In the field of Smart Factories:

1 .Enterprise Asset management:

Enterprise asset management involves: work management, asset maintenance, planning and scheduling, supply chain management and environmental, health and safety (EHS) initiatives. Businesses collect real-time data from an asset with IoT sensors.

2. Predictive maintenance :

For example, Fanuc is a robotics company that is working on reducing the downtime of machines with IoT technology. Fanuc uses sensors to predict when the failure of the component will happen.

3. Industrial process automation :

Organizations can keep a real-time record of the metrics of all the machines inside a plant using IoT and IP networks. Manufacturers can use this data to automate workflows and to optimize production systems. Automation and optimization support industrial companies to reduce costs and increase the quality and volume of output.

4. Energy Management:

IoT devices can help manufacturers manage energy consumption based on real-time data collected from devices. Intelligent energy management systems reduce energy bills, operational expenditures and carbon footprint of the factory while increasing energy efficiency.

In the field of Smart Cities :

5. Outdoor surveillance :

When IoT CCTV cameras combined with artificial intelligence and machine vision, governments can automate surveillance of streets through cameras. As IoT enables connectivity of machines, they are able to record and analyse video data in real time, and they can provide police officers with insights instead of single pieces of images.

6. Smart lighting:

Smart lighting is made up of street lighting with IoT sensors. Sensors collect data about the condition of traffic and pedestrians. With that data, street lights provide optimum lighting so that street lighting systems can save up to 80% of the energy.

7. Traffic Management:

Traffic engineers augmented by smart systems at a central traffic management center (TMC) can analyze data from IoT sensors then optimize timing of traffic lights throughout the day. This can help divide the traffic more evenly over roads as traffic volume fluctuates.

8. Noise Monitoring:

In smart cities, sound monitoring systems can monitor noise levels and warn companies that violate limits and help manage noise levels.

9. Structural Health Monitoring:

IoT allows remote collection of architectural data to monitor events such as vibrations and changes in material conditions, predict structural damage, and prepare action plans for structures such as bridges, buildings, stadiums, ships, airplanes, etc.

10. Waste Management:

Fill levels of garbage containers differ for each container: ranging from overflowing, partially filled and empty. IoT sensors can monitor fill levels for conventional bins and send the data to the relevant department of the city hall. With that information, the garbage truck routes can be optimized for trash collection.

In the field of Water Management :

11. Water conservation:

Sensors detect the water level in tanks and alerts when the water level is lower than the threshold.

12. Smart Irrigation:

IoT sensors determine the weather condition and the soil moisture, which will help in getting the appropriate amount of water that soil needs.

13. Leakage Management:

IoT sensors can detect temperature changes, water leakage, chemical leakage, and pressure level in water tanks.

14. Water Quality Management:

IoT sensors determine what kind of chemicals are in the water. They also identify metrics such as total dissolved solids (TDS), bacteria, chlorine, electrical conductivity, etc.

In the field of Health Management :

15. Ultraviolet Radiation Monitoring:

IoT sensors measure UV sun rays to warn people not to be exposed in certain hours.

16. Fall Detection:

Falling into the ground and not being able to get up or request help can be a scary experience for senior citizens. IoT sensors can detect falls using geolocation data and summon help so that it reduces the time the elderly remain on the floor after a fall which could lead to lethal consequences.

17. Medical Fridges:

Medical fridges monitor the temperature of vaccines, medicines and organic elements for clinics and health centers. Medical fridges provide an opportunity to follow all safety standards and national regulations of the pharmaceutical market using IoT sensors. They prevent medicines and vaccines from spoiling.

18. Remote Patient Monitoring

Remote patient monitoring (RPM) systems use wearables to monitor the condition of patients who are resting at home after surgery. RPM enables real-time data collection about patients' body temperature which is the main indicator of infections. With RPM, doctors can observe patients' data and provide early diagnoses without requiring patients to be physically present at the hospital.

In the field of Smart Retail :

19. Supply Chain Control:

IoT devices have transformed supply chain management. Sensors, which are attached to storage containers or to products themselves,

i) show the location of goods using GPS,
ii) track the speed of movement providing an accurate estimated time of arrival (ETA) for goods,
iii) monitor warehouse conditions such as temperature, humidity, light intensity, and other environmental factors

20. Smart Product Management:

IoT sensors enable retailers to control the rotation of products on shelves and warehouses to automate merchandising decisions.