Impact of technology in the engineering field

Impact of Technology on Society

Engineering is one of the most lucrative professions with a rich history and vast background. It is a field that focuses on the future, looks back to calibrate growth and progress of other fields as well as drafting plans for the next generation of technology while seeking to achieve and acquire that which has not been done before (Petroski). It is through the history and growth of the past engineering developments that we are able to judge the current growth and possible future of this field. The past technologies which may appear to be irrelevant technically, are meaningful and relevant for the modern engineering. Engineers have the power to make dreams come true by advancing knowledge and establishing a magnificent structure that astonish even the most impractical persons in the society. By opening the window of your office or your residential house, one can view the different designs of various items that adorn the world. Engineers define the culture of a society and help to maintain a constant pace with the ever-dynamic world. For instance, the roads, highways, bridges, railways, access to water, air transport among many other things have throughout history been made possible by the different clusters of engineers. Tracing back through the history of over 12000 years, the engineering field has continued to revolutionize the lifestyles of the society across in different ways. This essay will explore the different milestones achieved over the years in the engineering field.

Of the greatest milestones achieved over the years in the engineering field has been *electrification* . After the discovery of electricity and its wide distribution across the world, there has been tremendous growth in almost

every enterprise and pursuit of the society (Hasenohrl). Electrification has continued to impact the everyday lives of the people through various fronts such as heating, lighting, refrigeration, communication, transport, air conditioning, production of various commodities, medical technologies among other entities that are critical in our lives. Through various innovations such as the turbine generators, discovery and use of alternating current among other techniques of obtaining electricity from various resources such as the sun, fossil fuel, and nuclear energy; development of the society has been unstoppable. Life has become easier, healthier and more comfortable to lead that it is imaginable to live without it. In a nutshell, the discovery of electricity has impacted every individual and society across the planet.

Before engineers discovered and developed *automobiles* , it is estimated that a person would walk on foot at least 1200 miles within their locality almost daily. The invention of cars and the growth of the automobile industry has eased movement and helped people across the world to access destinations they could have never reached in their lifetimes. For instance, an average American can today travel at least 10, 000 miles by automobiles in a year, a fact that could not be achieved before. It is estimated that today, through the work of different segments of the engineering field, the world possesses at least a billion vehicles. How the industry has maneuvered from creating the Tin Lizzies to the current aerodynamics and multipurpose vehicles that are on our roads, can only be answered by the chronicles of engineers. They have continued to discover various materials to make the cars, innovations on ignition systems, air, and heat regulating,

interchangeable parts, windshield wipers, power steering as well as the fashionable models of luxury and style. Transport of goods and people have been made easy leading to economic growth and stability of diverse societies.

The discovery of the *airplane* is another milestone that engineers have managed to achieve over the years. The different innovations and growth of the aviation industry extend for more than 2000 years when the first kite was made, to the current hypersonic jets that we use today. After the first aviation engineers, The Wright Brothers made a great milestone in developing and flying the first airplane. The aviation field has made tremendous progress in the designs, materials, and engines of the aircrafts we have today. It is worth noting that most of the technological advancements were informed by the needs of the World War One and the subsequent wars that faced different nations across the world. For instance, after WW1, aviation engineers developed gas turbines, jets and heavier wing aircraft that would carry war weaponry and larger capacities of soldiers. This changed the mode of the war and defense mechanisms used by warlords and defense soldiers. By the year 1957, it was found that most Americans preferred using the airspace as the convenient mode of transport compared to road and rail. Today, air transport has been credited for its speed and helping different people to access different destinations across the globe. It has boosted the economic growth of different countries due to easier cultural and commercial interactions.

Another major discovery made by engineers over the years is the *plumbing industry* . In the past centuries, access to water was quite an uphill task for

many people across the globe, but through the efforts and innovations of water engineers, the challenges have continued to be addressed. Before the discoveries, water-borne diseases like cholera and typhoid were rampant scourges in different societies, especially in the third world economies. Through an advanced technology in the piping and water treatment systems, it is possible today to have chlorination, sedimentation, chemical coagulation, carbon absorption among other systems that have made water easily accessible and safer for drinking. Clean water is now available at the rotation of a tap valve in the house both in the rural and urban set ups. Through the effort of diverse engineering fields, water for irrigation, fire control, industries, and irrigation can be delivered over long distances to various locations where it is required. It is through these successes that water-borne diseases have reduced, increased agricultural production, reduced infant mortalities and increased the life expectancy of the general population.

Engineers are also to be credited with the innovations made in the *communication industry.* Before the advancements of technologies in the communication field, getting information from one location to another was a tall order. But through the efforts of sound engineers, we have the mobile telephones for our use today. Different people have access to the Radio and Television where they receive information from different quarters at the comfort of their houses. Communication between friends, nations, and business have been rampant to enhance lives. Through remarkable developments and a series of innovations, a system of copper wires, fiber optics, wooden poles, and primitive transmitters have made communication

possible. Through the digital technology we have today, we have the switchboards, private cellphones, and satellite-based technologies that have continued to ease wireless communication. The TV and radio have become tools of social change opening the remote areas by broadcasting news and live performances in real-time to the audiences. To make this happens, engineers in their different capacities developed the diode that converted electric current through a receiver and vacuum tube for signal amplification. Over the years, engineers developed the antenna, capacitors, oscillators, microphones, tuning circuits, remote controls, loudspeakers among other innovations to enhance communication. Today, nearly all people own a radio, TV set and a cell phone that they use for their daily communication. Communication has reduced the global world into a village as one can access information and identify with different events as they happen in real time.

On the medical front, engineers have made several milestones. One of the greatest technologies made is on imaging and scans. In the last century, engineers managed to develop new classes of imaging technologies that have enabled humans to literally expand their sight to unprecedented levels of analysis and scrutiny. This has made it possible for doctors and other medical specialists to probe human bodies through CT scans, MRIs and X-rays to identify diseases, body defects, and anomalies as well as increasing the ability to treat them. All these have been possible through the dramatic engineering advances that have been made over the years. After engineering and medicine became and a multifaceted discipline and the human body became more fully recognized, it became ideal for many

engineers to venture into the health industry. Today, engineers have continued to make artificial organs, diagnostic tools and replacement joints that have promised quality and better life of patients. The impact of the engineering front in the medical field is incalculable and even as the advancement continue to skyrocket.

Other than seeing the human body, the imaging and electron microscopes have been today used to explore oil and gas deep within the earth crust, mapping ocean floors, tracking weather patterns, radar sensors and studying the atmospheric space. These are fruits of engineering innovations carried out over the decades in a broad range of technical fields. The advancements are coupled with the computing field making it easy not only to acquire the images but also to effectively and quickly analyze large amounts of data for use, diagnosis and prediction. Human body treatment has been eased. Earth and ground mapping have also been greatly improved with data analysis made simple to verify.

The invention of *nuclear technologies* is also on the list of the great milestones that engineers have enabled the world to achieve. In the last century, around 1940, the harnessing of the atom offered a new source electricity generation, changed the medical diagnostic techniques and changed the nature of war as it improved the composition of military arsenals across the world. According to Pioro and Duffey (2015), nuclear energy will in the near future be used in the manufacturing industry and would be a critical element in defining the independence of a nation. In the electrical front alone, inventions of nuclear technologies have provided annual electric needs of more than a billion people across the globe.

Engineers have also advanced the nuclear prowess on medical applications especially of the creation of radioisotopes used for internal imaging of patients. It is worth noting that the use of nuclear technologies has over the past decades continued to elicit different emotions amongst different communities, but the engineering achievements cannot be wished away.

Conclusively, it is true to argue that engineers have constructed everything in their numerous innovations and technological advancements. They have touched every segment of the human life layer by layer through a network of breathtaking complexities. From the medical front to the communication, water, transport, housing, electricity and electronics fronts, engineers remain to be celebrated for the great works they have managed to achieve over the past centuries.

Works Cited

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