CONFERENCE
OMAINTEC
2020
EXHIBITION

18TH EDITION VIRTUAL

International Operations & Maintenance Conference in the Arab Countries

Under the theme of

The Integration of Maintenance and Asset Management

15-16 December 2020

Facilities, Maintenance & Management –

Trends of the 4th Industrial Revolution

ORGANIZER

OMAINTEC
المجلس العربي للتشغيل والصيانة
Arab Council of Operations & Maintenance

ORGANIZING PARTNER

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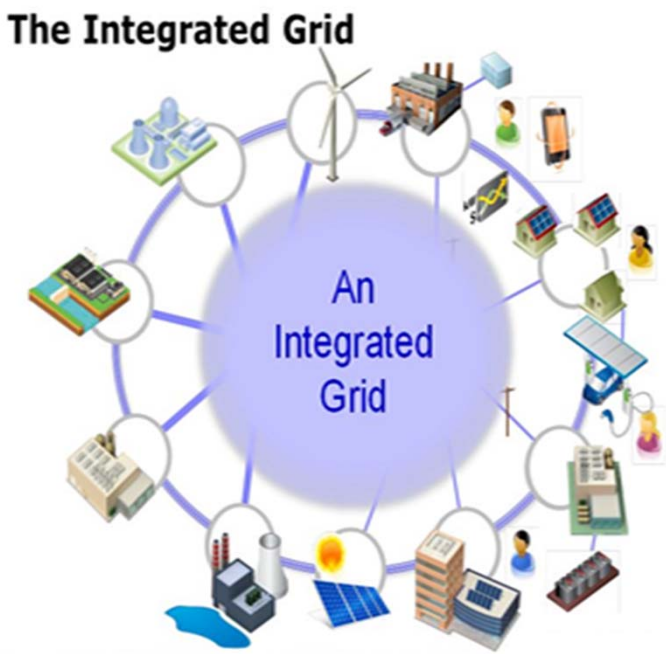
Facilities, Maintenance & Management

- Trends of the 4th Industrial Revolution

DAY 01
TUESDAY 15 DEC 2020
12:45 - 13:45

Facilities Management – Goals & Objectives
: Trends in the 4th. Industrial Revolution.

- Automation is the key to managing large-scale, complex operations, but it requires more than automation. It needs remote management.
- Communication with Stakeholders and Occupants. ...
- Provide a Safe and Healthy Environment. ...
- Be Mindful of Deficiencies. ...
- Improve and Endorse Energy Efficiency.

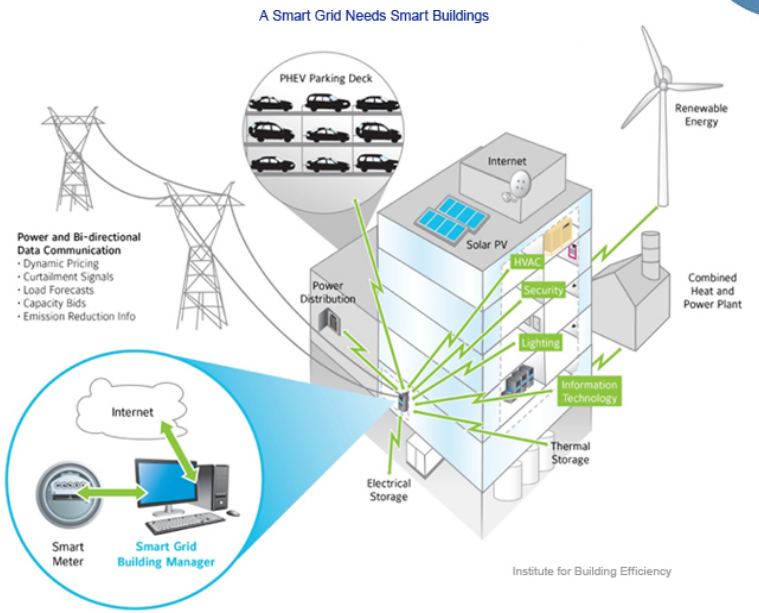


Facility Management Systems (FMSs)

Structures outfitted with facility management systems (FMS) are becoming more interactive and responsive to their demand –

The responsive areas are notably :

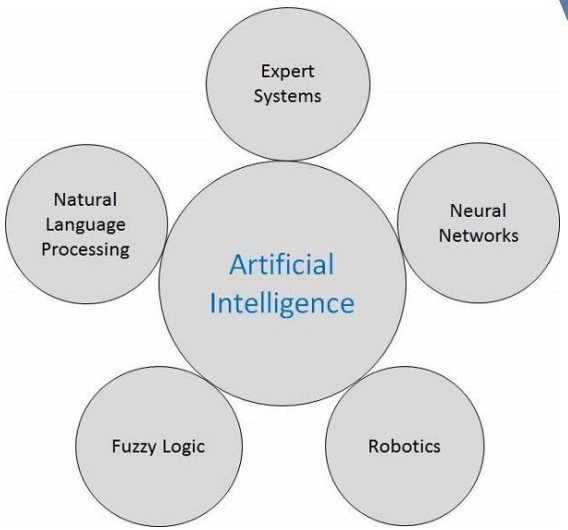
(1) Artificial Intelligence;
(2) The Internet of Things (IoT);
(3) Big Data;
(4) Blockchains;
(5) Cloud & Edge Computing;
(6) Robots & Cobots;
(7) Drone-Based FM;
(8) The 5G Network;
(9) Genomics & Gene Editing;
and,
(10) Quantum Computing.



(1) - Artificial Intelligence (AI) in Smart Buildings –

- Increase efficiency, drive new revenue and improve the quality of products and services offered in the building technologies industry.
- Transform our world and how we live in it. It's already used in our everyday lives from Google searches to powering Amazon's product recommendations and what nots.
- Continues to infiltrate the market. The three ways in which it can be used to make buildings smarter are.

a. Predictive Energy Optimization.
b. Preventive Maintenance and Fault Detection.
And,,
c. Improving Tenant Comfort : Using AI to optimize building operations and prevent faults thereby creating a more comfortable environment for tenants.

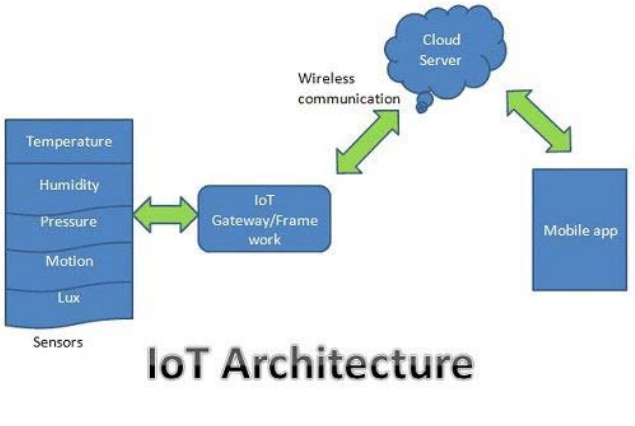


AI refers to the simulation of human **intelligence** in machines that are programmed *to think like humans and mimic their actions*.

(2) - Internet of Things (IoT) -

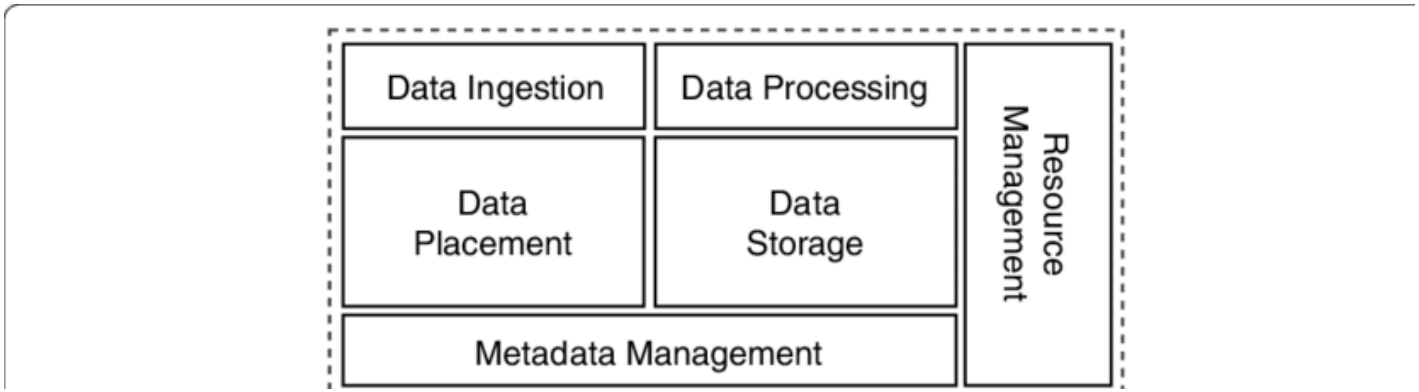
- Driven by hundreds of individual sensors that collect data (Fig:1) on equipment status, function and use.
- Connected sensors enable smart building solutions through integrated access across the facility.

Fig: 1 – IoT- Sensors collecting data



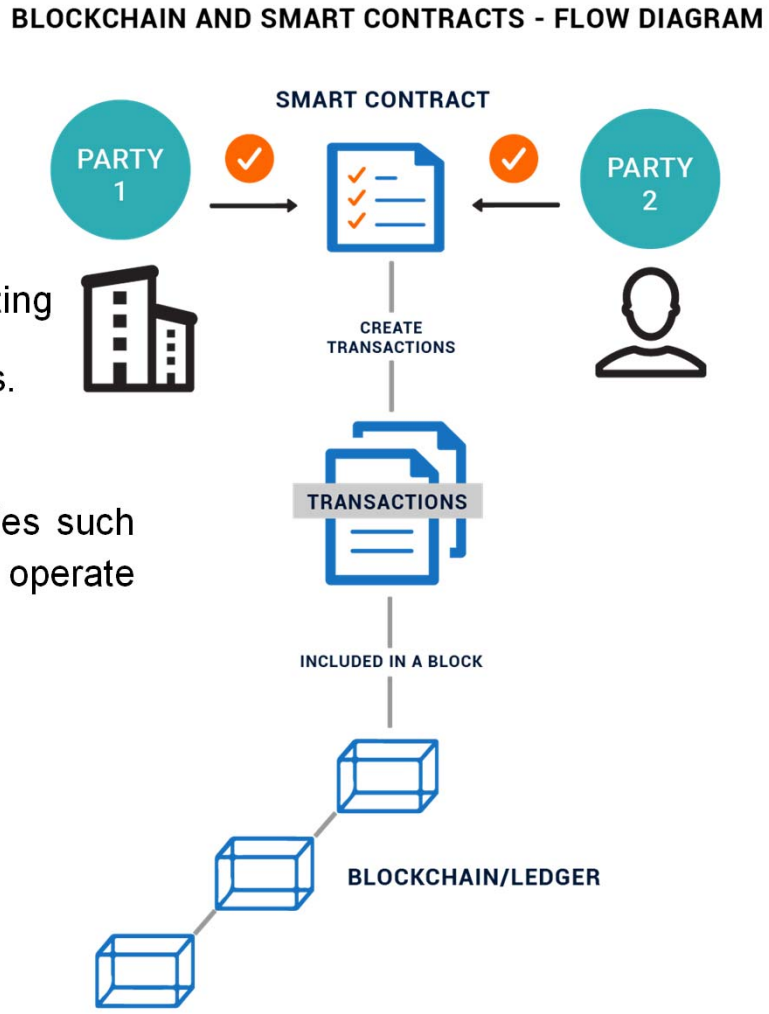
(3) - Big Data -

In simple terms, “big data” refers to the exponential explosion in the amount of data being generated in the increasingly digital age.



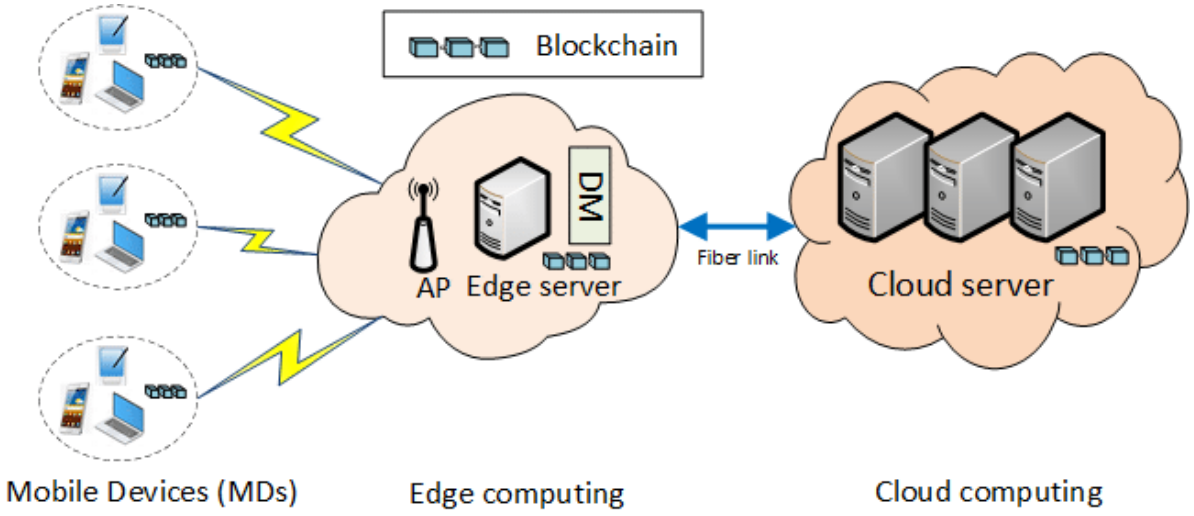
(4) - Blockchains -

- ✓ In today's digital age, storing, authenticating, and protecting data presents serious challenges for many organizations.
- ✓ Blockchain is an increasingly attractive tool for industries such as banking and insurance. It will transform how banks operate and how we keep our possessions.



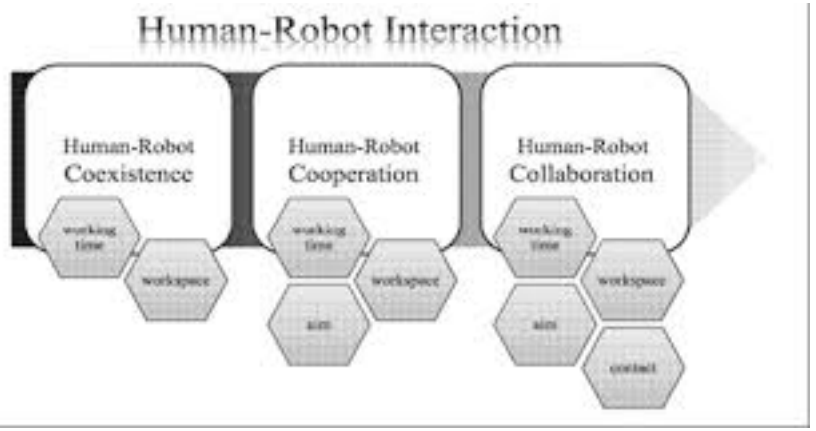
(5) - Cloud & Edge Computing -

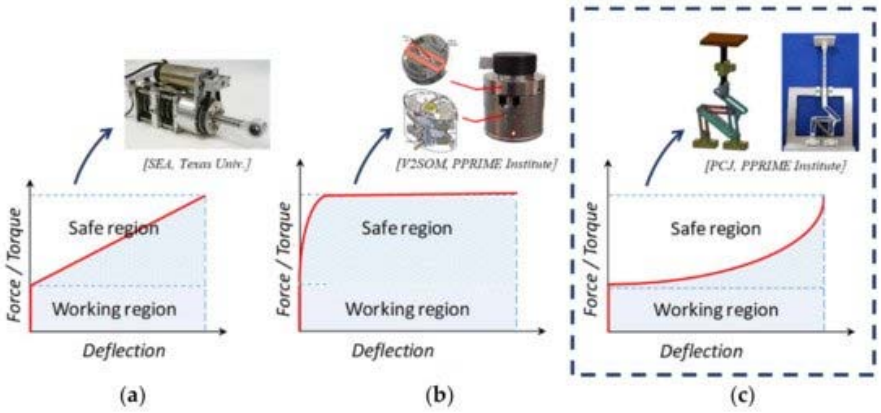
Cloud computing assists in storing and processing data on other people's computers in a data center via a network that gives companies the ability to store massive amounts of data and process it in nearly real-time.



(6) - Robots & Cobots -

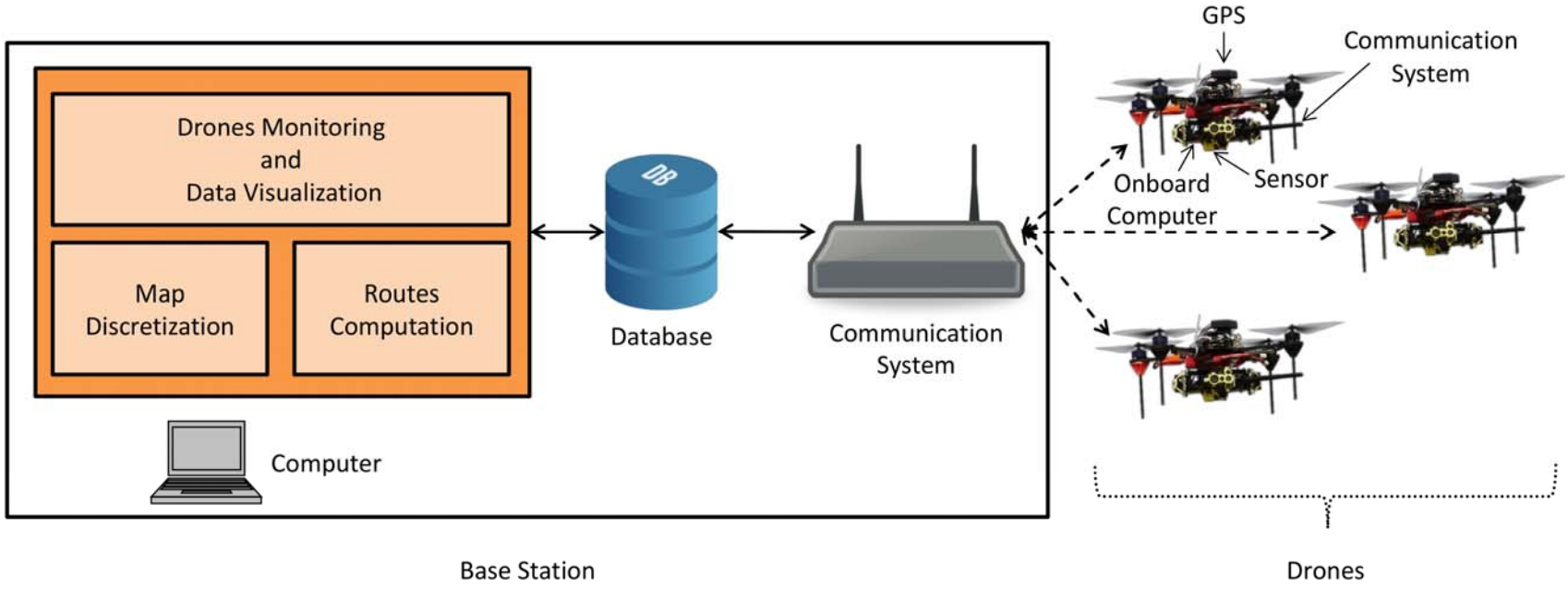
- Robots are intelligent machines that can understand and respond to their environment and perform routine or complex tasks autonomously.
- The rise of collaborative robots, or cobots, is the latest generation of robotic systems designed to work alongside humans as robotic colleagues.
- Cobots enhance the work that humans do and interact safely and easily with the human workforce—extra robotic muscle in the workplace.





(7) - The Drone Based FM –

Inspect the assets.



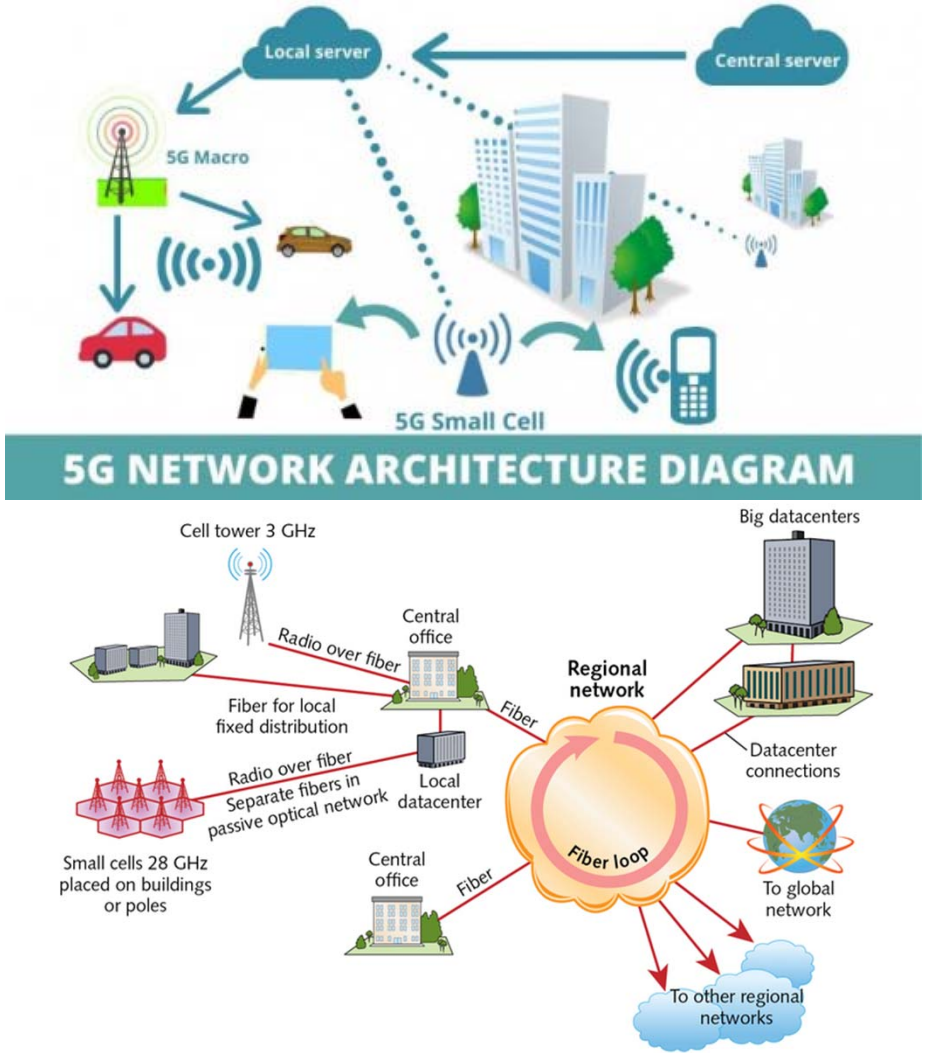
ADVANTAGES

- ✓ Drones minimize the obvious dangers and health risks,
- ✓ Collection of in-depth and higher detail data,
- ✓ Quick deployment or launch,
- ✓ Flexibility to suit a majority of inspections, easily shareable data, etc.

(8) - The 5G Network -

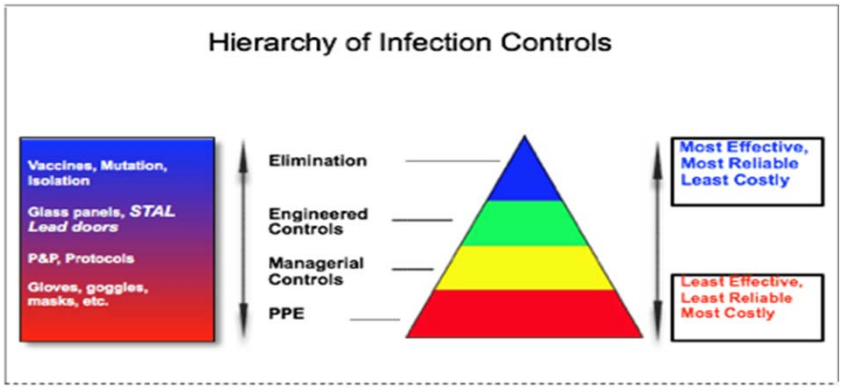
The fifth generation of cellular network technology, which, together with other network innovations, will give us much faster and more stable wireless networking, as well as the ability to connect more and more devices and enabling richer, more varied streams of data.

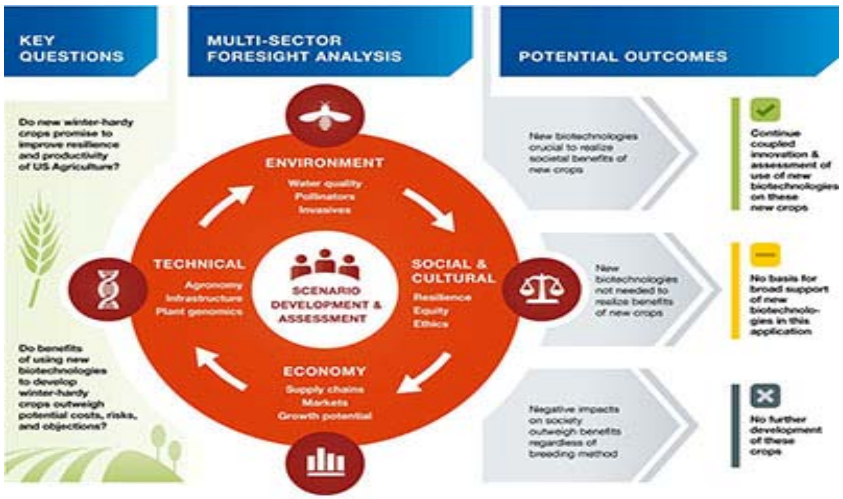
The 5G network will give us not only greater speeds but will also be able to cope with connecting far more devices within a geographical area.



(9) - Genomics & Gene Editing -

- Genomics as an interdisciplinary field of biology that focuses on the understanding and manipulation of DNA and genomes of living organisms.
- Today, biotechnology has advanced to the point where it's viable to alter the DNA encoded within a cell and influence the characteristics that its descendants will have after it reproduces by cell division.

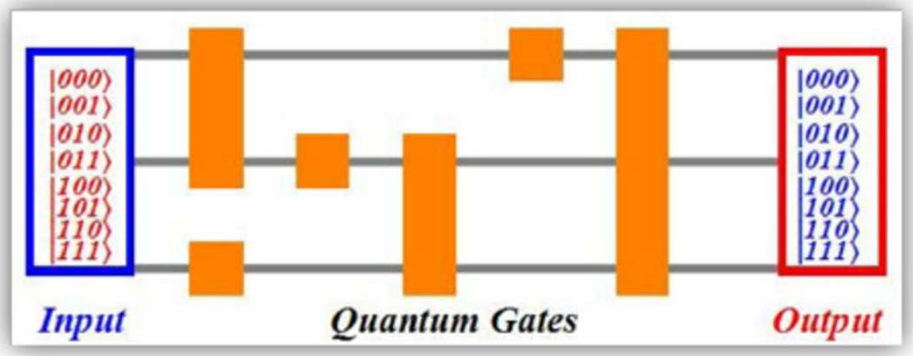


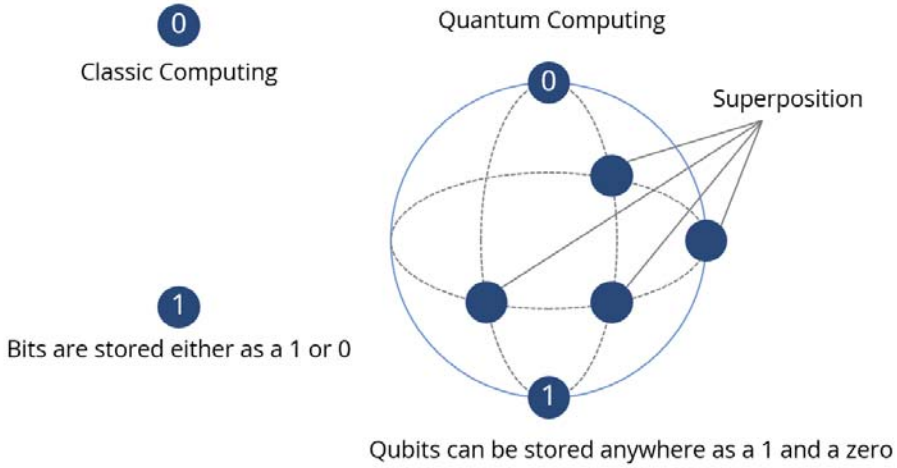


(10) - Quantum Computing -

- Quantum computing harnesses the peculiar phenomenon observed to take place when operating at a subatomic level, which includes quantum entanglement, quantum tunneling, and the ability of quantum particles to simultaneously exist in more than one state.

- Quantum computing will completely redefine what a computer is and could give us computing power that is millions or trillions times more powerful than supercomputers today.





Quantum Computing and The Future of Big Data

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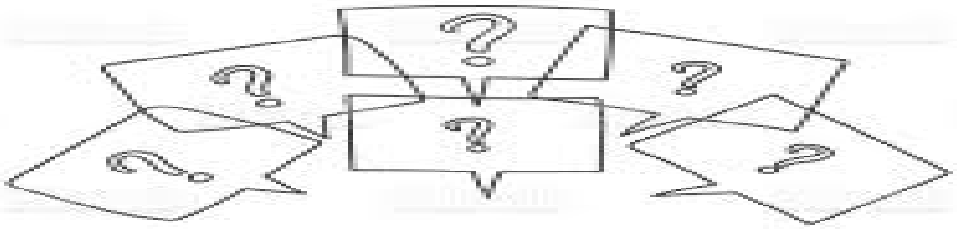

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