

# Industry 4.0: A Perception Study

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## **ABSTRACT:**

The manufacturing sector is considered as the backbone of the economic development of the country as it helps in modernising the agricultural productivity and it reduces dependency on agro based business. Manufacturing creates multiple job opportunities by creating more service sectors which helps to expand trade and commerce. As a country India, could not capitalise on mass production and electricity pertaining to Industry 2.0 and also electronics and IT system automation pertaining to Industry 3.0 is not fully explored by the manufacturing sector of this country.

Industry 4.0 is the name given to the revolution industry currently witnessing due to extensive use technologies inclusive of cyber physical systems. The design principle which enables industry 4.0 is interconnection, information transparency, decentralised decision and technical assistance.

Though the term Industry 4.0 is now over a half decade old and has been picked by the developed countries such as China, Germany etc. In the Indian context it is still at nascent stage and needs more focused and careful attention in order to clear the backlog created because of missing the manufacturing cycle in late 1980's. This paper is based on a primary research and attempts to decode the perception of respondents about potential of technologies responsible for INDUSTRY 4.0.

**Keywords: Industry 4.0, Perception, Technology Adoption,**

## **1.0 INTRODUCTION**

Industrial revolution plays a pivotal role in the development of the society and manufacturing industry is always the base for the transformation. The first industrial revolution happened in late 1780's where technologies working on steam, water etc. were the backbone of it. Late 1870's world witnessed second industrial revolution where electricity was base of this revolution. Late 1970 due to electronics and IT third industrial took place. Now in Late 2010 world is witnessing optimization of processes due to cyber physical systems. Today, the manufacturing industry is undergoing tremendous transformation due to evolving technologies enabling cyber physical interaction.

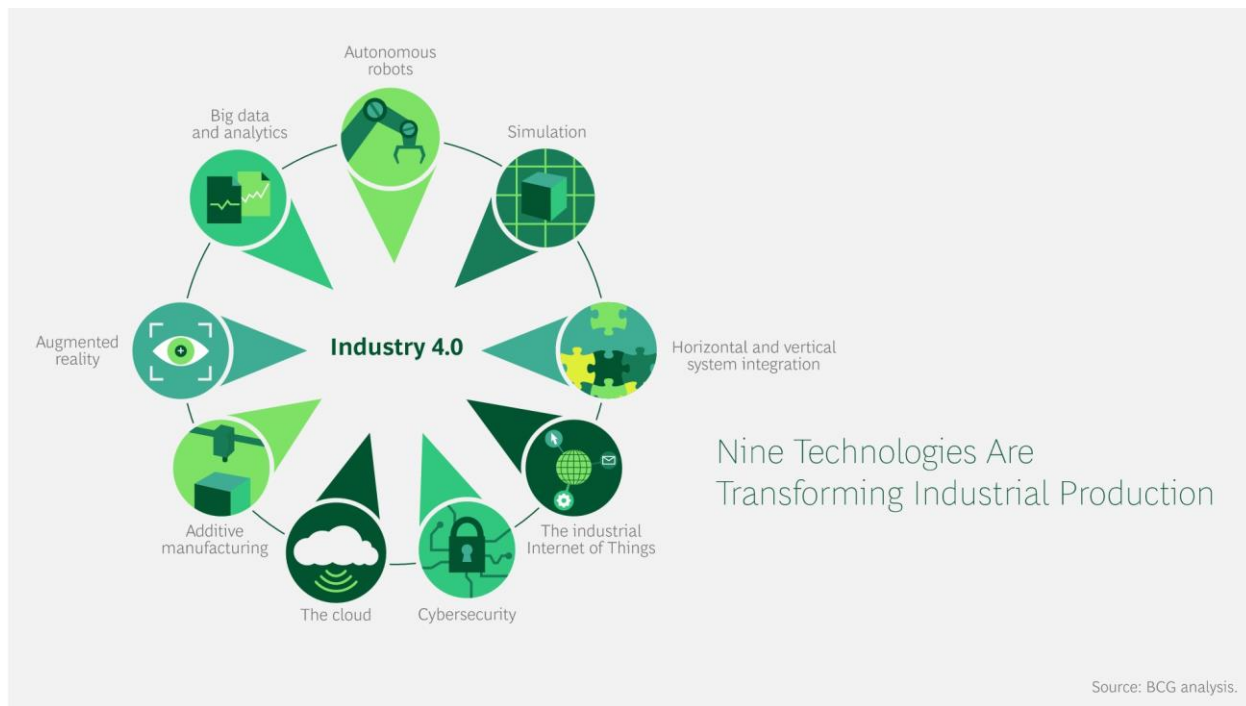


Fig 1.1 Few major technologies transforming the industrial production.

This digital transformation is responsible for creation of competitive products at lowest possible cost. The adoption is wide spread accepted in the developed economies such as Germany, China etc. However the awareness and acceptance of these technologies is not fully explored in the Indian context. This paper attempts to understand perception of Indians about the Industry 4.0.

## 2.0 LITERATURE REVIEW

Brenna Sniderman, Mark Cottleer (2017) Forces of change: Industry 4.0 discussed that Industry 4.0 would convert the enterprise into the digital enterprise which means smart and connected technologies will become inherent part of any organization.

Vivek Kaul, Why India missed out on the industrial revolution and might miss it again (2015) discussed that every year almost 13 million workforce joins the industry however after the economic reforms in 1991 major portion of GDP went invested into the fiscal deficit of the government and capital required to set up manufacturing facilities was missed.

Bernard Marr, What is Industry 4.0? Here's A Super Easy Explanation For Anyone (2018) discussed that in Industry 3.0 computers were connected to each other to enable the human capital to take informed decision however in Industry 4.0 because of Internet of systems which create network of machines inter-connected can make a decision without the involvement of human making smart factory a reality.

Oliver Scalabre, The next manufacturing revolution is here (2016) In few of the factories Advanced digital technology however with Industry 4.0, the transformation of production will happen in terms of

greater efficiencies and at lowest possible cost also it will dramatically change the traditional SCM relationships i.e. relationships among producers, suppliers, and customers also it will significantly change the relation between human and machine.

### 3.0 RESEARCH METHODOLOGY

#### 3.1 DATA COLLECTION METHODS:

1. Secondary data was collected from the secondary resources and analysed thoroughly before defining the scope of the primary research.
2. Data collection instrument used was a structured questionnaire and with the help of online data collection methods the data was conducted.

#### 3.2 SAMPLING:

1. The sampling method used was a non-probability sampling method, convenience sampling. The questionnaire was prepared with the help of Google forms and circulated via email and WhatsApp as a data collection tools.
2. Sample size was 410

#### 3.3 DATA ANALYSIS

1. Data was coded and analysed with Microsoft Excel 2010 and Google Analytics.

#### 3.4 LIMITATION:

1. The research attempts to analyse the perceptions of the respondents towards upcoming technologies and hence probability of bias response is high
2. Questionnaire was floated with the modern data collection responses however geographical area explored was Pune, Maharashtra.

### 4.0 DATA ANALYSIS

#### 4.1 Gender

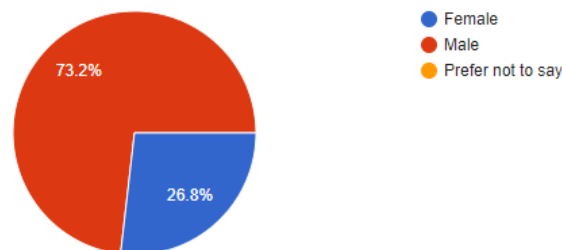


Chart No.4.1 Gender of the respondents

From the above chart, 73.2% respondents are male and remaining respondents are female.

#### 4.2 Age

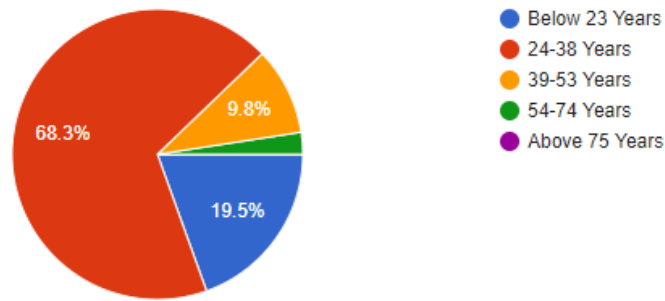


Chart No.4.2 Age of the respondents

From the above chart, majority of the respondents i.e. 68.3% are in the age group between 24 years to 38 years, followed by 19.5% are aged below 23 years.

#### 4.3 Occupation

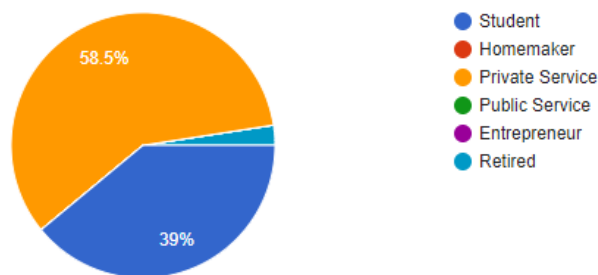


Chart 4.3 Occupation of the respondents

From the chart, it is clear that 58.5% respondents are working with the private sector and 39% respondents are students.

#### 4.4 Sector in which respondents are interested to work

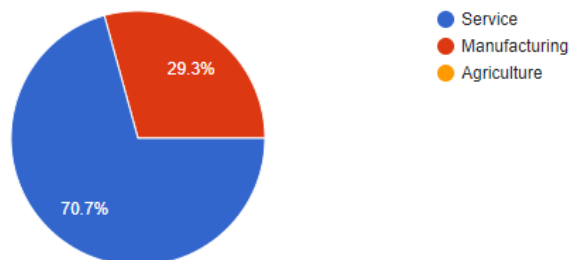


Chart 4.4 Sector focused by the respondents

From the chart it is clear that 70.7% are interested to work in service industry and rest of the respondents are keen to join manufacturing industry.

4.5 Awareness about advanced technology

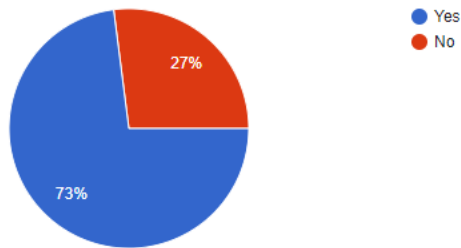


Chart 4.5 Awareness about advanced technologies

73% of the respondents are aware about the advanced technologies pertaining to Industry 4.0

4.6 "Implementation of advanced technologies will improve the organizational performance dramatically"

Do you agree the statement?

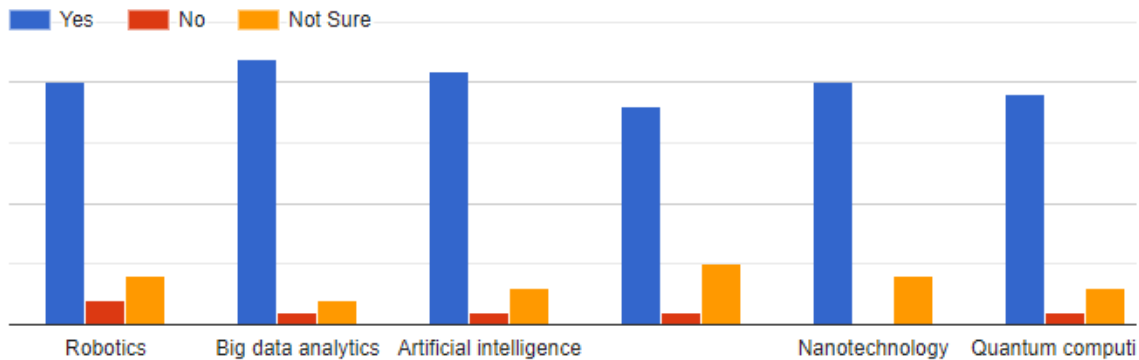


Chart 4.6.1 Opinion about the impact of technology

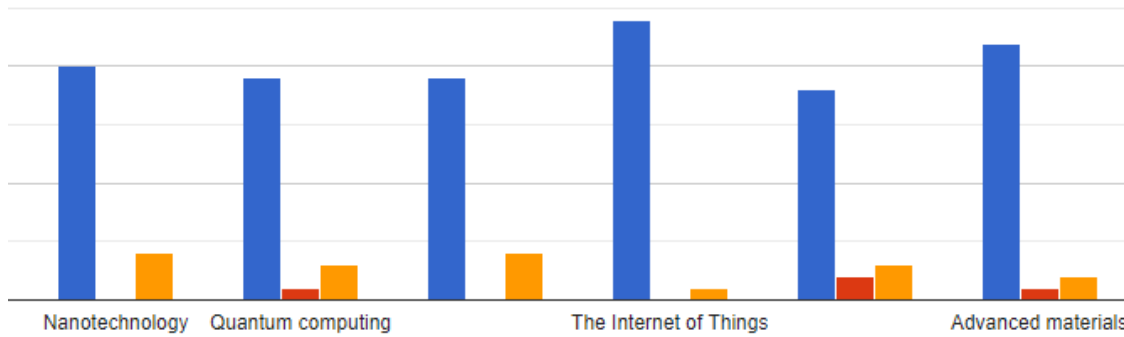


Chart 4.6.2 Opinion about the impact of technology

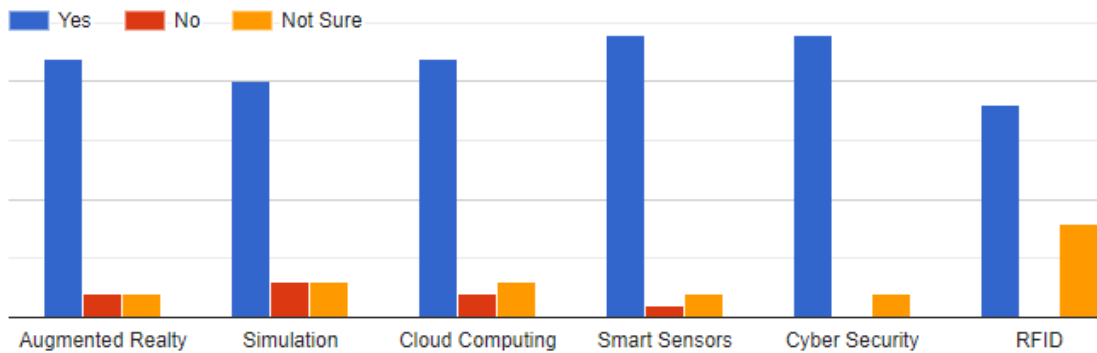


Chart 4.6.3 Opinion about the impact of technology

From the chart it clear that majority of the respondents more than 90% agree that due to technology organizational performance will improve significantly.

4.7 As per your research/opinion/observation adoption of advanced technologies (pertaining to Industry 4.0) what impact it will make on following indicators of organizational performance?

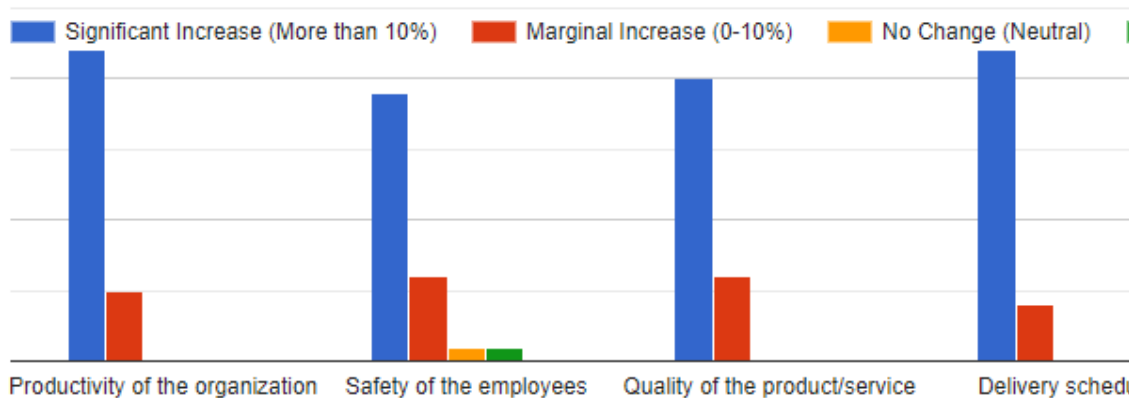


Chart 4.7.1 The impact of technology on organizational performance indicators.

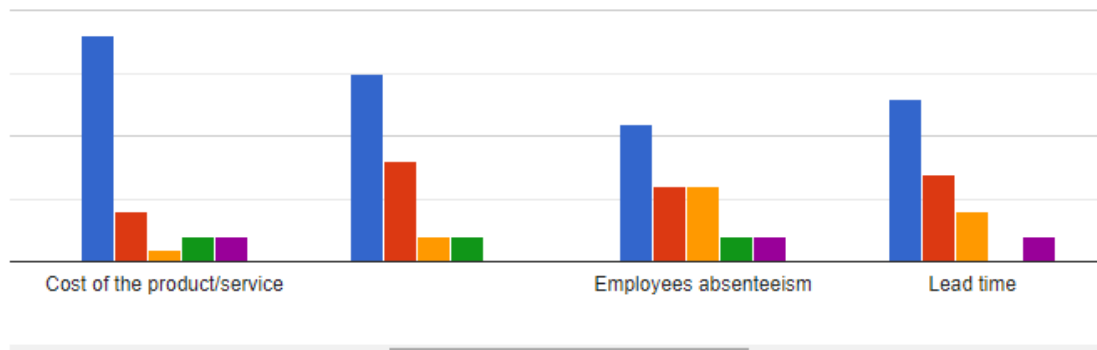


Chart 4.7.2 The impact of technology on organizational performance indicators.

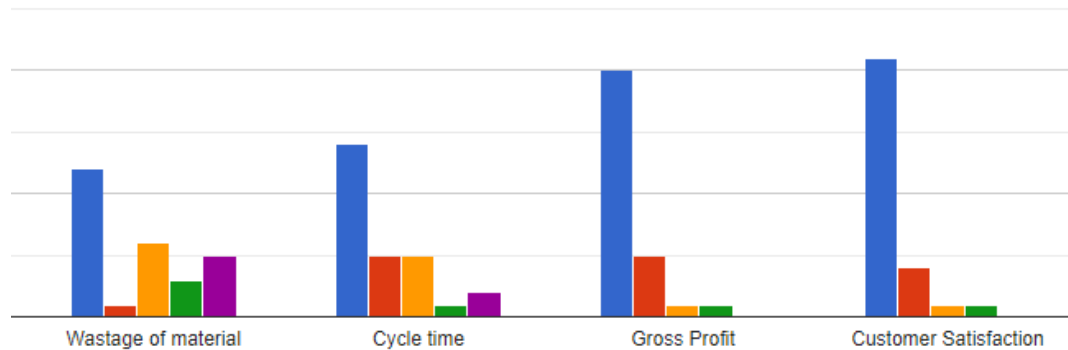


Chart 4.7.3 The impact of technology on organizational performance indicators.

From the above chart it is clear that advance technologies will increase the organizational performance (Financial, Human Resource and Operational performance) significantly.

4.8 Opinion about adoption of advance technologies to optimize the organizational performance.

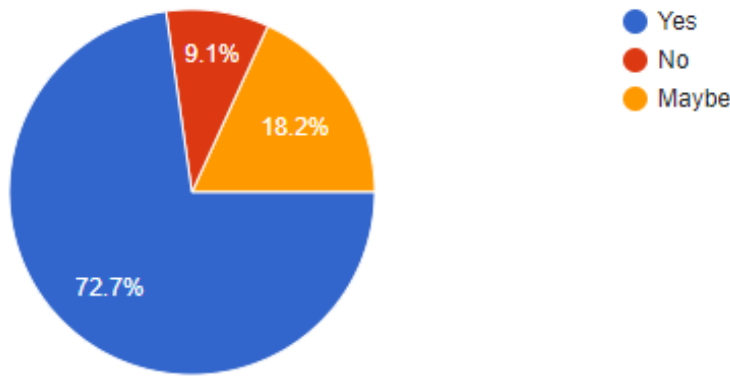


Chart 4.8 Opinion about adoption of advance technologies to optimize the organizational performance.

72.7% respondents agree that companies should adopt the advanced automation technologies, while 18.2% respondents are not sure about adoption of technologies.

#### 4.9 Hurdles to adopt advance automation technologies

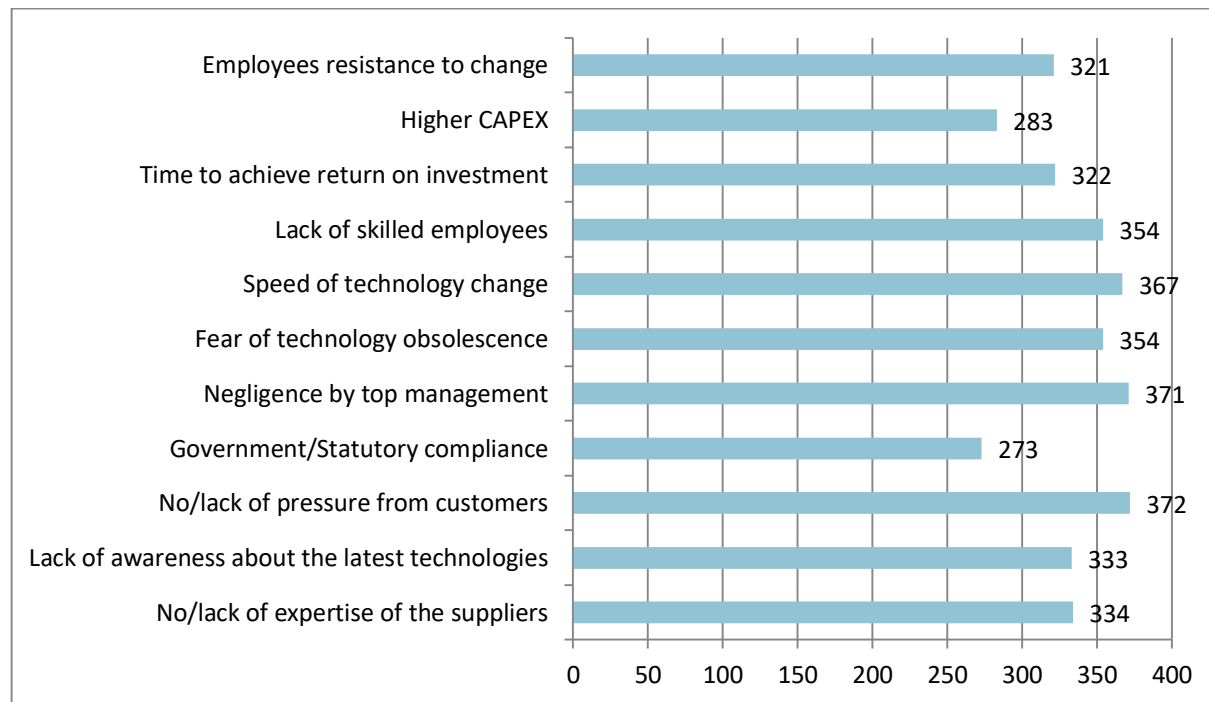


Chart 4.9 Hurdles to adoption of technologies

Chart indicates that adoption of technologies has multiples hurdles which are operational, tactical and strategic in nature.



## 5.0 FINDINGS

- A. From the research, 73.2% respondents are male and remaining respondents are female. In which 68.3% are in the age group between 24 years to 38 years, followed by 19.5% are aged below 23 years.
- B. Research indicates that 58.5% respondents are working with the private sector and 39% respondents are students and 70.7% are interested to work in service industry
- C. 73% of the respondents are aware about the advanced technologies pertaining to Industry 4.0 and more than 90% agree that due to technology organizational performance will improve significantly.
- D. 72.7% respondents agree that companies should adopt the advanced automation technologies, while 18.2% respondents are not sure about adoption of technologies.
- E. As per the data it is clear that advance technologies will increase the organizational performance (Financial, Human Resource and Operational performance) significantly however there are number of major hurdles to adopt the technologies which are operational, tactical and strategic in nature.

## 6.0 SUGGESTIONS AND CONCLUSIONS

As per the research it is clear that respondents perceives that advanced automation technologies has potential to increase the organizational performance dramatically however because of major hurdles in the adoption of technologies organizations are procrastinating the adoption and implementation of advanced automation technologies. To remain competitive in terms of delivering high quality product and/or services at affordable cost organizations should create the strategic plan to automate the operations as early as possible.

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