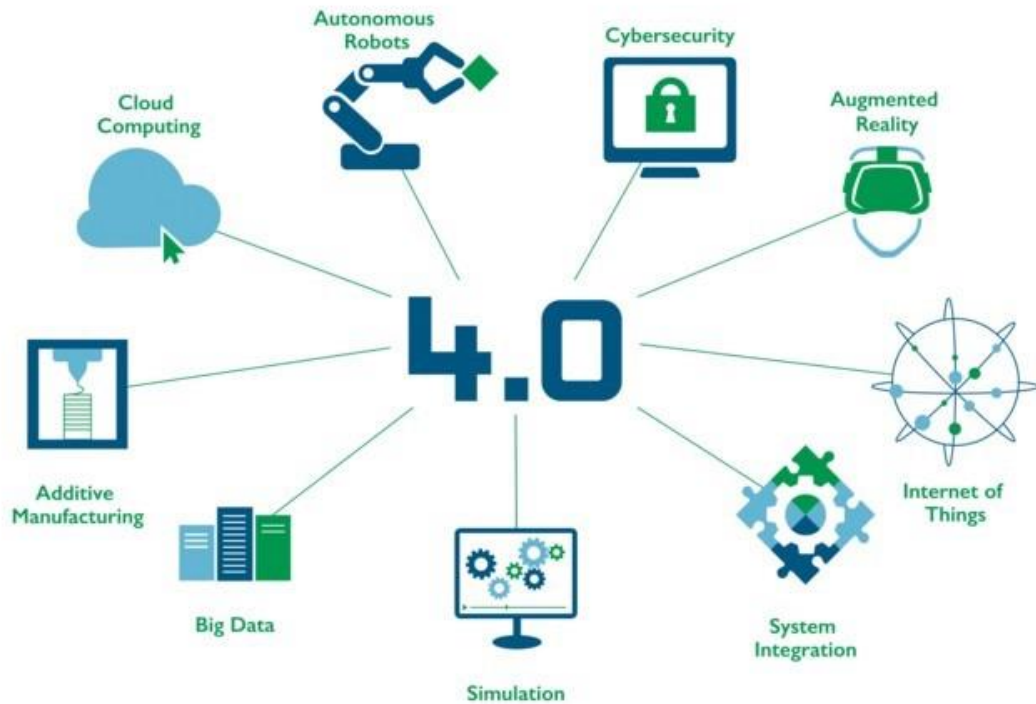


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# VISION DOCUMENT FOR TECH BHARATH FOUNDATION

## SMART INDUSTRY

OPPORTUNITY FOR INDIA'S INDUSTRIAL REVOLUTION

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## Smart Industry opens a world of possibilities for India.

The world is in anticipation of a fourth industrial revolution. This revolution is driven by giant leaps in ICT innovation and promises to radically alter the face of industry in the coming decades. Automated production systems using advanced robotics increasingly communicate with each other on detailed aspects of production, joining up hitherto fragmented manufacturing processes. By linking all steps in the value chain, a world of possibilities opens for companies, old and new.

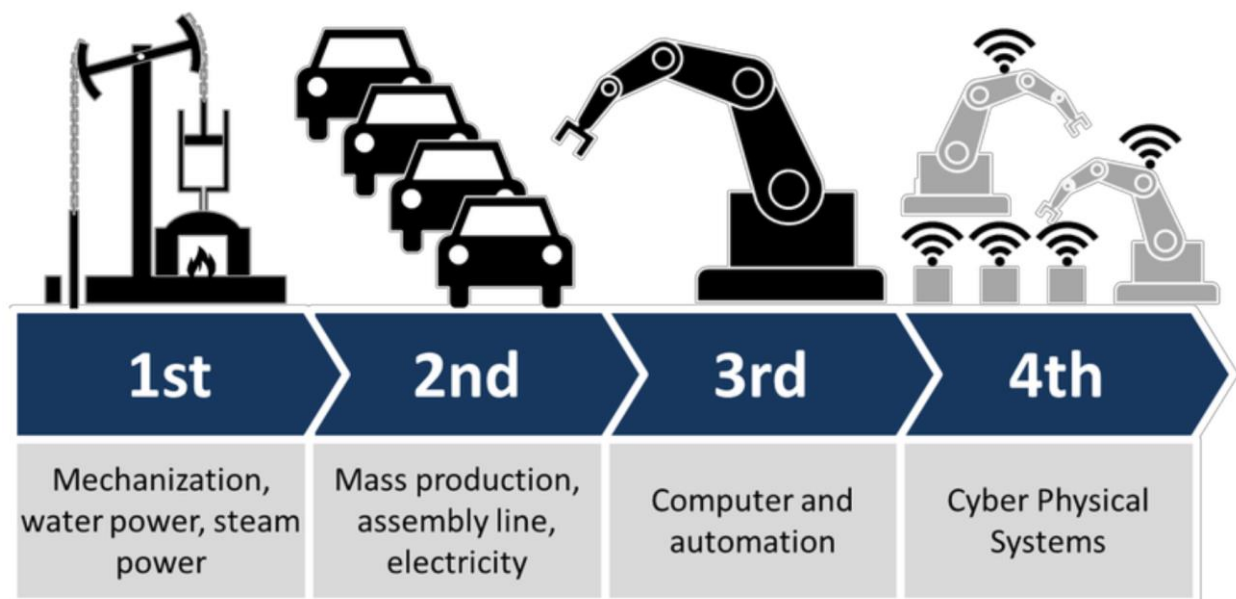


Fig1:Schematic Representation of 4IR

### Initiative

Tech Bharath Foundation had taken the initiative to make a report on the meaning of Smart Industry for policy makers, knowledge institutions, research institutions, regulatory bodies, established companies and The Government in India.

### Ambition

To make the India no:1 in the area of adopting the principles of fourth industrial revolution in all the economic value generating streams of the society through the following .

1. Capitalizing on the Traditional Indian knowledge (Vedic, Sutra's etc.)
2. Institutionalizing (Re) India's R&D Organizations
3. Institutionalizing (Re) India's Capacity Building Organizations

4. Corporatizing the matured outcomes of R&D institutions
5. Crafting the Legal & Regulatory frame work for sectors(Eg.Health Care,Mining etc)
6. Collaborating with the Industry –Academia on a sector specific requirements based PPP model.
7. Accelerating Field Implementation through action oriented Proof of Concept (PoC) to 1<sup>st</sup> implementation in each and every sector by coordination of
  - a. Local Administration
  - b. District Administration
  - c. State Government
  - d. Sector Regulatory Authority
  - e. State Regulatory Authority
  - f. Entrepreneurial Organizations (Start Ups, Established Cos, Foreign Companies)

## Strengthening the foundation

The Indian ambition is to be the Leader in the 4<sup>th</sup> Industrial Revolution. The ICT enabled Indian economy has every chance to succeed in this challenge and further action to support this will be aligned with top sector policy. The Indian Youth driven business community holds all the keys to engage with this promising development and to join forces with the frontrunners. The India has a strong tradition of knowledge and values driven society. Also India had created a strong educational institutions network and research institutions network . Add to this world class Fiber Optic Network and the ICT infrastructure based on state of the art wireless broad band network which shall act as the engine of growth. Through the 95% Digital Identity of every individuals in the country through Aadhar and it becomes evident that the India are poised to play a leading role in Smart Industry.

## A Vision Document for Diplomacy based on Sector Specific 4IR Competency

The policy challenges and the crafting of the ‘rules-of-the-game’ required for a smooth transition from the third to the fourth industrial revolution(4IR) shall include some kind of recodification of power equations and international laws. The laying down of a blueprint of how diplomacy would be conducted moving forward in Smart World which is primarily driven

through knowledge based industries , the soft power and demographic dividend. This could entail readapting current international institutions to match current and future needs best-case scenario; Or it might entail a complete makeover, worst-case scenario. Therefore, the focus of this work will be to look only into progress in specific sector India shall be made by positively growing through capitalizing the 4IR technologies. We are hoping that the Indian Diplomats will do home work of the potential sector in India before getting into any sort of discussions on Indian interests in the following lines

- Investments to India
- Foreign export potential of goods and services from India
- Investments by institutions from India(FDI)
- Capacity Building for foreign nationals
- Technology Transfer
- Exchange of Students etc.

## Introduction

### Industry 4.0 and its Impact

The acceleration of digitalization is changing our society, our businesses, our industry and our way of living. Products and services become so-called smart. Our businesses and industry are entering the so-called fourth industrial revolution. Digitalization makes customization and servitization with smart products and services as well as flexible manufacturing and service platform possible. Zero-defect, zero-programming, zero-surprise production of single piece customized products for the price of mass produced products in flexible factories are possible. Such factories will move close to the customer and bring production and manufacturing jobs back to town. But the winner-takes-all platforms are a new risk when international services providers grab the major chunk of the created value. And societies will face market and labor mismatches if they don't response with proper education to all. The fourth industrial revolution has a much larger impact then on industry alone. For this reason we started in India the Smart Industry action program. By Smart Industry we mean that our world is changing and that Indian Industry should be made fit for the future. This note provides a vision and describes why things are happening and what the results and the impact of four simultaneous game changers will be. These game changers are smart products and services (businesses), industry, technologies and needed societal response.

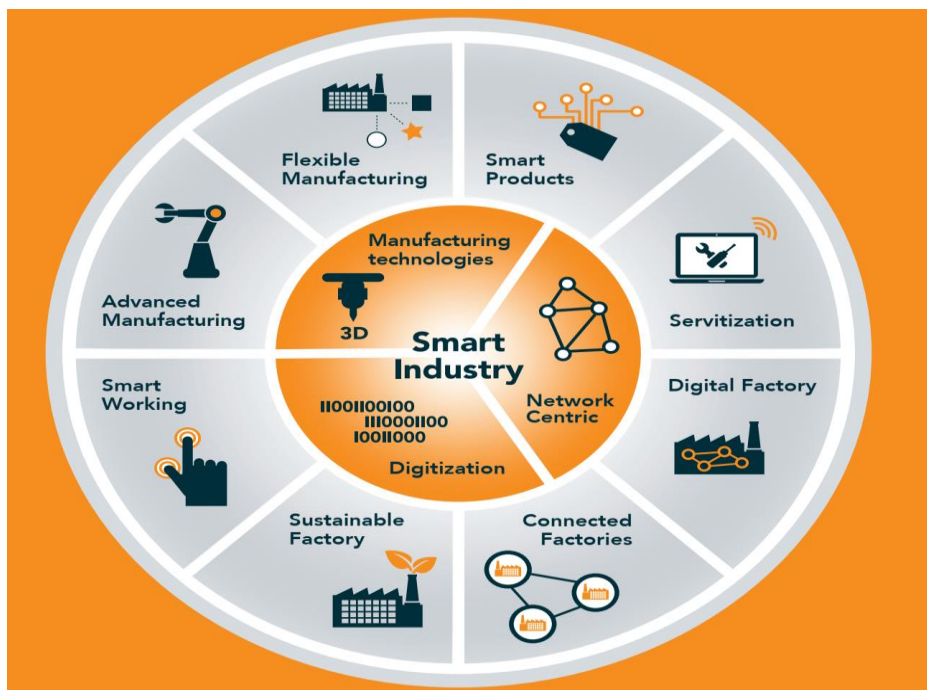


Fig2:Schematic Representation of Smart Industry and Business Models

The fourth industrial revolution, also known as Industry 4.0, is affecting almost every industry worldwide. It is rapidly transforming how businesses operate.

Industry 4.0 uses transformative technologies to connect the physical world with the digital world. Current trends include:

- Advanced automation and robotics (including collaborative robots or 'cobots')
- Machine-to-machine and human-to-machine communication
- Artificial intelligence and machine learning
- Sensor technology and data analytics

Four key drivers enable this trend:

- Rising data volumes, computational power and connectivity
- Emerging analytics and business-intelligence capabilities
- New forms of human-machine interaction, such as touch interfaces, augmented and virtual reality systems
- Improvements in transferring digital instructions to the physical world, such as robotics and 3d printing

## Benefits of Industry 4.0

Industry 4.0 technologies have potential to provide a major boost to India's economic competitiveness. They can substantially offset our traditional challenges such as high labour costs and distance to markets.

Benefits and opportunities include:

- Better connectivity between customers and supply chains through real-time access to production information, logistics and monitoring
- Greater flexibility for businesses to produce differentiated products and services to tap unmet consumer demands, compete in global markets and capture emerging opportunities
- Enhanced workplace safety, production and improvements across the entire value chain

The Industry 4.0 initiatives shall be creating an environment that will allow businesses to grow, explore new models and embrace technologies.

# Changing the Rules of the Game

## Servitization and the battle on platform dominance

In general we can see around in businesses the rise of "servitization" and the importance of owning the platforms, in most cases a webportal attracting and analyzing all traffic. Customers pay for use rather than ownership. Instead of owning a car they pay for Uber. As a result, original product manufacturers evolve into service providers with digital platforms and an accompanying hardware product with which the solution is delivered. The idea is that you make more money if you can monopolize the service platform, especially if you let others do the hardware as Uber and Airbnb do. Industrial suppliers, once the cheapest supplier of a component, are now asked to take over the entire production process of the hardware product. Will a German automotive manufacturer become a supplier of cars for Uber? All this has an impact on our entire industrial landscape, but it has cascading implications for our society and employment.

We distinguish four broad game changers:

- (1) Smart products and smart services (servitization),
- (2) Smart production - flexible factories and service platforms to deliver goods and services,
- (3) Smart technologies - the systems of systems technologies required for those products, services and production and
- (4) The economic and social conditions, effects and our reactions to them.

Each game changer impacts respectively new business, new jobs, new science and new forms of education. And every game changer requires cooperation between companies, knowledge institutes and government.

See the reference on the Industry 4.0 Servitisation Business Models.

1. Servitization by Prof. Wolfgang Ulaga <https://www.youtube.com/watch?v=jlZmMnDYxCc>
2. Infosys - [https://www.youtube.com/watch?v=S\\_MtUMc4zec](https://www.youtube.com/watch?v=S_MtUMc4zec)
3. Advance Services Group  
- <https://youtu.be/fR1ubgpHlxA?list=PLwvNwsdu1SnvJVAbmvlSJ2vA16a1IkRtB>

## Public Policy Priority

Tech Bharath Foundation, as the prime proponent of the Industry 4.0 initiatives in India set out key priority areas for private and government action to seize the opportunities of a digitally enabled economy. Those priorities remain relevant for Indian businesses and academia in transition to and within the Fourth Industrial Revolution.

In order to bring all the stakeholder interest under a single umbrella Tech Bharath Foundation shall be initiating the discussion with industry and academia leaders in digitalisation. There is also an ongoing conversation in public policy about the role of government, regulators and other institutions in response to these changes, as well as the broader community impacts.

By the end of series of discussions, dialogue sessions Tech Bharath Foundation and the delegated authors shall identify Thirteen public policy priorities for businesses in transition – areas that require people, private sector and government attention (in alphabetical order):

1. Cyber secure, resilient and trusted businesses
2. Business and technology investment
3. Corporatization of India's R&D echosystem
4. Diplomacy and Global Positioning of 'Scientific India'
5. Innovation ecosystem
6. Legal and regulatory framework
7. Restructuring of India's specialized 'scientific Non Profit Societies'  
eg: CSIR Institutions, National Productivity Council (NPC) etc
8. Solution Providers & System Integrators of India
9. Standards
10. Sustainability
11. Trade
12. Workforce skills
13. Workplace relations