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# The Fourth Industrial Revolution (4IR) In The United States Of America

The Fourth Industrial Revolution (4IR), also famed as the Industrial Internet of Things in the United States of America, is the fourth principal industrial era since the primary Industrial Revolution in the 18th century, established by various companies, including Siemens, in Hannover trade fair, Germany in 2011 (Srivastava, 2015; Rojko, 2017), for Germany has one of the most competitive manufacturing industries in the entire world (Rojko, 2017). Initially defined as the automation and computerization of the production environment (Srivastava, 2015), is now apprehended as the construction of cyber-physical systems, cloud technology, internet of things, and internet services, and its incorporation with human reaction to maximize output (Hwang, 2016), or in simplistic terms, it is a significant alteration of the industrial manufacturing by combining digital and internet technologies to typical industries (ST?NCIOIU, 2017). Prominent roles being played by Industrial engineers in the Fourth Industrial revolution, consequently Industrial Engineering has been acknowledged as the Industry Expansion Engineering (Rao, 2018).

The Fourth Industrial Revolution has nine technologies that are transforming it. These technologies are namely Big data and analytics, Autonomous robots, Simulation, Horizontal and vertical system integration, The Industrial Internet of Things, Cybersecurity, The cloud, Additive manufacturing, and Augmented reality (Rüßmann, et al., 2015).

Big Data and Analytics use big data sets and thus optimizes production quality, saves energy, and improves equipment service. Autonomous Robots are integrated robots than those robots that were used in manufacturing industries before, these robots are flexible and cooperative, and they will interact with one another and work with humans. Simulation allows virtual testing of products before they physically change, consequently optimizing machine settings and increase quality. In the Industrial Internet of Things, electronic devices at times including unfinished products will have embedded computing which will be connected using standard technologies. Cybersecurity is mainly there to protect critical systems from dramatically increasing cybersecurity threats thus forming sophisticated, secure, and reliable identities. The Cloud is a system where machine data and operationality will be deployed to enable data-driven services for production systems. Additive Manufacturing, such as 3-D printing is used by many companies to prototype and production components. Companies in different industries opt for additive manufacturing for it cuts costs. Augmented Reality may use devices such as augmented-reality glasses to display the actual parts that may need to be repaired thus improving decision making and work procedures. (Rüßmann, et al., 2015).

The Fourth Industrial Revolution has a broad and disruptive impact on our everyday lives. It has utterly altered the way we live and interact with one another even in the workplace (MIn, et al., 2018). After the financial crisis, both the United Kingdom and the United States of America have experienced the domination of self-employment, part-time employment, short-term contracts, and seasonal work. The digitalization and automation of work processes in industries will disrupt the jobs of thousands of people, things like tax revenues and labour income tax in the long run,, will be reduced, employment benefits like pension funds and medical aids will be affected. Ultimately this will cause a decrease in GDP. The loss of jobs may result in an increase in the

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crime rate, because people will look for alternative ways of providing for their families (PRISECARU, 2016).

In addition to the disruptiveness of the Fourth Industrial Revolution, it is rather people who come up with these ideas and innovations who will benefit the most. Consequently talent, more than capital will be the critical factor. Such innovators will be scarce. Some of the challenges will be cyberattacks which will require high-risk assessments (MIn, et al., 2018)

As much as the Fourth Industrial Revolution has its drawbacks, it also has many benefits that come with it in different industries out there. It provides improvements in the overall performance of production and strengthens a company's goodwill, and therefore a company may experience a rapid turnaround into being one of the biggest companies worldwide. Most companies have implemented Industry 4.0 to cut costs, improve operational efficiency and improve product quality. They are several benefits of Industry 4.0, even at schools, the manner in which children learn these days is totally different from that of the past. Even the way we communicate with our loved ones is way easy be it they are abroad. Car manufacturers are all producing electric cars or hybrids, though there are still gasoline cars future predictions show that we'll move to green power. (Nikolic, et al., 2017).

The fundamental role that industrial engineers play in the fourth industrial revolution is to increase productivity in all sorts of industries and companies that have implemented industry 4.0. Germany is the leading country in the evolution of industrial engineering (Rao, 2018).

One can best conclude that the Fourth Industrial Engineering has improved our lives for the better. It is in all kinds of industries, in the medical profession, in production companies, in the education sector, in the construction sector where they use 3D printing to build houses in a short period of time. Things like virtual reality are really helpful, where one visualises what must be done to either repair or improve a system before the actual doing.

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