

Industry 4.0: Some Facts & Figures

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Article History

Paper Nomenclature: View Point (VP)
Paper Code: CYBNMV1N7DEC2019VP1
Submission Online: 11-Dec-2019
Manuscript Acknowledged: 12-Dec-2019
Originality Check: 15-Dec-2019
Originality Test Ratio: 20%
Peer Reviewers Comment: 17-Dec-2019
Blind Reviewers Remarks: 18-Dec-2019
Author Revert: 20-Dec-2019
Camera-Ready-Copy: 22-Dec-2019
Editorial Board Citation: 23-Dec-2019
Published Online First: 11-Feb-2020

The Industry 4.0 is a thoughtful in genuity newly familiar by the German govt. The part of the inspiration is conversion of industrial manufacturing (Production), business through digitalization and mistreatment of potentials of new technologies. An Industry 4.0 production system is thus elastic and enables individualized and customized products. The aim of this paper is to present and facilitate an understanding of Industry 4.0 concepts, and we will discuss on its other symptoms like its drivers, enablers, goals, facts & figure and limitations. Building blocks in forthcoming issue. The idea of Industry 4.0 is a new reality of the contemporary economy, asrevolution, innovation and technological development play an important role in each organization. Industry 4.0 significantly changes goods and production systems about the design, procedures, operations and services. Certainly, the application of this idea has further consequences for management and future jobs through creating new business models. The objective of the present paper is to present the attitude of businesspersons to Industry 4.0.

Keywords : Industry 4.0 | Manufacturing Execution System | Evolution Era | Facts-Figure

Introduction

The term of Industry 4.0 (German Industry 4.0), universally recognized nowadays, occurred in the public domain in 2011 at the Hanover Trade Fair as the name for the mutual initiative of the representatives of business, policy and science promoting the idea of strengthening the competitiveness of the German industry (Müller et al., 2018; Rao and Prasad, 2018). The German Federal Government liked the idea so much that they decided to make Industrie 4.0 an integral part of the government initiative “High-Tech Strategy 2020 for Germany”, whose objective is to promote Germany as a global leader of technological innovation (Pereira and Romero, 2017; Zhou et al., 2015; Jabber et al., 2018; Androniceanu, 2017a). A new idea, being in the central position of the government strategy for the development of the German economy, began to live its own life and only then it gained a large number of publications defining what Industry 4.0 is to be. Industry 4.0 has also become a very popular slogan lately,



Before Industry 4.0, there were three prior industrial revolutions that have led to changes of paradigm in the domain of manufacturing: mechanization through water and steam power, mass production in assembly lines and automation using information technology. Industry 1.0 began around the 1780s with the introduction of water and condensation power which helped in mechanical production and improved the agriculture sector importantly. Following, Industry 2.0 is defined as the retro when mass production was introduced as the primary means to production, in general. The mass production of steel eased introduces

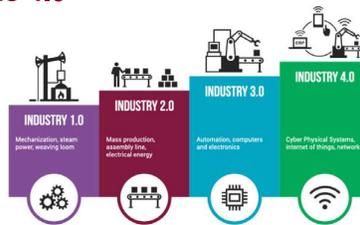
railways into the industrial system which consequently donated to mass production at large. During the 20th century, Industry 3.0 ascended with the arrival of the Digital Revolution which is more familiar compared to Industry 1.0 and 2.0 as most people living today are acquainted with industries leaning on digital technologies in production. Maybe Industry 3.0 was and still is a direct result of the huge development in computers and material and communication technology industries for many countries. Industry 4.0 has brought change to many professions.



Definition of Industry 4.0

The Manufacturing Revolution Industry 4.0 enables the industrial sector to develop digitalized with built-in sensing plans almost in all manufacturing components, products and equipment. The examining of related data within an omnipresent system with the fusion of digital data and bodily objects has the ability to transform every industrial sector in the world to evolve much faster and with greater impact than any of the three previous industrial rebellions i.e. Industry 1.0, 2.0 and 3.0 (Mrugalka & Wyrwicka, 2017). Hence, Industry 4.0 is a contemporary issue that concerns today's industrial production as a whole and is meant to revolutionize it. In 2011, Germany introduced Industry 4.0 at the Hannover Fair event, symbolizing the advent of a brand new era of industrial revolution. When the idea was first mooted, extensive efforts were undertaken by the European manufacturing researchers and companies to embrace it. Their interest in this project or concept is due to the fact that under Industry 4.0, manufacture will become more efficient and less costly. This is attained by easy exchange of information and the integrated control of manufacturing products and machines acting concurrently and smartly in interoperability (Qin, Liu & Grosvenor, 2016). However, different researchers have different perceptions on the true meaning of Industry 4.0.

Advancement of Industry 1.0 to 4.0



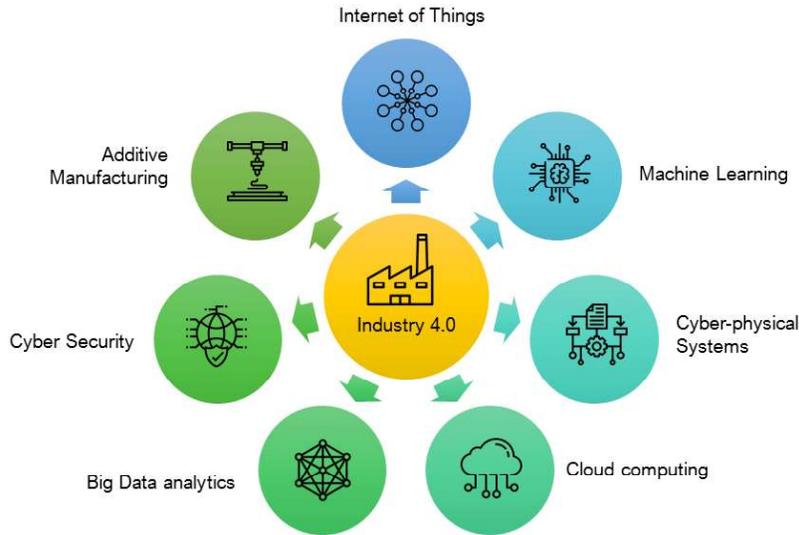
Source - <https://www.aberdeen.com/opspro-essentials/industry-4-0-industrial-iiot-manufacturing-sneak-peek>

Before digging too much deeper into the what, why, and how of Industry 4.0, it's beneficial to first understand how exactly industrial has evolved since the 1800s. There are four separate industrial revolutions that the world either has experienced or continues to experience today.



Facts

- Industry 4.0 is characterized by a rapid fusion of technologies that is consecutively dissolving the dividing line between the physical and virtual worlds.
- Industry 4.0 therefore means the fusion of digitalization with traditional industrial processes.
- Autonomous motor vehicles (not only cars, but also trucks, drones, aircraft or ships)
- 3D printing (suitable for medical implants and even wind turbines)
- Advanced robotics (widely used from agriculture to healthcare)
- It will lead to greater efficiencies and change traditional production relationships among suppliers, producers, and customers—as well as between human and machine.
- Data accessibility and connectivity have created an Industrial Internet of Things (IIoT) – one of the key building blocks of Industry 4.0



- All devices are becoming intelligent and autonomous. In this shift, we need to inherit emerging technologies, insert them into products and differentiate the offerings.
- Another important real-world application is safety devices, which are now being equipped with sensors able to monitor virtually everything – from a worker’s environment right through to vital signs such as pulse rate.
- A cloud software platform is key in shifting connected products into the future. The platform is going to be a critical foundation to enable new capabilities.
- Real-time data, combined with predictive analytics, is helping industrials identify warning signs before they become failures. It’s turning workers into experts,
- With connectivity now becoming more accessible and affordable, the connected infrastructure is becoming part of the smart factory/ DC ecosystem. Smartphones and ruggedized devices have become versatile personal data-gathering and transmitting hubs which are opening unprecedented opportunities in multiple industries.

- 95% of breached records came from only three industries in 2016.
- 43% of cyber-attacks target small business. ...
- Big data analytics and advanced algorithms
- Big data analytics consists of 6Cs in the integrated Industry 4.0 and cyber physical systems environment. The 6C system comprises:
 - It is used to establish Connection (sensor and networks) and assemble Cloud (computing and data on demand)
 - It seems a safe bet to say, then, that our current political, business and social structures may not be ready or capable of absorbing all the changes a fourth industrial revolution would bring,

Figure

- They were able to increase their yield by 3.7%, which saved them \$20 million annually.
- Industry 4.0 is here, and Industry 5.0 is right around the corner. With products becoming more connected, safety solutions and industrial sector efficiencies
- Beginning of the 19th century originally led to a huge polarization of wealth and power, before being

followed by nearly 100 years of change including the spread of democracy

- We have seen substantial growth in UK supply chain industries especially in areas such as composite materials, low carbon technologies, digital process engineering, additive manufacturing, and robotics and autonomous systems - all of which offer high growth opportunities.
- The UK invests heavily in R&D initiatives, encouraging innovation in key Industrial areas such as sustainable manufacturing, clean energy, efficient and integrated transport, health and wellbeing, materials and resource efficiency and food security.

Terminology used in industry 4.0

- Smart: The term “smart” refers to a combination of equally tangible or intangible goods with digital systems. These in turn are networked and able to communicate intelligently with each other, which ultimately results in added value for the user
- Digitization and integration of vertical and horizontal value chains Vertically, Industry 4.0 integrates processes across the entire group for example processes in product development, manufacturing, logistics and service whereas horizontally, Industry 4.0 includes internal operations from suppliers to customers plus all key value chain partners.
- Reaching customer satisfaction is a multi-stage, never-ending process that needs to be modified currently as customers’ needs change all the time. Therefore, companies expand their offerings by establishing disruptive digital business models to provide their customers digital solutions that meet their needs best

Conclusion

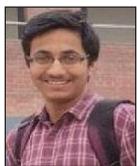
At present, the enormous normal of trades, counting logistics corporations, is strong-minded to implement product, technical, technological and organizational innovation. Enterprises are focused on creating value for the customer, who is attractive, more aware and tough in terms of increased customer requirements relating to lead time delivery services, product obtainability and reliability. The newest solutions such as Internet of Things, Big Data and Industry 4.0 create chances to meet the needs of customers and also underwrite to the development of logistics and supply chains group.

Points to discussed on forthcoming issue

- Application & characteristics of industry 4.0
- Impact for Business and Information Systems Engineering and Exemplary Fields of Application
- Advantages & Disadvantage of Industry 4.0
- IoT
- IoS
- Future of industry 4.0

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Sachin Kumar is a Research Executive in Scholastic Seed Inc, He did his B.COM, M.COM* (University Of Delhi) BPP, ADCA-IT(MeitY). He have aggregate 2 year Experience in Cyber Research Field. He is owe allegiance in the area of Cyber-World i.e Emerging Data Threats, Virtual Dispersive Networking (VDN), Smart Grid Technologies, IoT (Internet of things), Cloud Sytem, also he had study on world's famous Cyber Hacker "Kevin Mitnick". He is always saying That Everything is possible in this current senerio because we're at the verge of changing the world by means of technology that can transform You & well as well as your mind, according to his Twitter {@Shachindra26} he is substantially exploring National and international concerns. He Believes or take one's place with innovated idea's through industrious as a result of our world is Dynamic & we have work endeavour on that. He has been part of various Cyber conference & seminars.

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Annexure I

Submission Date	Submission Id	Word Count	Character Count
15-Dec-2019	D63627725 (urkund)	1093	7894



Urkund Analysis Result

Analysed Document: 2.3 ABC-3 An introductory of Industry 4.0 Sachin.docx (D63627725)
Submitted: 5/12/2019 3:16:00 PM
Submitted By: editorial.scholastic.seed@gmail.com
Significance: 20 %

Sources included in the report:

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Instances where selected sources appear: 5

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Reviewers Comment

Reviewer Comment 1: There's no query that technology is playing a enormous part in our ordinary lives today, but the progressively linked culture we live in is too having an influence on the world of industry.

Reviewer Comment 2: In my opinion: Industry 4.0 is already sighted workshops become progressively automated and self-checking as the machines within are given the facility to analyse and interconnect with all other.

Reviewer Comment 3: The Industry 4.0 is already seeing factories develop increasingly automatic and self-monitoring as the machines within are given the ability to analyse and communicate with each other.

Editorial Excerpt

This article has 20% plagiarism which is within the acceptable limits. The finding related to "Industry 4.0: Some Facts & Figures" are interesting and noteworthy. The author wants to focus on the advancement of industry 4.0 in this era...The rapid advancements in manufacturing technologies and applications in the industries help in increasing productivity. The term Industry 4.0 stands for the fourth industrial revolution which is defined as a new level of organization and control over the entire value chain of the life cycle of products; it is geared towards increasingly individualized customer necessities. Hence it is decided to take this article under "View Point (VP)" Category.

Acknowledgement

Author is highly indebted to Scholastic Seed Inc& editorial team of Cybernomics, For making the write-up in the shape of an article.

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The article published in a magazine cybernomics is an excerpt of my past published research previous published blogs and are necessary to quote as and when required.

Citation

Sachin kumar
 "Industry 4.0: Some Facts & Figures"
 Volume-1, Issue-7, Dec 2019. (www.cybernomics.in)

Frequency: Monthly, Published: 2019
 Conflict of Interest: Author of a Paper had no conflict neither financially nor academically.



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