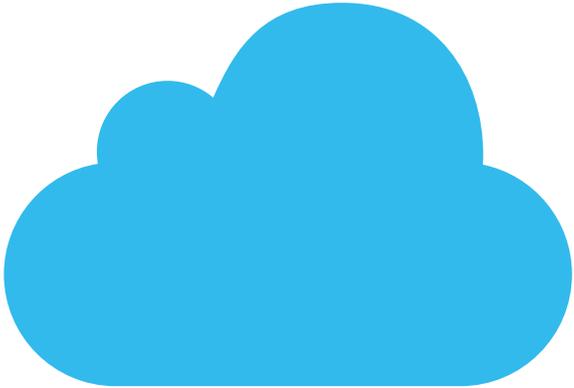




■ Main Topics





MWTS 2018

3rd International Conference on Modern
Wireless Telecommunication Systems

The 3rd Conference on Modern Wireless Telecommunication Systems, held at Sharif University of Technology, mainly focuses on the 5th generation of telecommunication systems, known as 5G. This technology will be the successor of 4G LTE with higher bit rate, higher simultaneous connection handling capability, significantly higher spectral efficiency, lower latency, higher signalling efficiency and many other advantages which will take mobile network capabilities to a whole new level.

These new capabilities enable the use of 5G-based networks in various domestic, scientific, industrial, financial, and medical applications as described in this catalog. All these uses work towards enhancing the quality, efficiency and safety of human lives and the cost effectiveness of mobile networks for both users and operators. Currently, many worldwide R & D projects are underway in various institutes to create the infrastructure required to make the use of this technology possible till the expected year of launch, 2020.



April 17 - 18 | Farvardin 28 - 29



Sharif University of Technology



mwts2018.sharif.ir

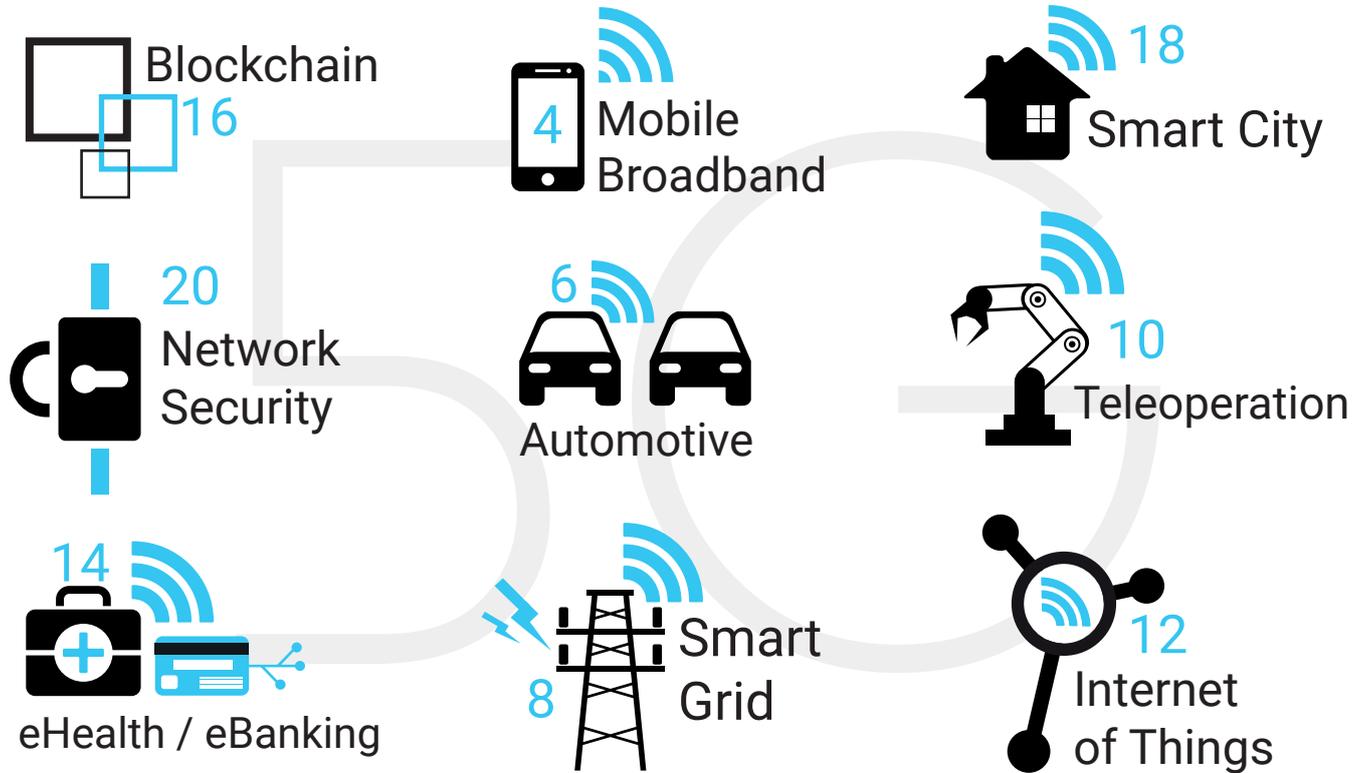


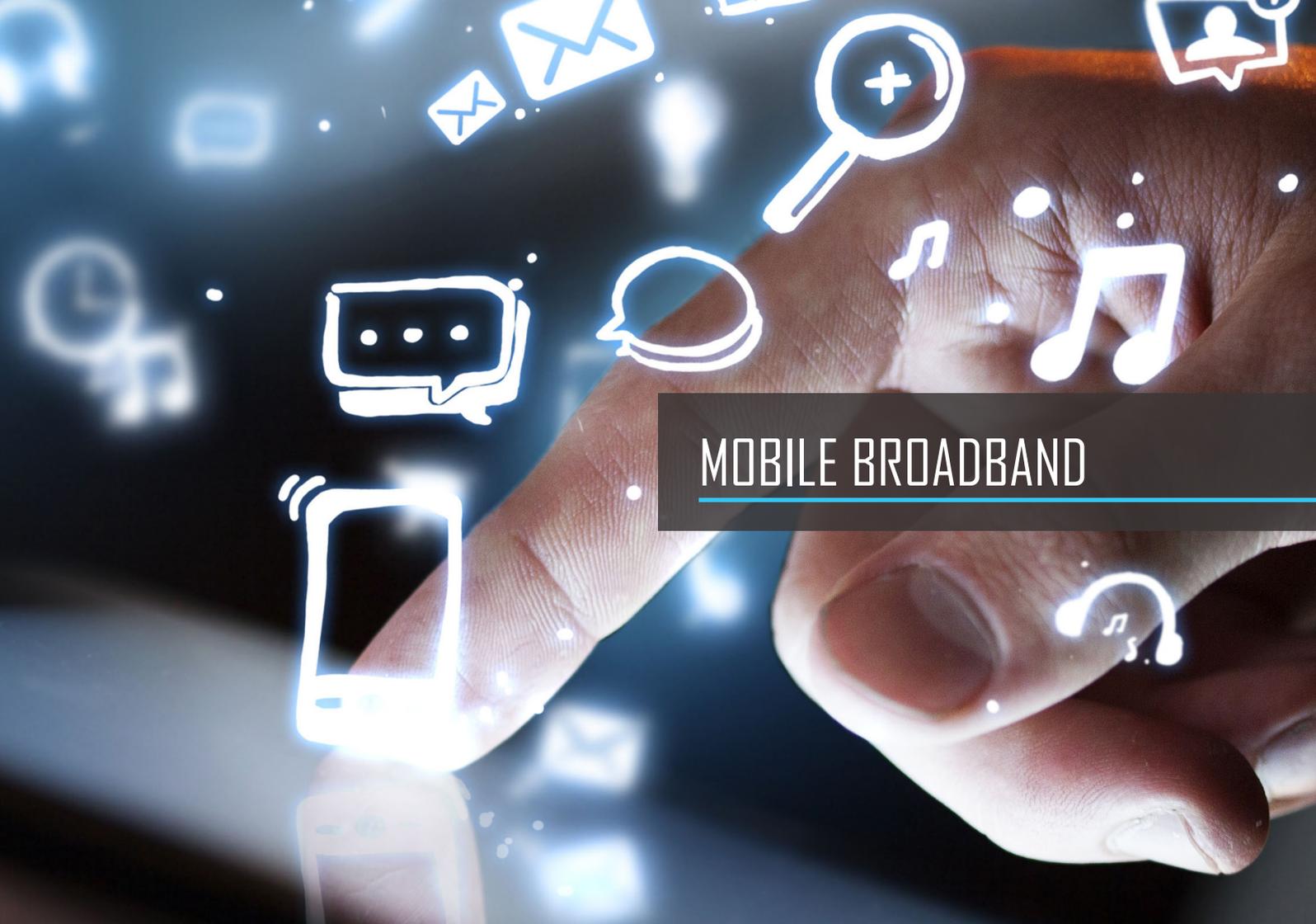
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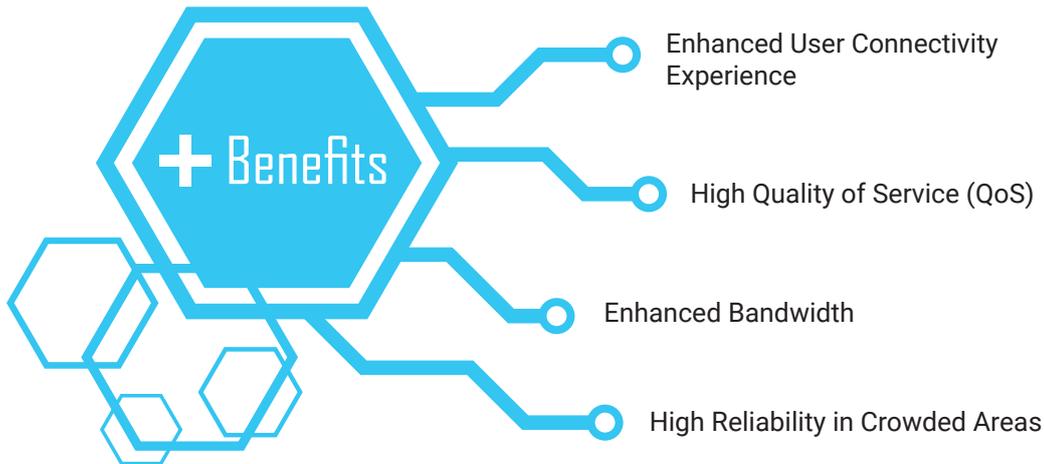


MOBILE BROADBAND



Mobile broadband is the key use case today and it is expected to continue to be one of the key use cases driving the requirements for 5G. It goes far beyond basic mobile Internet access and covers rich interactive work, media and entertainment applications in the cloud or reality augmentations. (both centralized and distributed)

Cloud storage and applications are rapidly increasing for mobile communication platforms. This is applicable for both work and entertainment. Cloud storage is one particular use case driving the growth of uplink data rates – in the past, content was mostly downloaded.



Target Users

Generic Mobile Users

Mobile Network Operators

Sports Coverage

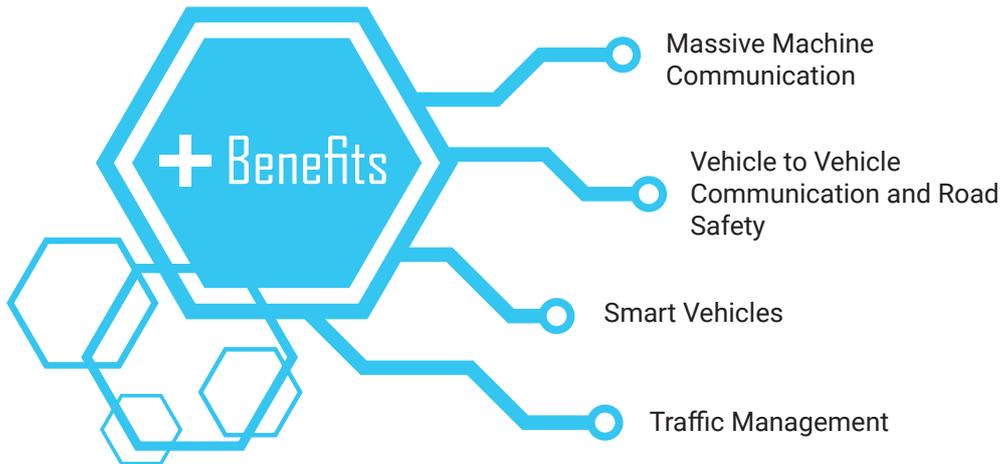


AUTOMOTIVE



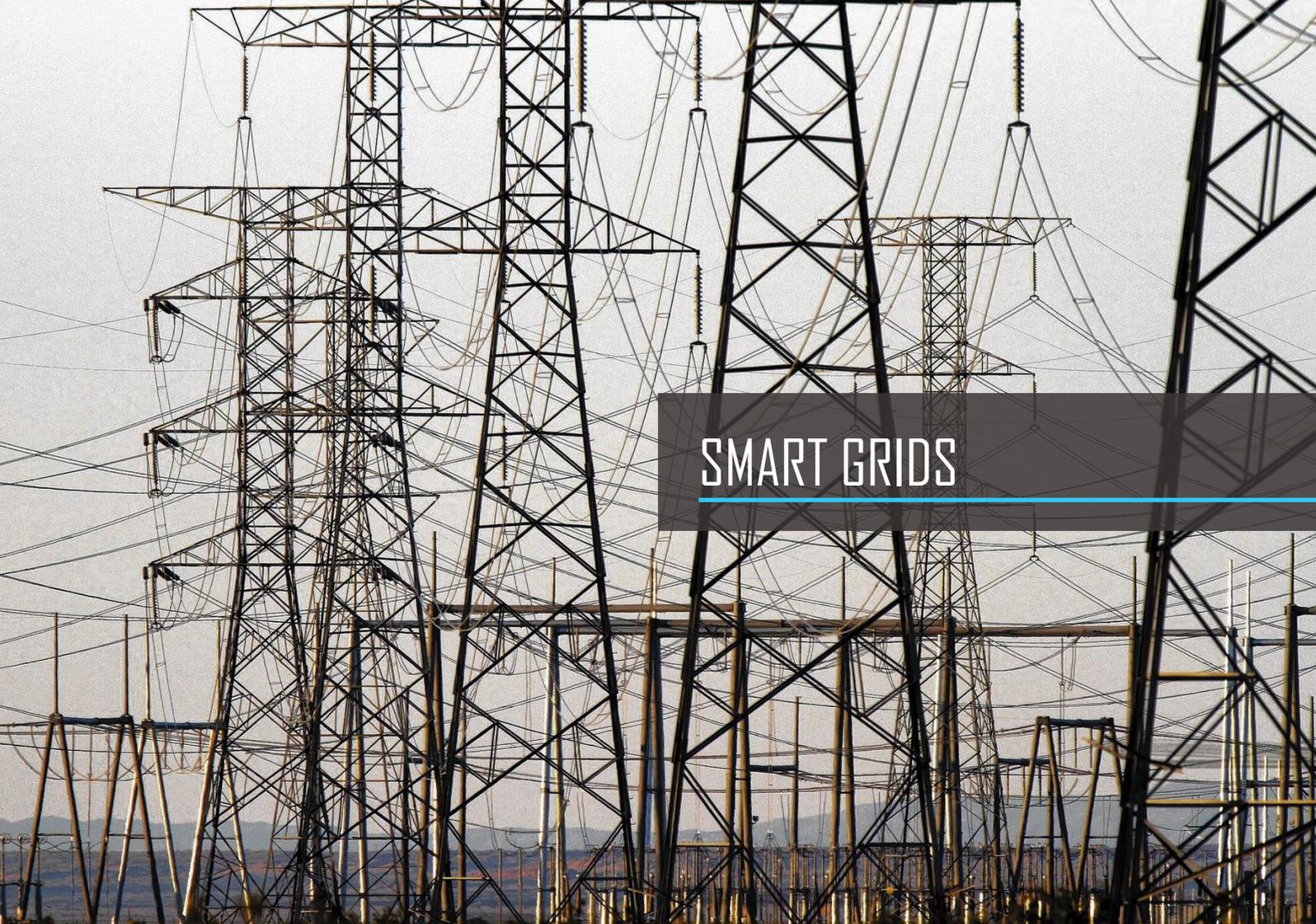
The automotive sector is expected to be a very important new driver for 5G, with many use cases for mobile communications for vehicles. For example, entertainment for passengers requires simultaneous high capacity and high mobility mobile broadband, because future users will expect to continue their good quality connection.

Many car manufacturers are already adding driver assistance systems based on 3D imaging and built-in sensors. In the future, wireless modules will enable communication between vehicles themselves, information exchange between vehicles and supporting infrastructure and between vehicles.



Target Users

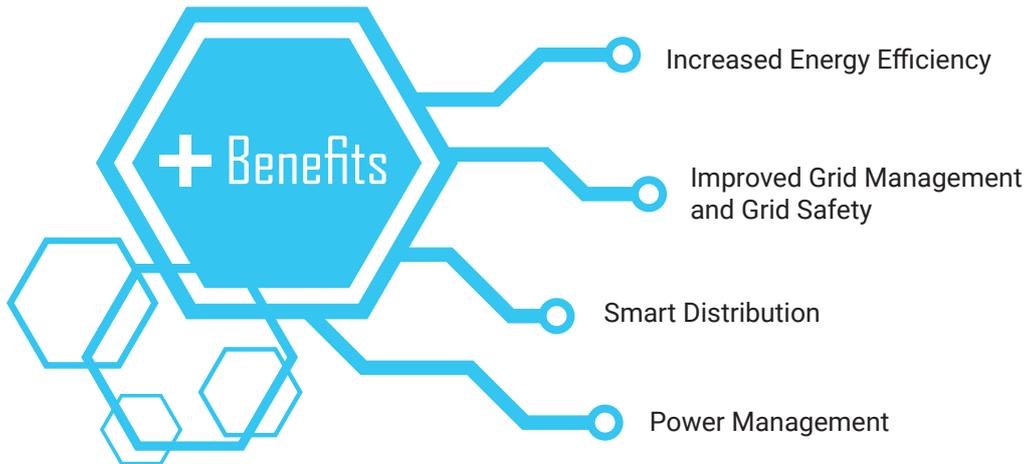
- Automotive Companies
- Public Transportation
- Transportation Infrastructures



SMART GRIDS



The consumption and distribution of energy, including heat or gas, is becoming highly decentralized, creating the need for automated control of a very distributed sensor network. A smart grid interconnects such sensors, using digital information and communications technology to gather and act on information. This information can include the behaviors of suppliers and consumers, allowing the smart grid to improve the efficiency, reliability, economics and sustainability of the production and distribution of fuels such as electricity in an automated fashion. A smart grid can be seen as another sensor network with low delays.



Target Users

- Electric Power Companies
- Governments
- Power Distribution Infrastructures

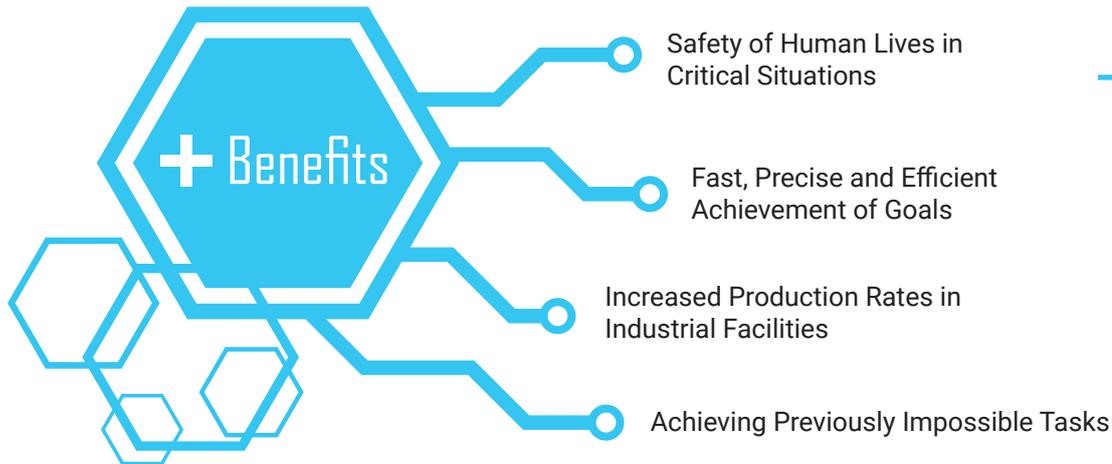


TELEOPERATION



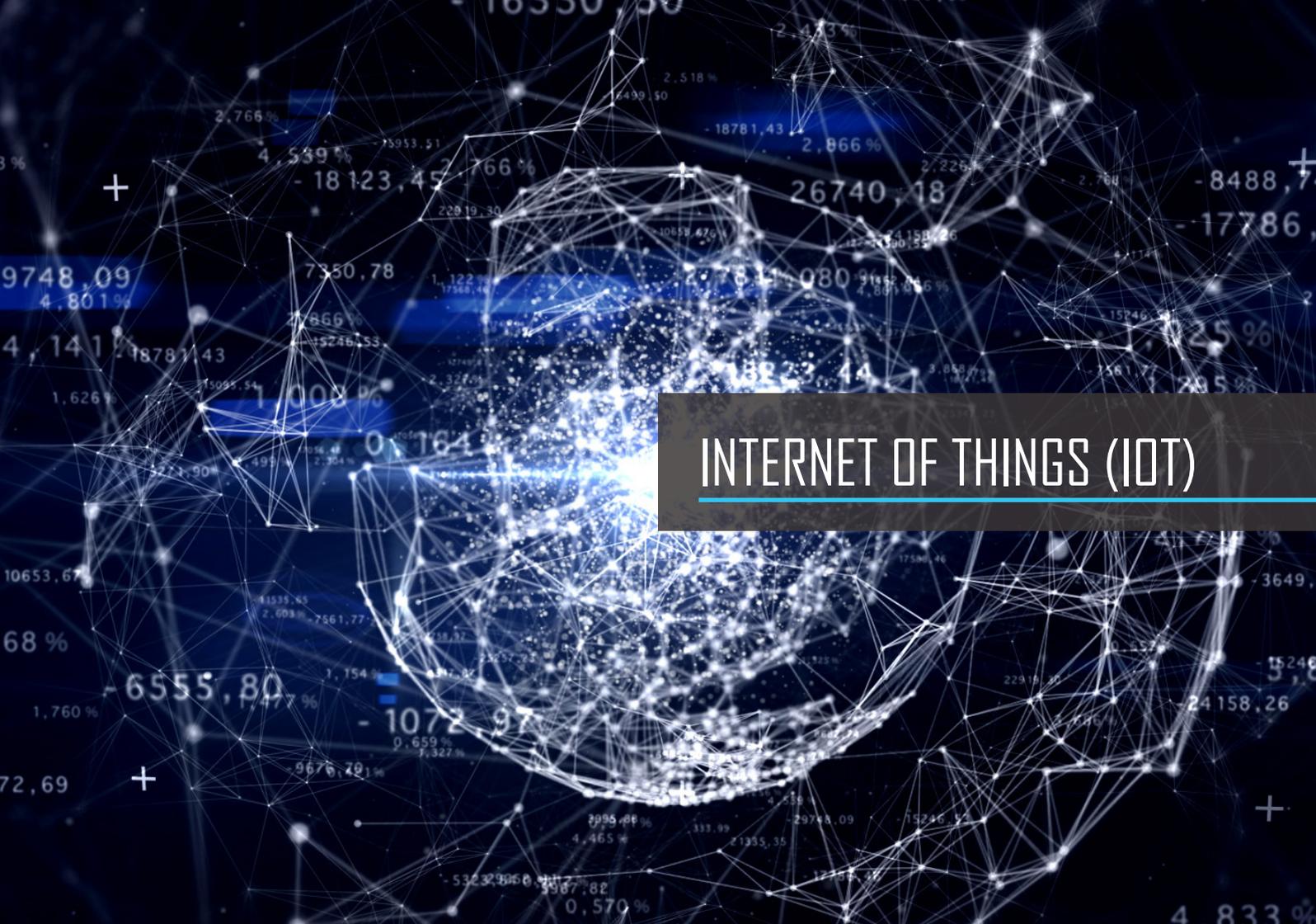
Teleoperation indicates operation of a machine at a distance. It is similar in meaning to the phrase “remote control” but is usually encountered in research, academic and technical environments. It is most commonly associated with robotics and mobile robots but can be applied to a whole range of circumstances in which a device or machine is operated by a person from a distance.

With the increasing number of these teleoperation devices, the need for developing faster and more reliable methods of communication becomes crucial. The development of new communication systems would open new doors to achieving widespread use of such devices and ensuring human safety in critical causes.



Target Users

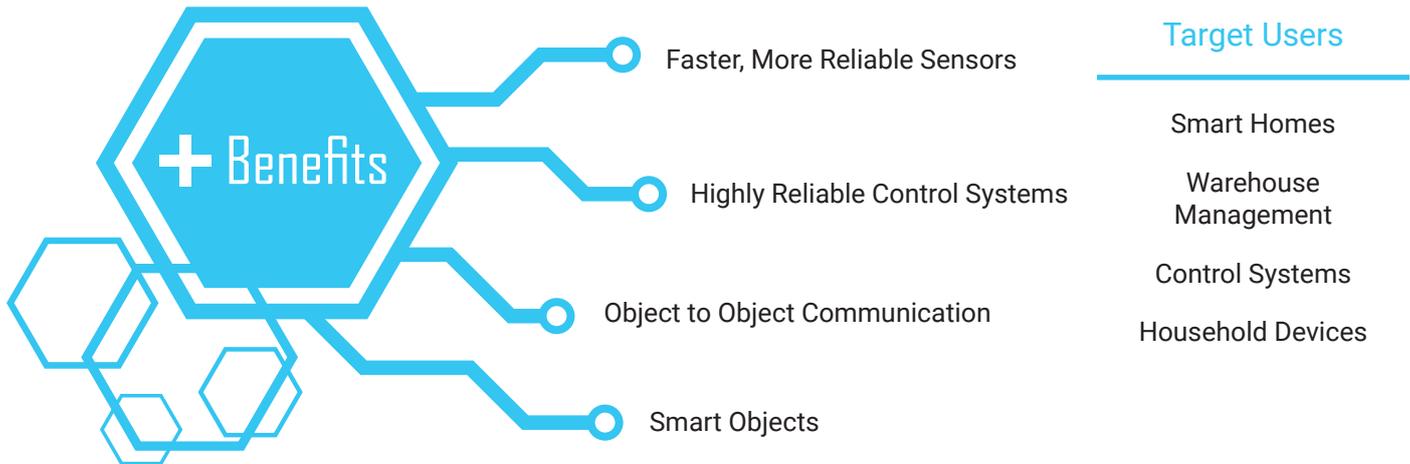
- Industry and Factories
- Search and Rescue Missions
- Co-Working Robots
- Long Distance Surgery



INTERNET OF THINGS (IOT)

The internet of things (IoT) is the internetworking of physical devices, vehicles, buildings and other items—embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data.

The IoT allows objects to be sensed and/or controlled remotely across existing network infrastructure, creating opportunities for more direct integration of the physical world into computer-based systems, and resulting in improved efficiency, accuracy and economic benefit. "Things," in the IoT sense, can refer to a wide variety of devices such as heart monitoring implants, biochip transponders on farm animals, electric clams in coastal waters and etc.



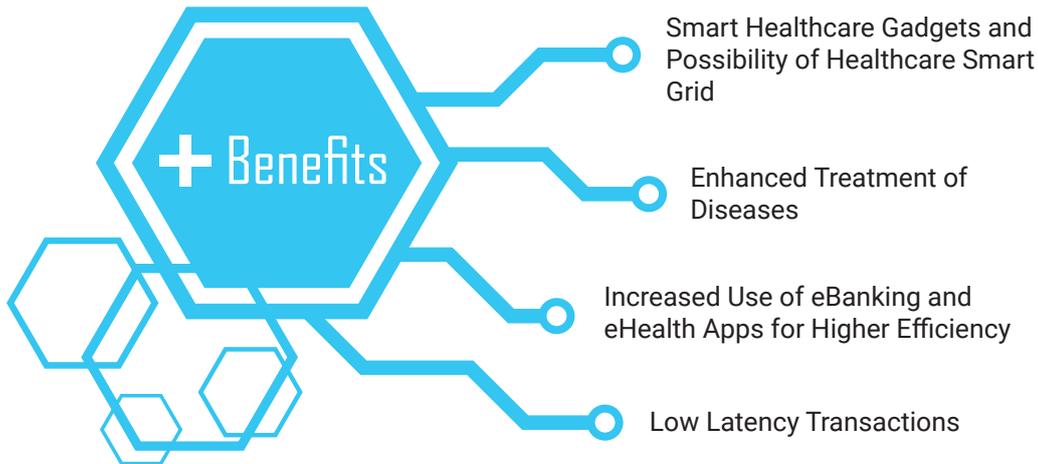


eHEALTH / eBANKING



The health sector has many applications that can benefit from mobile communications. Communications systems enable telemedicine, which provides clinical health care at a distance. It helps eliminate distance barriers and can improve access to medical services that would often not be consistently available in distant rural communities. It is also used to save lives in critical care and emergency situations. Wireless sensor networks based on mobile communication can provide remote monitoring & sensors for parameters such as heart rate and blood pressure.

The banking sector may benefit from mobile banking, fast ATMs, widespread banking network and quick payment methods in stores.

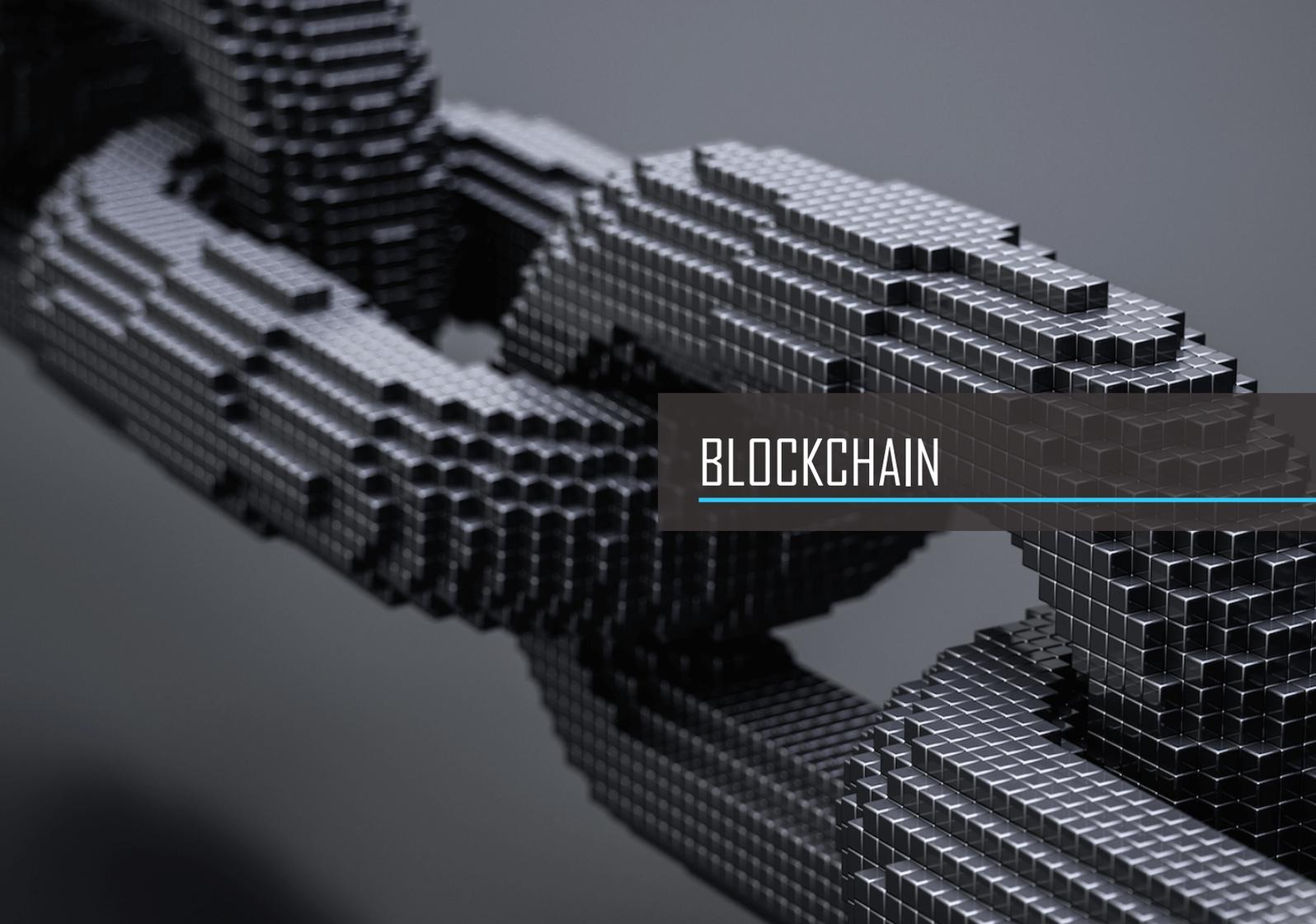


Target Users

Hospitals

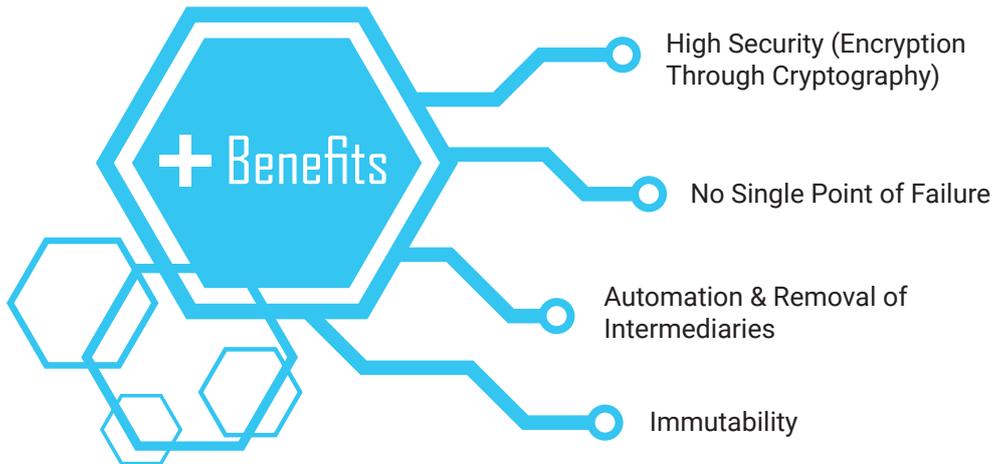
Banks and Financial Systems

Healthcare System



BLOCKCHAIN

A blockchain, originally block chain, is a continuously growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a cryptographic hash of the previous block, a timestamp and transaction data. By design, a blockchain is inherently resistant to modification of the data. It is “an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way”. For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires collusion of the network majority.

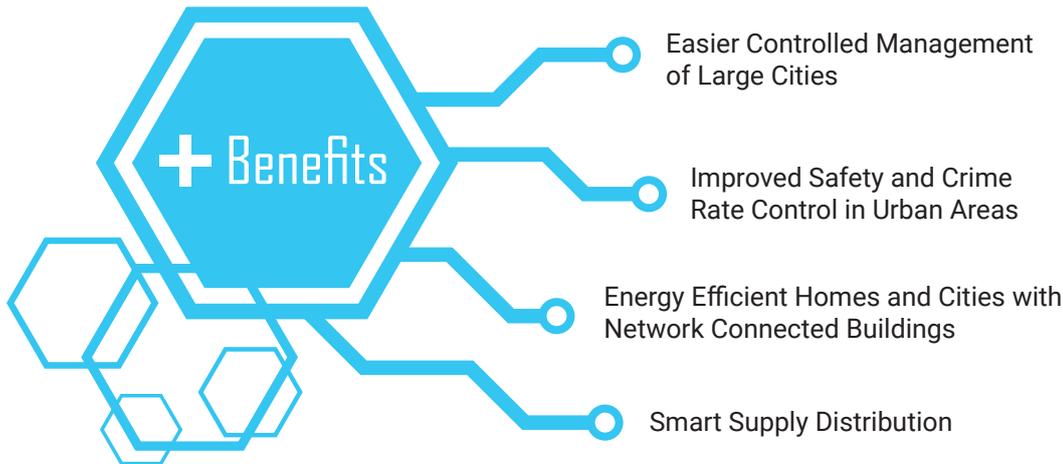


Target Users

- Governments and National Currencies
- Banking Sector
- Smart Contracts
- Polls and Elections
- Stock Exchange

Smart cities and smart homes, often referred to as smart society, will be embedded with dense wireless sensor networks. Distributed networks of intelligent sensors will identify conditions for cost and energy-efficient maintenance of the city or home.

A similar setup can be done for each home, where temperature sensors, window and heating controllers, burglar alarms and home appliances are all connected wirelessly. Many of these sensors are typically low data rate, low power and low cost, but for example, real time HD video may be required in some types of devices for surveillance. The task for 5G will be to integrate the management of these very diverse connected devices.



Target Users

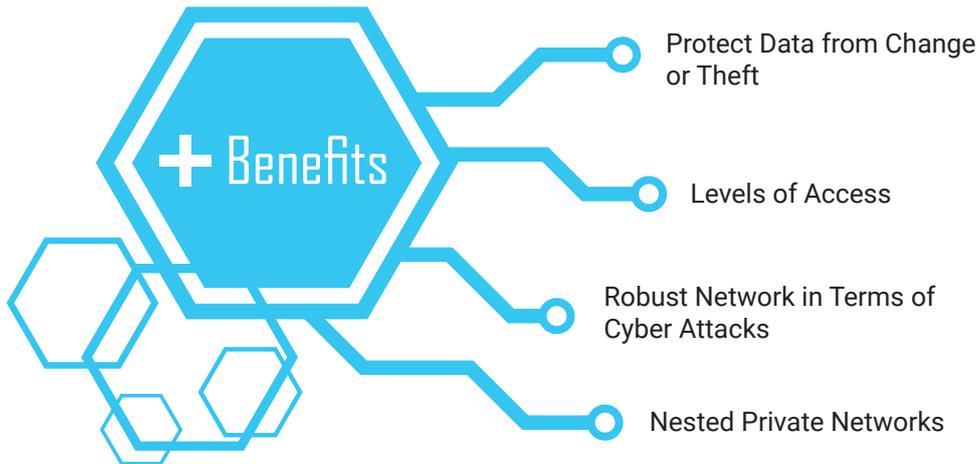
- City Management
- Energy Distribution
- Smart Homes and Infrastructures



NETWORK SECURITY



Network security consists of the policies and practices adopted to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources. Network security involves the authorization of access to data in a network, which is controlled by the network administrator. Users either choose or are assigned an ID and password, token or other authenticating information that allows them access to information and programs within their authority. Network security covers a variety of computer networks, both public and private, that are used in everyday jobs; conducting transactions and communications among businesses, government agencies and individuals. Network security is involved in organizations, enterprises, and other types of institutions. It does as its title explains: It secures the network, as well as protecting and overseeing operations carried out in the network.



Target Users

- Transactions and Communications Between Businesses
- Government Agencies
- Individual Needs

