

## A conceptual study on Ethics and social responsibility in industry 4.0

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### **Abstract**

*The Innovative smart and artificial intelligent technologies which exist today are at a great risk to the society which leads to ethical challenge. For this purpose, the ability of the society's decision makers to prepare a suitable ethical response is required. The paper is to study the mainly the social, economic, and ethical issues, raised by the rapid development of the smart and artificial intelligent products or services in everyday life processes. Smart technologies can today explore their environment, communicate with each other or with humans and help their users. The enhancement and implementation of the smart technologies in the human environment and it is influencing social and economic changes and opening new social and ethical problems in the future, because smart technologies are now: (i) occupy into the sensitive human areas and allow others to use sensible private information in real time; (ii) causing job losses; (iii) replacing humans for tasks. The paper states the issues of technology and how it influences ethics and social responsibilities in industry. This paper is based on secondary data.*

**Keywords:** *smart technology, ethics, social responsibility, employment, society.*

### **Introduction:**

Industry 4.0 indicates fourth Industrial revolution. "industry 4.0" factories works with machines which are enlarged with wireless connectivity and sensors, connected to a technological system that can visualize the entire production line and which makes decisions on its own without the help of human beings. Industry 4.0 is the trend towards automation and exchange of data in manufacturing technologies and process which

includes cyber-physical systems, internet of things, cloud computing and artificial intelligence. Smart technologies in industries will increase productivity which leads to increase in jobs and job security and also increases consumer demand by providing quality products and timely delivery of products. but at the same time it will leads to unemployment due to implementation of smart technologies in machines which reduces the intervention of humans. Leaders of the society and managers of the industry should have taken decisions in the field of education and employee development to avoid future unemployment.ethical norms in the Twenty First Century should include norms for the protecting people's dignity and quality of life to avoid future un-employment due to the development and implementation of smart technologies in the industry 4.0.

### **Growth of Industrial Revolution 4.0**

Transformation of traditional industry into technological industry has started for the first time in Great Britain in 1980 for the technological development oriented economy. The Development of Internet of Things (IoT) was considered as a new industrial revolution called as "Industry 4.0" by Germany. The main feature is increase in competitiveness through technological equipment to collect information about locations, demographic changes, availability of resource, different productions etc. how internet has transformed the digital industry, industry 4.0 will completely change traditional industry operations. The main components of Industry 4.0 are Cyber-Physical systems which connect between real and virtual world, the internet of things and Internet of services (IoS) and the smart industry. Machine communication and technological products are not treated as different parts. Thus the process of transformation of technology promoted knowledge economy which influenced organization in changing organizational structure, planning and in management styles.

### **Research Methodology:**

Research is based on secondary data from websites, journals, Reports and paper publications.

### **Challenges and issues of 4<sup>th</sup> Industry Revolution:**

- Technological development oriented economy: Transforming Traditional Heavy industry into technological industry for technological oriented economy.
- Global competition: The new technological economy has influenced increase in global competition.

- Wave of capitalism: Development of Internet and robots has influenced third wave of capitalism.
- Information and communication infrastructure: Technology is the one of the main component of Industry 4.0. Technologies such as cloud computing, internet of things (IoT) such as development of smart products, the internet of services like smart mobility and smart services, internet of energy like efficient utilization of natural resources. Telecommunication technologies and infrastructure such as broad band and other internet technologies provide digital connectivity for effective communication, collaboration and integration of people, systems and machines. Industry 4.0 requires communication networks which is reliable comprehensive and high quality. Industry 4.0 also requires development of smart products like robotics, sensors and advanced manufacturing techniques.
- Data analytics: To increase efficiency in decision making process data analytics is a key factor in industry revolution 4.0. Data analytics is very important technology for acquiring more information about customer preferences, changes in market conditions, trends and for increasing production efficiency.
- Education and training: The digital innovation and transformation in the 4<sup>th</sup> industrial revolution requires a different type of workers, who are skilled, innovative and technological savvy. there is a necessity to focus on development of “future skills”, estimate the requirement of future skills, its content, aggregate effect on employment and its impact on business, government undertakings and individuals. There are fears that technology would evade humans through automation in the fourth industrial revolution. It also brings new challenges and opportunities which requires human intelligence and skills. Industrial revolution 4.0 leads to creative working process such as strategic planning, research and development.
- Innovation in Technology:  
Industrial revolution 4.0 requires innovative smart products, business models, production techniques for this it requires huge capital for research and development. For sustainability and inclusive growth, strategies should be formed in such a way that it should ensure returns from digital

transformation and it should benefit society at large and help in resolving human and developmental challenges.

➤ **Policy Innovation:** Industry Revolution 4.0 raises new challenges like trade restrictions, security of enterprise data, liability issues and personal data privacy which needs strict regulation through setting of standards, legislation and policies. Government needs to develop different policies like economic policy, industrial and labor market policies for development of industry, citizens, and government for effective utilization of wide range of opportunities brought by the industrial revolution 4.0.

➤ **Skill challenges:** skill challenges like skill mismatches and skill redundancy due to changes in jobs because of advancement in technology and manufacturing techniques. e-skills and e-literacy has to be developed and promoted for the betterment of smart society. e-skills provides intellectual guidance in the development and implementation of smart and digital innovations.

➤ **Infrastructure challenges:**

Countries should develop technology and infrastructure facilities along with societal challenges for the implementation of fourth industrial revolution. Technological challenges like data analytics, development of network like LAN, and innovative smart devices, broadband etc.

➤ **Security and Privacy:**

Integration of systems in the industrial revolution 4.0 requires development of new security system and development mechanism for the faster and flexible connectivity with networks and smart production system. even data analytics requires data privacy and protection to avoid any misuse of information.

### **Business Ethics in smart Technology:**

Government, political leaders and economic leaders should anticipate what critical situations that technological development may bring in the environment in next 40-50 years or for the next generation and

establish certain code of conduct which will prevent the un-ethical issues of business owners and political leaders.

**For society:**

- ❖ It should ensure relative economic quality in the society: the issues like basic income of people, basic infrastructure facility, tax on robots and smart technologies etc.
- ❖ It should ensure culture of development of intolerance among the people to the loss of dignity because of innovative technologies like robotics, Artificial intelligence etc.

**For organization:**

- ❖ Ethical responsibility: it includes honesty with customers, partners and consumers providing goods quality products and services and disclosing all necessary information.
- ❖ Equal treatment: treating employee and customers equally.
- ❖ Limiting Damage: all Industries concerns should limit the damage to the environment
- ❖ Obey the law: all industry 4.0 should obey the law of local/state/central government rules for the industrial development and economic development in the society.

**Suggestions for Industry 4.0**

- I. Meeting individual customer requirement: industry 4.0 should allow customer specific design, configuration, ordering, manufacturing and last minute changes to be incorporated.
- II. Flexibility: smart technology should enable flexibility in technology configuration of different aspects of business process like time, risk, price, eco- friendliness this helps in continuous trimming of materials and supply chain management.
- III. Optimized decision making: to succeed in global market it is necessary that take right decision at right time. Industry 4.0 should ensure end-to end transparency in real time. Allowing early

verification of design decisions in the engineering process for optimum utilization of global resources.

IV. Resource productivity and efficiency:

To produce highest output of products from available resources at minimum financial cost. To avoid interruption in production, system should be continuously optimized during production in terms of their resources and energy consumption or reducing their emissions.

V. Creating value opportunities through services: industry 4.0 should ensure creating new value opportunities like employment to job aspirants and opportunities to small, medium enterprises and startups to develop B2B for industries 4.0.

VI. Responding to demographic change in the work place: Industry 4.0 should ensure diverse and flexible career ways that will allow people to work continuously and be productive longer. Smart technologies should be interactive and collaborate between human beings and technological systems will provide industries new ways to understand demographic changes for business opportunities.

VII. Work life balance: smart technologies should be place to meet the growing needs of employees for balance between work and their personal life and also between personal development and continuing professional development.

**Conclusion:**

Industry 4.0 does not impose an exclusive technology to industries. The changing technology will have far reaching organizational implications providing an opportunity to develop new business and corporate models and helps in more job opportunities. The establishment of industry 4.0 will be done jointly by the professional associations like BITKOM, VDMA and ZVEI. The next task will be to introduce Research and Development roadmaps for the key priority themes. Industry 4.0 invites relevant stakeholders to explore the opportunities given by industry 4.0 so that everyone can help in ensuring successful implementation of its revolutionary vision. And new living standards have to be established. Smart technology requires a new conception of duties, responsibilities, rights in which

above values shall consider the future circumstances of procedures whose effects could damage society.

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