society-5-0/. **(2020), Perkembangan Society 1.0 Hingga Society 5.0. Assessed on November 14, 2022.**
24. https://digitalbisnis.id/10-contoh-artificial-intelligence-dalam-kehidupan-sehari-hari/. **Assessed on November 15, 2022.**
25. https://toghr.com/iot-internet-of-things/. **Assessed on November 15, 2022.**
26. **ENQA Workshop report 14, Joseph Grifoll et. al (2010). Quality Assurance of E-Learning. Helsinki Finland.**