A Study on The Industry 4.O

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Abstract- *Digitization and intelligence of the production process are the needs of today's industry. Manufacturing industries are currently moving from mass production to personalized production. Rapid advances in manufacturing technologies and applications in industries help increase productivity. The term Industry 4.0 represents the fourth industrial revolution defined as a new level of organization and control over the entire value chain of the product life cycle; is oriented towards the needs of increasingly individualized customers. Industry 4.0 is still visionary, but it is a realistic concept that includes the Internet of Things, the industrial Internet, Smart Manufacturing and Cloud-Based Manufacturing. Industry 4.0 refers to the close integration of human beings in the production process to continuously improve and focus on value-added activities and avoid waste. The objective of this document is to provide an overview of Industry 4.0 and an understanding of the nine pillars of Industry 4.0 with its applications and to identify the challenges and problems that arise with the implementation of Industry 4.0 and to study new trends and flows related to industry 4.0.*

I. INTRODUCTION

Industry 4.0 is the subset of the fourth industrial revolution affecting industry. The fourth industrial revolution covers all areas that are not normally classified as an industry, such as smart cities

The terms "industry 4.0" and "fourth industrial revolution" are often used interchangeably, "industry 4.0" refers to the concept of factories where machines are enhanced with wireless connectivity and sensors, connected to a system capable of displaying all the production line and make decisions on your own.

In essence, Industry 4.0 describes the trend towards automation and data sharing in production technologies and processes, including Cyber-Physical Systems (CPS), Internet of Things (IoT), Industrial Internet of Things (IIOT), cloud computing, cognitive computing and artificial intelligence.

II. CONCEPT OF INDUSTRY 4.0:

Intelligent production, intelligent factory and lights out (production) also known as dark factories.

The industrial Internet of things is also called the manufacturing Internet of things.

Industry 4.0 promotes what has been called an "intelligent factory". Within modular structured intelligent factories, cyber-physical systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions

Through the Internet of Things, cyber-physical systems communicate and cooperate with each other and with humans in real time, both internally and through the organizational services offered and used by participants in the value chain.

III. INDUSTRY 1.0:

Prior to Industry 4.0, Industry 1.0 refers to the first industrial revolution. It is characterized by a transition from manual production methods to machines that use steam and energy from water. The implementation of new technologies took a long time, so the period to which it refers is between 1760 and 1820, or 1840 in Europe and the United States. Its effects had consequences in textile production, which was the first to adopt such changes, as well as in the steel industry, agriculture and mines, although it also had social effects with an increasingly strong middle class. It also had an effect on British industry at the time.

IV. INDUSTRY 2.0:

The second industrial revolution or better known as the technological revolution is the period between 1870 and 1914. It was made possible by extensive railway networks and by the telegraph which allowed a faster transfer of people and ideas. It is also characterized by an increasingly present electricity which has allowed the electrification of the factory and of the modern production line. It is also a period of great economic growth, with greater productivity. However, it caused an increase in unemployment as many workers were replaced by machines in the factories.

V. INDUSTRY 3.0:

The third industrial revolution or industry 3.0 occurred at the end of the twentieth century, after the end of

the two great wars, following a slowdown in industrialization and technological advancement compared to previous periods. Also called digital revolution.

The world crisis of 1929 was one of the negative economic developments that appeared in many industrialized countries after the first two revolutions. The production of z1 (mechanical calculator with electric motor) was the beginning of digital developments

This continued with subsequent significant progress in the development of communication technologies with the supercomputer.

In this process, where there was a widespread use of information and communication technologies in the production process. Machines began to repeal the need for human power in life.

VI. COMPONENTS OF INDUSTRY 4.0:

"Industry 4.0" is an abstract and complex term made up of numerous components when analyzing our society and current digital trends closely. To understand the scope of these components, here are some digital technologies that contribute as examples:

EXAMPLES OF COMPONENTS OF INDUSTRY 4.0:

- mobile devices
- Internet of Things (IoT) platforms
- Location detection technologies
- Advanced human-machine interfaces
- 3D printing authentication and fraud detection
- Smart sensors
- Interaction with multilevel clients and client profiles
- Reality Augmented / wearable reality Big data analysis and advanced algorithms
- Fog, edge and cloud computing
- Display and training of activated data "in real time"

Mainly, these technologies can be summarized in four main components, defining the term "Industry 4.0" or "intelligent factory".

AGENDA

- industrial evolution
- 4th industrial revolution
- Building blocks of the 4th sector
- Potential involvement of industrial products.
- Potential involvement of consumer products.
- Industry impact 4th

ADVANTAGES

- Back-end integration with ERP / MES, etc. is easy.
- Micro services can be hosted.
- Allows for real-time transactions to run smoothly.
- Allows for simple distribution of functionality across multiple nodes.
- It is easy to install, active and changes in the fourth industry architecture.
- Clear and monitored communication paths in industry 4. simplify resource management.
- It is easy to add new protocols and processes.
- It is possible to communicate between the components in the workshop.

DISADVANTAGES

- IOT security is a major concern. Companies are working to fix circuit security holes.
- The skills and education of workers working in industry 4.0-based processes need to be improved.
- Any IT inconvenience must be eliminated, as this will cause costly production stoppages.
- Reliability and stability are necessary for M2M (machine-to-machine) communication.

VII. CONCLUSION

Industry 4.0 is the result of an obstacle in technological innovation. IOT, the cloud, big data and much more are moving sector 4.0 forward. This sector promises to change the way we do business.