INDUSTRY 4.0 e-NEWSLETTER

December 2019

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Foreword

सत्यमेव जयते

सुमिता डावरा, भा.प्र.से.
संयुक्त सचिव
SUMITA DAWRA, IAS
Joint Secretary

The fourth industrial revolution, Industry 4.0 is changing the global landscape of manufacturing, taking the automation and digitization of manufacturing processes to a new level by linking the cyber & physical systems. Artificial Intelligence (AI) is and will fundamentally impact the way the world lives and works in the coming years and we need to have national level strategy to foster, encourage and leverage these technologies for our industry and society too.

Government's Make in India initiative aims to facilitate investment, foster innovation, enhance skill development, protect intellectual property & build best in class manufacturing infrastructure. Industry 4.0 can be a great enabler for Make in India. The government is planning to announce a new industrial policy with a long-term vision and with an aim to provide a technological edge to Indian industry. AI and Industry 4.0 technologies that enable customized and flexible mass production, can be a platform for gaining technological edge for our own needs.

As mentioned above, these technologies have wide applications not just in manufacturing but for the society at large too. Transformations in urbanization is going to be the future, presenting significant opportunities for domestic and international investments. According to one study, around 600 million people will live in urban cities in India by 2030, nearly twice the population of USA. Little is known, how Industry 4.0 technologies can be a tool for building sustainable cities of our future. Application of Industry 4.0 principles in building automation systems can enable reduction in energy consumption significantly.

As is the case in any technological revolution, it brings its own sets of challenges. For a country like India with large pool of labour force and MSME units constituting more than 90% of factories, adoption of these technologies will have to be supported and calibrated too in certain cases. India has lot to gain from this transformation and need to leverage it in its best interest.

I am happy that FICCI has taken a lead for informed discussions and sharing of knowledge in Industry 4.0 through this Newsletter. I wish them a great future ahead.

Sumita Dawra 20/12/19

(Sumita Dawra)
Joint Secretary
Department for Promotion of Industry and Internal Trade
Government of India

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Mr. Ashish Bhat
Chairman
FICCI Industry 4.0 Committee and Executive Vice President - Siemens Ltd.

The FICCI 4.0 initiative, initiated in March'19 is a great step forward for enhancing collaboration and technology centricity, and will ultimately advance the voice of industry in India. The 4 key aspects: digital mindset, vertical focus, manufacturing policy and knowledge transfer platform have helped all the members to identify & develop focus markets/initiatives, establish a feedback loop for policies and sharing best practices across industries. We need to further strengthen the industry4.0 drive through cross pollination and implementation of new ideas and initiatives.

Today, digital transformation is on top of the agenda at many boardrooms, its gaining momentum in India, and more companies are now preparing digital roadmaps. A digital roadmap is much more meaningful when there is a purpose behind the transformation, linked to specific outcomes such as improvements in productivity, quality or efficiency. FICCI has successfully assisted with self-assessment of Digital Maturity for 3 companies to establish where they stand in their journey of digitalization. We will be further rolling out the assessment as a service to the manufacturing industry to help them kick start their digitalization journey

The Quarterly newsletter on Industry 4.0 by FICCI is an endeavour for all players in the ecosystem to stay connected, explore new business ideas and the trends that are changing the manufacturing landscape in India. Look forward to your contribution and collaboration!

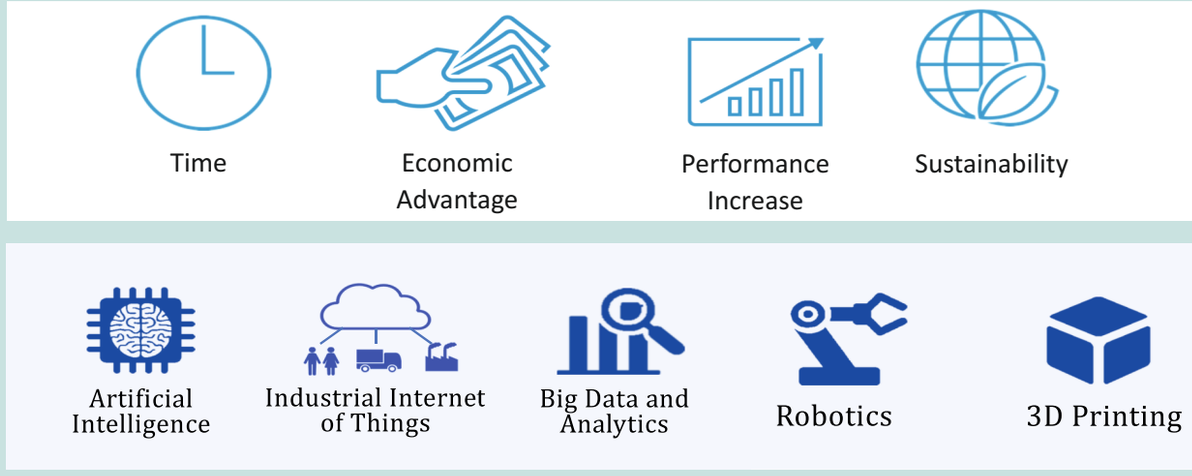
Mr. Rajat Mehta
Co-chairman
FICCI Industry 4.0 Committee and 3D Printing & Digital Manufacturing Country Manager, HP India Sales Pvt. Limited

We wish each one of you a very Happy New Year 2020. The New Year 2020 brings lot of hope for every citizen. It is critical as we step into a fresh year, we look back at challenges being faced by us as individual and country to plan the growth and prosperity in New Year.

The Indian economy grew at 4.5 percent in the second quarter of the current fiscal year 2019 as compared to the same quarter of the previous year. This makes it the sixth successive quarter when the country's gross domestic product (GDP) has shrunk. There can be two responses to such sentiment, the negative being a sense of helplessness that nothing can be done, or nothing is being done. This response seldom yields any antidote for the situation as it at best maintains a Status Quo. The positive response is to bring about disruption and stimulus to reverse the negative phenomena.

If GDP negative trend must be reversed there are three fundamental steps and they are a.) Increase Market Demand b.) Bring down the cost of product and services and c) Create Employment. For manufacturing sector adoption of Industry 4. 0 is one such enabler which will impact all the thee areas.

The impact Industry 4.0 potentially have on Manufacturing Sector is represented well in below block diagram. (fig (1))



Combination of the 5 key pillars of Industry 4.0 can bring about major disruption substantially reducing cost, enhancing productivity and promoting sustainability. There is multiple example where these technologies have resulted in major disruption and resulted in consumer delight.

SmileDirect: Disrupting the 120-Year-Old Orthodontics Industry

SmileDirectClub co-founders Alex Fenkell and Jordan Katzman first met as teens with metal braces at summer camp, later deciding that innovations in technology and telehealth could democratize access to safe, affordable, and convenient orthodontic care. Founded in 2014, SmileDirectClub is the market leader of the doctor-directed clear aligner industry, utilizing its digital network of state licensed dentists and orthodontists who prescribe teeth straightening treatment plans and manage all aspects of clinical care from diagnosis through the completion of treatment using its proprietary teledentistry platform. SmileDirectClub is growing rapidly, having already served more than half a million customers in the U.S., Canada and Puerto Rico, with plans to expand to Australia and the UK in 2019.

An estimated 80% of Americans could benefit from orthodontic care, yet only 1% receive it each year, with cost being the biggest prohibitive issue. In the U.S., 60% of counties do not have access to an orthodontist. By leveraging the benefits of teledentistry coupled with HP's 3D printing technology, SmileDirectClub is bridging these gaps, offering people a chance to build confidence through a straighter, brighter smile at a cost that is up to 60% less than traditional options.

Volkswagen: ID.3 electric vehicle

The production models of the ID.3—the first fully electric production car with a CO2-neutral footprint—are the first step in the road map, beginning with mass customization and cosmetic parts. In subsequent phases the carmaker intends to integrate 3D-printed metal structural parts into the next generation of vehicles as quickly as possible, targeting a continuous increase in part size and technical requirements, with a future goal of producing 50,000 to 100,000 soccer ball-size parts annually.

As new platforms such as electric vehicles enter mass production, the company expects to use the 3D printing technology for additional applications, such as the light weighting of fully safety-certified metal parts

We at FICCI believe that time is right and appropriate for Government of India to make key policy for adoption of Industry 4.0 and key technology Vendors like Siemens, ABB, Nokia, HP, Vodafone and many others to partner with Indian Industry including MSME sector to bring about Industry adoption for Industry 4.0.

FICCI Committee for Industry 4.0 has made a significant progress and has conducted multiple program to Educate the Industry and bring the Ecosystem together in 2019 and we are committed to work together with Government and Ecosystem to bring about acceleration in adoption of the key Industry 4.0 Pillars.

Articles on Industry 4.0

Industry 4.0 - Role of Standards

By Dr R K Bajaj, DDG (Standardization), Bureau of Indian Standards and
Mr. Manikandan K, Scientist-C, Electronics and IT Dept., Bureau of Indian Standards

Dr. R K Bajaj, DDG (Standardization)

Mr. Manikandan K, Scientist-C

Standards are the basic building blocks that facilitate trade and enable the nations to compete and expand their economies in the global market. Standards formulation started with the obvious things like weights and measures, and now its need has been realized in almost all the spheres of life. Now we have standards for everything, be it the shoes we stand in or the Wi-Fi networks that connect us invisibly to each other. Standards ensure the consumers about the safety, reliability and quality of the products they use. With the advancement in technologies and global industrialization, the need to have unified and harmonized standards in order to leverage the power of ICT technology, is realized worldwide.

The Fourth Industrial Revolution or Industry 4.0 refers to the emerging technologies, which are blurring the traditional boundaries between the physical, digital and biological spheres. The increased connectivity, explosion of data and ever-increasing computing power combined with emerging digital technologies is impacting every aspects of our lives, the way we think, the way we live and the way we interact with our surroundings.

The 4th industrial revolution (Industry 4.0) is enabled by a networked and data driven economy and powered by smart devices, technologies and processes that are seamlessly interconnected. The vision for the 4th industrial revolution is for cyber-physical systems which provide digital representation, intelligent services and interoperable interfaces in order to support flexible and networked production environments. Smart embedded devices will begin to work together seamlessly, for example via the IoT, and centralized factory control systems will give way to decentralized intelligence, as machine-to-machine communication hits the shop floor.

The Industry 4.0 is not simply the automation of a single production facility. Industry 4.0 or Smart manufacturing integrates across core functions and domains, from production, material sourcing, supply chain and warehousing all the way to sale of the final product and post delivery services. This high level of integration and visibility across business processes, connected with new technologies will enable greater operational efficiency, responsive and agile manufacturing, and increased customer satisfaction.

While smart devices can in many ways optimize manufacturing, they conversely make manufacturing far more complex. The level of complexity this creates is immense, because it not only concerns isolated smart devices, but involves the whole manufacturing environment, including various other smart devices, machines and IT systems, which are interacting across organizational boundaries.

There are many enabling technologies like Artificial Intelligence (AI), Big Data, Cloud Computing, RFID, Internet of Things (IoT), 3-D Printing etc. for moving forward on the path of 4th industrial revolution. These underlying technologies will not only automate and optimize the existing business processes of companies; it will also open new opportunities and transform the way companies interact with customers, suppliers, employees and governments.

On global front, many of the developed and developing nations have taken initiatives to move ahead of this industrial revolution. Some of the major initiatives taken in this direction are

Advanced manufacturing (US): Manufacturing Leadership Coalition (SMLC) or the Industrial Internet Consortium (IIC) are promoting the concept of advanced manufacturing, which is based on the integration of advanced new technologies to create fully integrated, knowledge-enabled, and model rich enterprises.

e-Factory (Japan): The e-Factory concept from Japan is achieving an advanced use of the industrial internet with regard to both manufacturing control and data analytics, with the aim of effecting an optimization of productivity and energy conservation. The e-Factory approach helps to make the factory truly visible, measurable and manageable with the help of emerging technologies.

Moving from current implementation to future creations, the next generation e-Factory is targeting the entire networked manufacturing supply chain, its operational efficiency and its innovation, by considering and integrating information technologies as well as enabling a continuous improvement of physical systems and pushing forward collaboration between humans.

Intelligent Manufacturing (China): The Intelligent Manufacturing initiative in China is driving the manufacturing business execution by merging ICT, automation technology and manufacturing technology. The core of the idea behind Intelligent Manufacturing is to gain information from a ubiquitous measurement of sensor data in order to achieve automatic real-time processing as well as intelligent optimization decision-making using AI and BIgdata. Intelligent Manufacturing realizes horizontal integration across an enterprise's production network, vertical integration through the enterprise's device, control and management layers, and all product lifecycle integration, from product design through production to sale.

The goal is supported by the Made in China 2025 initiative, which aims at innovation, quality and efficiency in the manufacturing domain.

Industrie 4.0 (Germany): "Industrie 4.0" is a national strategic initiative from the German government to drive digital manufacturing forward by increasing digitization and the interconnection of products, value chains and business models. It also aims to support research, the networking of industry partners and standardisation. Industrie 4.0 is enabled by a networked economy and powered by smart devices, technologies and processes that are seamlessly connected. Industry 4.0 offers cyber-physical production systems which provide digital representation, intelligent services and interoperable interfaces in order to support flexible and networked production environments.

India: On the national front, Government of India (Department of Heavy Industry (DHI)) has taken an initiative named Samarth Udyog - Bharat 4.0 (Smart Advanced Manufacturing and Rapid Transformation Hub) with the vision to facilitate and create eco system for propagation of Industry 4.0 set of technologies in every Indian manufacturing by 2025, be it MNC, large, medium or small scale Indian company.

The following Four CEFC (Common Engineering Facility Center) of I4.0 having a unique identity for spreading awareness and branding are functioning under SAMARTH Udyog:

a. Center for Industry 4.0 (C4i4) Lab Pune

b. IITD-AIA Foundation for Smart Manufacturing

c. I4.0 India at IISc Factory R & D Platform

d. Smart Manufacturing Demo & Development Cell at CMTI

Smart Manufacturig – Capabilities, Technologies, and challenges

Irrespective of the initiatives and geographical regions, the transformation to Smart Manufacturing or Advanced manufacturing is enabled by a number of technologies for seamless integration of manufacturing systems, optimization of various business processes, and adding intelligence to the machines and systems.

The technologies in the forefrot are Internet of Things (IoT), Big data, Artificiall Intelliegnce (AI), Digital Twin, Cloud Computing, AR/VR, 3D Printing. These technologies enable key capabilities of industry 4.0 such as quality, Mass customization, agility, productivity, sustainability.

Implementation of these technologies comes with numerous challenges like ensuring interoperability among various systems and components, integrating various systems (vertical integration along the automation pyramid, horizontal integration along the value chain and production networks, etc.)

Standards:

Standards are fundamental tools that enables adoption of technologies and innovations. Manufacturing domain is no exception, Standards prescribes data definitions, interface protocols; Standards also support product designs and production system designs etc.

Many Standard developing organizations has published large number of Standards for the industrial automation (system integration, product data representation, enterprise reference architectures etc.) in the past. For Ex:

a. ISO 10303 Industrial automation systems and integration — Product data representation and exchange (large series, around 700 standards in the series)

b. ISO 8000 series on Industrial data - Data Quality

c. ISO 16792:2015 Technical product documentation — Digital product definition data practices

d. ISO/ASTM 52915 Specification for additive manufacturing file format (AMF)

e. ISO 15704 Industrial automation systems — Requirements for enterprise-reference architectures and methodologies

f. ISO 20140 Automation systems and integration — Evaluating energy efficiency and other factors of manufacturing systems that influence the environment

g. IEC 62264 Enterprise-control system integration

h. IEC TR 62541 OPC Unified Architecture (OPC-UA)

However, in the context of Smart Manufacturing or Industry 4.0, the technology and data driven paradigm, Standards must address new challenges like ensuring safety, cyber security, Interoperability, system integration etc.

The physical level interoperability is ensured by standardizing the designs and dimensions; network level interoperability is achieved by using standardized communication protocols; data/object model interoperability, semantic interoperability etc. are achieved through standardized data models and data semantics; standardized interfaces and semantic interoperability Standards allows integration of various business processes.

Moreover, System level reference Models and Reference architectures will be required to support implementation of complex systems.

Safety and Security:

As we move forward in the path of Industry 4.0, we are essentially enhancing the digital layer around the enterprise and as we increase the digital layer, we are increasing the scope for Cyber-attacks. So in addition to ensuring the physical security, there is added challenge of ensuring security and privacy in the cyberspace.

In addition to security, the safety of workers and equipment is also to be ensured when addressing accidental control system failures or intentional cyber-attacks. In an environment where

Standardization

There are number of Technical committees exists under ISO, IEC and other international and regional SDOs developing standards that will be conducive for the 4th Industrial Revolution.

ISO/TC184 automation systems and integration; IEC TC 65 Industrial-process measurement, control and automation. In Europe, the Standardization activities are mainly driven by CEN, CENELEC (Electrical Engineering) and ETSI (European Telecommunications Standards Institute). Some of the technical committees are 'CEN/TC 438 - Additive Manufacturing', CEN/TC 310 - Advanced automation technologies and their applications, CLC/TC 65X: Industrial-Process measurement, control and automation.

Apart from these committees existed in the past there are committees constituted recently for the Standardization of Industry 4.0 and related areas. For an instance, ISO's Smart Manufacturing Coordinating Committee (SMCC) to develop a strategy for coordination and dissemination of use cases within the smart manufacturing community. IEC Systems committee on Smart Manufacturing to provide coordination and advice in the domain of Smart Manufacturing to harmonize and advance Smart Manufacturing activities in the IEC, other SDOs and Consortia.

Many other notable efforts are being done by various SDOs for the widespread implementation of smart manufacturing.

In India, BIS has the following technical committees to develop Standards in the area of Industrial automation and Smart Manufacturing.

- PGD 18 on Industrial and Production Automation Systems And Robotics;
- ETD 18 on Industrial Process Measurement and Control
- LITD 28 Smart Manufacturing

The committee LITD 28 Smart Manufacturing has very recently been constituted by BIS for developing Standards in the domain of Smart Manufacturing.

The committees PGD 18 and ETD 18 has already published a large number of Standards (harmonized with ISO and IEC Standards) in the area of Industrial automation.

The list of Standards published by the above committees (PGD 18 and ETD 18 can be viewed by visiting the following link:

https://www.services.bis.gov.in:8071/php/BIS/PublishStandards/published

Why every manufacturer should look at 3D printing in 2019?

By Mr. Rob Mesaros, Vice President of 3D Printing & Digital Manufacturing, Asia-Pacific & Japan, HP Inc

I had written about the unparalleled potential of additive manufacturing to fundamentally transform, and future-proof, one of the oldest and largest industries in the world.[1] Additive manufacturing – harnessing 3D print technology for prototyping and full-scale production – is already taking manufacturers, both large and small, on new paths that would not have been thought possible just a few years ago. It's truly exciting to be at the coalface of this digital transformation, yet I'm conscious that we still have a way to go until additive manufacturing is mainstream.

Back in March, TechRepublic covered a Q1 2019 3D Printing Trends report, released by 3D Hubs, which found despite interest in 3D printing technology increasing across a variety of industries, this had not yet translated into mass adoption.[2] Other 3D printing market indicators are more positive[3] :

- SmarTech Publishing's 3D printing market outlook found the 3D printing industry grew 24% in 2018 for a total market of USD$9.3 billion.
- The Wohlers Report 2018, referenced by Forbes, found solid 21% growth as the additive manufacturing industry exceeds USD$7.3 billion.

I do agree with a point raised in the 3D Hubs report, however – that greater education of the possibilities that 3D printing offers, particularly of executives in large enterprises, is critical in supporting an essential shift from prototyping to full-scale production.[4] There is undoubtedly some hesitation in the industry around how the materials produced on a 3D printer stack up against those produced using tried and true traditional, analogue methods. PricewaterhouseCoopers (PwC) has noted that barriers to adoption of 3D printing included nervousness around quality, reliability and consistency.[5]

I've seen first-hand how incredible and game-changing this technology is, and the impact it has, but many may not have. Therefore, it's up to me and industry leaders like HP to bring manufacturers along with us on this discovery – that 3D printing is primed for mass production. This is a conversation that must start with the capabilities of 3D print technology, both now and into the future.

IndustryWeek, when assessing the state of 3D printing in 2019, said additive manufacturing has finally proven itself ready for high-volume work and "wholly indispensable" for the right applications. The most approachable application of 3D printing today is tooling, jigs and fixtures, as every manufacturer understands the need for them, and the ROI is "nearly as easy to comprehend".[6]

The automotive sector, having already embraced 3D print technology for prototyping, is leading the industry in the development of additive manufacturing towards full-scale production. In line with this, there has been an increased focus on developing production-grade materials for auto applications. Early this year, BMW reached its one-millionth 3D-printed part milestone, using HP Multi Jet Fusion technology to print a window guide rail for the new BMW i8 Roadster. Volkswagen also announced plans to adopt HP Metal Jet technology for functional production beginning this year.[7]

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[1] https://www.linkedin.com/pulse/truly-embracing-digital-manufacturing-require-change-robert-mesaros/
[2] https://www.techrepublic.com/article/despite-growth-3d-printing-represents-only-0-1-of-global-manufacturing/
[3] https://www.machinedesign.com/cad/3d-printing-trends-manufacturing-part-1
[4] https://www.3dhubs.com/blog/3d-printing-trends-q1-2019/
[5] https://usblogs.pwc.com/emerging-technology/5-ways-3d-printing-revolutionizes-manufacturing/
[6] https://www.industryweek.com/technology-and-iiot/state-3d-printing-2019-all-grown-ready-work
[7] https://press.ext.hp.com/us/en/press-releases/2018/hp-continues-accelerating-3d-printing-industry-to-mass-productio.html

Industrial manufacturing is ripe for this kind of transformation, although some are further along the additive manufacturing path than others. Fast Radius, a leading US provider of comprehensive additive manufacturing solutions, formed just off the UPS airstrip in Louisville in 2015, where "sample parts and prototypes would roll off the production line and almost directly onto on airplane for delivery."[8] The company houses the most advanced 3D printing technologies, including HP Multi Jet Fusion printers, and the company was recently named one of the 16 most innovative factories in the world by the World Economic Forum. The capabilities of the company's 3D print technology, combined with Fast Radius' cloud-based solution, has meant its facilities are a virtual warehouse for industrial manufacturers seeking leaner operations, including Husqvarna Group, Yanfeng Global Automotive Interiors and United States Marine Corp.[9]

As 3D print technology continues to evolve, resulting in improvements in capabilities, time-to-market and cost reduction, we are also seeing an increase in real-time supply chain traceability thanks to the integration of machine learning and 3D printing, according to HP's 3DP Chief Technologist Paul Benning.

Machine learning as it relates to 3D printers and control systems is an area worthy of attention, and we will see continued advancements in this space. In fact, machine learning is one of the critical research areas of the HP-NTU Digital Manufacturing Corporate Lab in Singapore.[10] As the technology evolves, machine learning will allow engineers and designers responsible for keeping a globally deployed fleet of printers running to send and receive a raft of critical data, from the temperature of the machine to the binding agents used to the final part geometries. This wealth of information will allow that team to monitor a finished 3D-printed part in the field to determine how it performs over its lifespan, and then improve the design considerations of these parts.

Materials will continue to be central. I have previously highlighted that the expansion of 3D print materials and applications from industry collaboration is one of the fundamental changes required to accelerate the shift to additive manufacturing. BASF, the largest chemical producer in the world, has designed a new certified thermoplastic polyurethane (TPU) specifically for HP's new industrial 3D printer, the Jet Fusion 5200 Series[11]. The TPU, ULTRASINT™, is ideal for high-quality flexible and elastic parts targeting the automotive, consumer goods and industrial sectors. While plastics are more ubiquitous today, metal 3D printing is becoming more widely available as the technology continues to evolve, thus breaking down the barriers to entry. In a recent article, Machinedesign.com has flagged that printers like HP Metal Jet "look like they might change the way we think about metal printing".[12]

Indeed, breaking down the barriers to entry is critical. New 3D print technology like the HP Jet Fusion 300/500 Series[13], the industry's first low-cost, full-colour 3D print platform, opens up access to the widest possible market, including small- to medium-sized businesses, entrepreneurs, and educational institutions.

Considering where we are now, it's exciting to realise that this is just the tip of the iceberg in terms of where we are going. For the manufacturing industry, a future defined by the capabilities of 3D print technology looks incredibly bright.

[8] https://www.industryweek.com/technology-and-iiot/state-3d-printing-2019-all-grown-ready-work
[9] https://press.ext.hp.com/us/en/press-releases/2019/hp-propelling-industry-to-3d-production--more-than-10-million-pa.html
[10] https://press.ext.hp.com/us/en/press-releases/2018/ntu-and-hp-inc--to-advance-digital-manufacturing-worldwide-with-.html
[11] https://press.ext.hp.com/us/en/press-releases/2019/hp-leads-digital-manufacturing-forward-with-powerful-new-3d-printing-solution.html
[12] https://www.machinedesign.com/cad/3d-printing-trends-manufacturing-part-1
[13] https://www8.hp.com/au/en/printers/3d-printers/3dcolorprint.html

FICCI-DHI AWARENESS WORKSHOPS ON INDUSTRY 4.0 IN HYDERABAD AND FICCI-QCI REGIONAL QUALITY CONCLAVE SESSION ON INDUSTRY 4.0

Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises, Government of India, with Federation of Indian Chambers of Commerce and Industry (FICCI) & Capital Goods Skill Council [CGSC- promoted by Department of Heavy Industry (DHI) & FICCI] organized awareness workshop on Industry 4.0-Preparing for Digital Transformation in Indian Manufacturing on 12 April 2019 in Hyderabad on 12th July 2019.

The objective of these workshops was to create awareness about the new technologies that would have implications for manufacturing operations and capture some of the key trends that are going to be promising for Indian Manufacturing sector.

FICCI in collaboration with Quality Council of India (QCI), Government of India has also organized Regional quality conclave in Ahmedabad on 8th November 2019. The aim of this workshop is to ensure excellent Quality Systems in manufacturing sector and how IoT can play an important role in disruptive innovation leading to implementation of better-quality products for smart manufacturing in Indian Industries.

(Panel Discussion on Enablers for Competitiveness, Innovation & Quality in Manufacturing by Mr Anupam Jalote, CEO, International Centre for Entrepreneurship and Technology (icreate), Mr Rajkumar Jagyasi, Chief Operating Officer (COO), Milacron , Mr Nikunj Thakkar, Co-founder, DataOne Innovation Labs & Shoppr.ai)

(Presentation of Green Certificate to Shri V Madhusudhan, CEO, TSIIC, Government of Telangana by Mr. T. Muralidharan, Chair-TMI Group, Member- National Executive Board, FICCI)

(Keynote Address by Shri V Madhusudhan, CEO, TSIIC, Government of Telangana at FICCI-DHI Awareness workshop on Industry4.0)

INDUSTRY 4.0 – INDIA NEWS

Industry 4.0 - Indian News

Digital twin technology to revolutionize many sectors

A digital twin is a replica of a physical entity in the digital world. Thanks to the emergence of the Internet of Things (IoT) technology, the real-time data of this physical entity is seamlessly transmitted, allowing its virtual counterpart to coexist. This digital replica provides insights into the elements and the dynamics of how an IoT device operates and performs through its lifespan.

This technology of the cyber twins is being used across various industrial sectors to help in the operations and maintenance of physical machines, engines and manufacturing processes. It is expected that in the coming five years, more than a billion things will have a digital twin. This will lead to new opportunities for product experts in the physical world to interact and collaborate with data scientists, who will help them bring efficiencies and more meaning to the operations and processes.

Source: https://www.thehansindia.com/business/digital-twin-technology-to-revolutionise-many-sectors-579951

Densification of existing IoT networks to be the focus next year: Tata Communications

Digital infrastructure provider Tata Communications which had already deployed its LoRaWAN network in 48-50 cities of India covering over 215 million people would be focusing on densification of its existing networks instead of expanding its coverage to new cities. The company is focusing primarily on three tracks – worker safety and productivity, smart cities and asset tracking. The executive pointed that clusters have become the prominent areas where industry scalability is happening. According to a NASSCOM-Deloitte report, the Indian IoT market is expected to grow to $15 billion with 2.7 billion units by 2020 from the current $5.6 billion and 200 million connected units.

Industrial IoT is also emerging as one of the leading IoT segments with deployments underway in manufacturing and logistics areas. Furthermore, the industrial applications of IoT, primarily in sectors like manufacturing, automotive and transportation, and logistics, are expected to boost IoT revenues by 2020 in India.

Source:http://telecomlive.com/web/densification-of-existing-iot-networks-to-be-the-focus-next-year-tata-communications/

AI will be a key area of cooperation between India, Germany

India and Germany on Friday identified artificial intelligence as one of the key areas of collaboration as the two sides signed a joint declaration of intent for cooperation in research and development.

In a joint press statement after the Inter-Governmental Consultations (IGC) with German Chancellor Angela Merkel, Prime Minister Narendra Modi said the capabilities of technological and economic power houses like Germany will be useful for India's priorities.

Source:https://cio.economictimes.indiatimes.com/news/governmen t-policy/ai-will-be-a-key-area-of-cooperation-between-india-germany/71888066

How Innovative Technologies Are Changing Employment Landscape In India

Technological advances have constantly innovated the job sector, giving rise to millions of new jobs, especially in the IT industry across India. According to the Indian Staffing Federation (ISF) research, the future is set to see another three million new jobs in the IT space, catapulting India's tech army to reach 7 million by 2023.

The new-age jobs are envisioned to spawn in emerging technology areas such as the Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), big data, blockchain, Augmented Reality (AR), and data science, among others. While these technologies add greater efficiency to enterprise operations by reducing human hours and increasing productivity levels, the new jobs also call for skilled professionals adept at handling digital tools, which most Indian enterprises apparently lack at present.

Source:http://bwpeople.businessworld.in/article/How-Innovative-Technologies-Are-Changing-Employment-Landscape-In-India/26-10-2019-178202/

INDUSTRY 4.0 – GLOBAL NEWS

Industry 4.0 - Global News

Future Disrupted' predictions for 2020: Data, automation and IoT will enable virtual societies

NTT Ltd., the world-leading global technology services provider, has recently announced its Future Disrupted: 2020 technology trends predictions. They're based on the most critical technology trends companies need to be aware of next year and the steps they need to take to address them. Formed from key insights from its technology experts, the company outlines the trends that will shape the business technology landscape throughout 2020 across six key areas: Disruptive Technologies, Cybersecurity, Workplace, Infrastructure, Business, and Technology Services.

The company predicts that 2020 will finally see all the hype words of the past decade come together to create completely connected environments that are capable of running themselves autonomously to build more intelligent cities, workplaces and businesses – and on a secure basis. Data, AI and secure by design will be at the heart of this movement, empowering devices to talk to one another and act on that information without human intervention. Disruptive Technologies will become the norm as they improve productivity, growth and innovation across entire work, live & play environments.

Source:https://hello.global.ntt/en-us/insights/future-disrupted-2020-technology-trends

What Industrial IoT means for the future of the manufacturing sector

The Industrial Internet of Things (IIoT), a subset of the Internet of Things (IoT) is expected to transform a variety of industries. Digital transformation has reverberated across several, if not all, industries and it will definitely continue to do so over the next few years, especially with the rise of 5G network adoption across the globe, it will give IoT the power to function in the best way imaginable.

IIoT could be implemented on industrial equipment, personnel, processes and facilities, all of which will be interconnected. In smart factories for instance, sensors could be placed on equipment, ensuring that everything that takes place on the factory floor would be collected in the form of sensor-based data and in turn, allows businesses to make better informed decisions. This will enable operation managers or factory managers to manage any given factory or plant (in the case of the oil and gas sector) remotely.

Source: https://www.telecomreview.com/index.php/articles/reports-and-coverage/3437-what-industrial-iot-means-for-the-future-of-the-manufacturing-sector

US, China, Japan and Korea to dominate 5G

CHINA, the United States, Japan and Korea will account for more than half of the world's subscribers to super-fast 5G mobile networks by 2025, leaving Europe lagging, a study by GSMA Intelligence released in November.

In terms of sheer numbers, China will predominate with 600 million 5G connections. Worldwide, 1.57 billion people are expected to adopt 5G by 2025 - or 18 per cent of total mobile users. Europe, moving more slowly to build 5G networks, will lag in terms of consumer take-up. Yet the picture looks different in business, where 5G will be able to run "smart" factories using connected robots, devices and sensors.

In Korea, 66 per cent of mobile connections will be 5G by mid-decade, GSMA Intelligence forecast in its 100-page study, followed by the US (50 per cent) and Japan (49 per cent).

Source: https://www.businesstimes.com.sg/technology/us-china-japan-and-korea-to-dominate-5g

FICCI Industry 4.0 Maturity Assessment Model

FICCI with the support of its Committee on Industry 4.0 launched the Maturity Assessment Framework to assess the preparedness of the Indian manufacturing units for Industry 4.0 technologies. The assessment model has been well received in the phase I, where number of manufacturing units from MSME and from large scale category, were assessed. Assessment helped the units to identify the gaps in their manufacturing processes and systems in terms of digitisation and was followed by feedback by the auditors to the units.

FICCI's Maturity Assessment Framework helps the industry to understand where they stand currently and what is required to adopt such technologies to improve their efficiency and productivity without any capital expenditure.

We have now launched the next phase to assess the readiness of Units and Factories for Industry 4.0 technologies i.e. on-site audit. Our experts from the industry can visit your facility to carry out this assessment. Please let us know if you would like to avail this unique service. We are charging an amount of INR 35000/- (Rupees thirty-five thousand) per unit for this service in addition to the actual cost of travel and stay for the assessor which shall be borne by the factory/unit to be assessed.

You may contact Ms. Ankita Sharma (011-23487269; ankita.sharma@ficci.com) for further details.