How technology change in telecommunication

Media, Television

Technology affects almost every aspect of our lives. The development and improvement of technology has greatly improved our lives. It has led to a far better, easier and very comfortable life for the people. Telecommunication systems have undergone major changes in the past decade, as they have become more electronic and less electromechanical. 'Telecommunication' is a term coming from Greek and consists of two words Tele+ communication.

The word ‘ Tele’ means ‘ distance’ i. . telecommunication means 'Distance communication or communication at distance' through signals of varied nature coming from a transmitter to a receiver. In order to achieve effective communication, the choice of a proper mean of transport for the signal has played (and still plays) a fundamental role. Another change has been much greater use of computer-generated data. These changes mean that telecommunication systems are now more vulnerable to power quality problems.

The electronic circuits are more susceptible to noise pulses than voice communication, and the noise can completely change the computer data. This new complexity is seen in today’s telecommunication systems, which include satellites that handle “ packets” of data, and telephone central offices that convert voice to computer-like digital signals. Within 10 years, these systems will become even more sophisticated, using fiber optics instead of copper wire as the primary communications medium. Today’s analog telephones and fax machines will be replaced by all-digital units.

Projecting further into the future, the next century will see widespread use of cellular phones in the office and home, replacing “ plug-in-the-wall” phones. What does this mean to the contingency planner? It means that we will need

to learn more about the new telecommunication systems because we will be called upon to deal with more complex telecom recovery problems. Power quality associated with this new high-speed generation of telecommunication systems is being affected by factors similar to those computer systems, i. e. high-tech systems, used in low-tech environments.

In addition, equipment from different vendors is being integrated with varying degrees of performance and reliability. Added to this is the involvement of people with different levels of technical expertise: installers, maintenance technicians, architects, builders, contractors, electricians and telephone companies. When you put all these factors together, telecommunication system interoperability is a hard-to-reach goal. There are various ways through which technology has changed our life.

In ancient times, the most common way of producing a signal would be through light (fires) and sound (drums and horns). However, those kinds’ communications were insecure and certainly left room to improvement as they did not permit message encryption or a fast transmission of information on a large scale. The true 'jump' in terms of quality came with the advent of electricity. Electromagnetic energy, in fact, is able to transport information in an extremely fast way (ideally to the speed of light), in a way that previously had no equals in terms of costs reliability.

Therefore, we may say that the starting point of all modern telecommunications was the invention of the electric cell by Alessandro Volta (1800). In 1809, German physician Thomas S. Sommering proposed a electrochemical' telegraph system composed of a battery, 35 wires (one for each letter and number) and a group of sensors made of gold, which were

submerged in a water tank: when a signal was passing from one of those wires, electrical current would split water molecules, and small oxygen bubbles would be visible near that sensor.

Thus, messages could be conveyed electrically up to a few kilometers (in von Sommering's design), with each of the telegraph receiver's wires immersed in a separate glass tube of acid. An electrical current was sequentially applied by the sender through the various wires representing each digit of a message; at the recipient's end the currents electrolyzed the acid in the tubes in sequence, releasing streams of hydrogen bubbles next to each associated letter or numeral.

The telegraph receiver's operator would visually observe the bubbles and could then record the transmitted message, albeit at a very low baud rate. The principal disadvantage to the system was its prohibitive cost, due to having to manufacture and string-up the multiple wire circuits it employed, as opposed to the single wire (with ground return) used by later telegraphs. The first commercial electrical telegraph was constructed in England by Sir Charles Wheatstone and Sir William Fothergill Cooke. It used the deflection of needles to represent messages and started operating over twenty-one kilometers (thirteen miles) of the Great Western Railway on 9 April 1839.

Both Wheatstone and Cooke viewed their device as " an improvement to the [existing] electromagnetic telegraph" not as a new device. The first successful transatlantic telegraph cable was completed on 27 July 1866, allowing transatlantic telecommunication for the first time. Earlier transatlantic cables installed in 1857 and 1858 only operated for a few days or weeks before they failed. The international use of the telegraph has

sometimes been dubbed the " Victorian Internet". The electric telephone was invented in the 1870s, based on earlier work with harmonic (multi-signal) telegraphs.

The first commercial telephone services were set up in 1878 and 1879 on both sides of the Atlantic in the cities of New Haven and London. Alexander Graham Bell held the master patent for the telephone that was needed for such services in both countries. The technology grew quickly from this point, with inter-city lines being built and telephone exchanges in every major city of the United States by the mid-1880s. Despite this, transatlantic voice communication remained impossible for customers until January 7, 1927 when a connection was established using radio.

However no cable connection existed until TAT-1 was inaugurated on September 25, 1956 providing 36 telephone circuits. In 1880, Bell and co-inventor Charles Sumner Tainter conducted the world's first wireless telephone call via modulated light beams projected by photophones. The scientific principles of their invention would not be utilized for several decades, when they were first deployed in military and fiber-optic communications. Addressing the Franklin Institute in 1893, Nikola Tesla described and demonstrated in detail the principles of wireless telegraphy.

The apparatus that he used contained all the elements that were incorporated into radio systems before the development of the vacuum tube. However it was not until 1900 that Reginald Fessenden was able to wirelessly transmit a human voice. In December 1901, Guglielmo Marconi established wireless communication between Britain and Newfoundland, earning him the Nobel Prize in physics in 1909 (which he shared with Karl

Braun). On March 25, 1925, Scottish inventor John Logie Baird publicly demonstrated the transmission of moving silhouette pictures at the London department store Selfridges.

In October 1925, Baird was successful in obtaining moving pictures with halftone shades, which were by most accounts the first true television pictures. This led to a public demonstration of the improved device on 26 January 1926 again at Selfridges. Baird's first devices relied upon the Nipkow disk and thus became known as the mechanical television. It formed the basis of semi-experimental broadcasts done by the British Broadcasting Corporation beginning September 30, 1929. However for most of the twentieth century televisions depended upon the cathode ray tube invented by Karl Braun.

The first version of such a television to show promise was produced by Philo Farnsworth and crude silhouette images were demonstrated to his family on September 7, 1927. Farnsworth's device would compete with the concurrent work of Kalman Tihanyi and Vladimir Zworykin. Zworykin's camera, based on Tihanyi's Radioskop, which later would be known as the Iconoscope, had the backing of the influential Radio Corporation of America (RCA). In the United States, court action between Farnsworth and RCA would resolve in Farnsworth's favour.

John Logie Baird switched from mechanical television and became a pioneer of colour television using cathode-ray tubes. After mid-century the spread of coaxial cable and microwave radio relay allowed television networks to spread across even large countries. The first U. S. satellite to relay communications was Project SCORE in 1958, which used a tape recorder to

store and forward voice messages. It was used to send a Christmas greeting to the world from U. S. President Dwight D. Eisenhower. In 1960 NASA launched an Echo satellite; the 100-foot (30 m) aluminized PET film balloon served as a passive reflector for radio communications.

Courier 1B, built by Philco, also launched in 1960, was the world's first active repeater satellite. Telstar was the first active, direct relay commercial communications satellite. Belonging to AT&T as part of a multi-national agreement between AT&T, Bell Telephone Laboratories, NASA, the British General Post Office, and the French National PTT (Post Office) to develop satellite communications, it was launched by NASA from Cape Canaveral on July 10, 1962, the first privately sponsored space launch.

Relay 1 was launched on December 13, 1962, and became the first satellite to broadcast across the Pacific on November 22, 1963. The first and historically most important application for communication satellites was in intercontinental long distance telephony. The fixed Public Switched Telephone Network relays telephone calls from land line telephones to an earth station, where they are then transmitted a receiving satellite dish via a geostationary satellite in Earth orbit.

Improvements in submarine communications cables, through the use of fiber-optics, caused some decline in the use of satellites for fixed telephony in the late 20th century, but they still exclusively service remote islands such as Ascension Island, Saint Helena, Diego Garcia, and Easter Island, where no submarine cables are in service. There are also some continents and some regions of countries where landline telecommunications are rare to

nonexistent, for example Antarctica, plus large regions of Australia, South America, Africa, Northern Canada, China, Russia and Greenland.

After commercial long distance telephone service was established via communication satellites, a host of other commercial telecommunications were also adapted to similar satellites starting in 1979, including mobile satellite phones, satellite radio, satellite television and satellite Internet access. The earliest adaption for most such services occurred in the 1990s as the pricing for commercial satellite transponder channels continued to drop significantly.