

INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

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THE FOURTH INDUSTRIAL REVOLUTION: THE DIGITAL STORM IMPACT ON EMPLOYMENT

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ABSTRACT

India is being pushed towards a fourth industrial revolution emerging out of integration of digitization and technology, which will benefit all segments of society, however will hit Indian labor the hardest on the planet in the here and now by cutting occupations. The Fourth Industrial Revolution is associating with other financial and demographic components to make a perfect storm of plan of action change in all industries, bringing about significant interruptions to labor markets. New classifications of occupations will rise; halfway or entirely get out others. The skill sets required in both old and new positions will change in many industries and change how and where individuals work. It might likewise influence male and female workers diversely and change the elements of the industry gender gap. Rapid technological expansions like automation and digitization are set to influence careers of professionals in the coming years and will significantly affect job security. Even some of the industries like apparel and leather capable of creating half a million jobs, automation impacts on jobs in India.

KEYWORDS

automation, digitization, fourth industrial revolution, labour markets and employment.

INTRODUCTION

The world has experienced a progression of 'industrial revolutions' since the 18th century. The cause well known of the initial two was coal; the essence of the present two is PCs. The first industrial revolution saw the might of human and creature quality offer approach to steam engines and locomotive capacity in the 1700s. The second was driven by electricity, getting greater machines and advances in the manufacturing sector around 1870, including large scale production. Fast-forward to 1969 and computers, IT, electronics and automated production were at the core of the third industrial revolution. And now, IoT, anytime connectivity and the (im)perfect mix of the physical with the computerized are ready to drive the Fourth Industrial Revolution, or FIR.

The current revolution is literally disrupting every business, as we know it, and yet integrating every business in an odd way. Artificial intelligence, robotics, autonomous cars, advancement in biotech and genomics will all be part of the 'industrial revolution 4.0'.

It is comforting to think that the job you currently hold is a permanent fixture in the landscape of work. Perhaps you think that your children may even follow in your footsteps, or maybe you are considering mentoring young people in the same career. So, when you hear that the Fourth Industrial Revolution is upon us and radically changing employment in the next five years—leading to a net loss of more than 5 million jobs worldwide—you're probably a little uneasy.

The future of jobs has become a major issue of concern. The world today is at an inflection point due to rapid technological advancement leading to economic, social and political turmoil. Developed countries have now seen almost two decades of stagnation in economic growth with outsourcing of jobs in manufacturing and the services sector to less expensive destinations in the developing countries like India, China, Philippines and Indonesia etc. Unemployment, high cost of healthcare, large-scale immigration leading to cuts in social security etc. have been some of the key reasons for the reversal of the trend from globalization to protectionism now being seen in developed countries particularly in UK, USA and most recently in Italy.

Increasing productivity and efficiencies leading to improved customer experience has encouraged industry to push for technological innovation and find solutions through robotics, automation, cloud computing, 3D printing, Internet of Things, machine to machine and human to machine learning. Due to this reason, the manufacturing and services sectors, which have been the traditional job creators, are seeing tremendous transformation at the shop floor today with reduced human interface. Advanced manufacturing technologies such as Google's self-driving electric cars using LiDAR technology that enables mapping of its surroundings and Amazon's Go, dubbed as the world's most advanced shopping technology which requires you to simply turn on the app as you walk into the store, pick the products you want and simply walk out of the store without standing in lines for checkout, gives a glimpse of the emerging future. These technological advancements threaten to decimate jobs and increase the rich and poor divide further. The famous physicist Stephen Hawking in a recent op-ed has claimed that this is the most dangerous time for our planet. The very technology that has been an enabler for mankind in the past has the potential to destroy the world with economic inequality and climate change challenges.

India, not an exceptional, too reflects the universal scenario and is in middle of transformation. With 65% of our population being young, India cannot afford to have jobless growth. Recent initiatives of government from Make in India to demonetization are an attempt to improve India's economic fundamentals. While the economic growth of most of the developed world stagnated, India continued to grow at 7% plus in the last few years. However, fresh data released by the Labour Bureau shows a decline of jobs across eight labour intensive sectors in the last quarter of 2015, which is a cause to worry. The technologies of the Fourth Industrial Revolution or Industry 4.0 as it is popularly known, are leading to redundancy of many low-skilled jobs being replaced by technology and automation.

FIG. 1

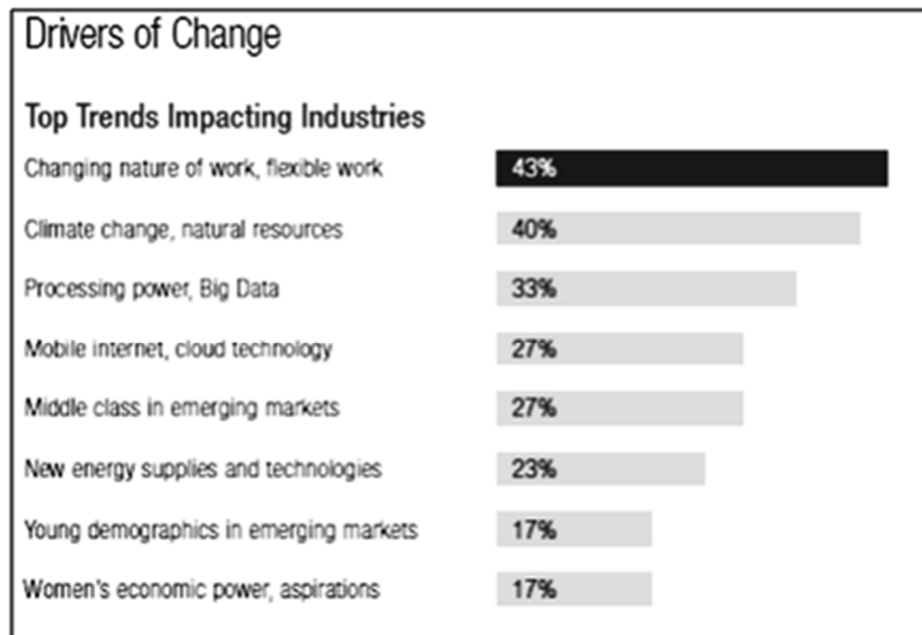
IMPACT ON EMPLOYMENT IN INDIA

Rapid technological advancements like automation and digital technologies are set to affect careers of professionals in the coming years and will have a significant impact on job security, a report said.

According to Simplilearn's State of India Technology Skills Report, which compiled inputs from over 9,200 mid-level IT/ITeS professionals, over 60 per cent believe that rapid technology advancements are set to impact their careers by 2017-18.

The World Economic Forum had also revealed that the Fourth Industrial Revolution is in progress and this development is expected to affect millions of jobs over the next 5-10 years.

FIG. 2



Source: Global Challenge Insight Report, World Economic Forum

Around 62 per cent believe that the impact will be due to automation, artificial intelligence and digital technologies, 48 per cent believe the impact will be due to globalization and changing consumer perceptions, the report that covered professionals working at tier-I & -II companies in Bangalore, Mumbai, New Delhi, Hyderabad, Chennai, Pune and Kolkata said.

With regards to digital technologies and its impact on job security, nearly half (49 per cent) believe their job is at risk due to the change introduced by emerging technologies, 32 per cent believe they already have the skills to cope with change brought in by emerging technologies, while 19 per cent of IT professionals think it would not impact their careers.

The impact would be more prominent on low and middle skilled jobs, which are under threat of replacement; accordingly experts suggest regular up-skilling to improve job prospects.

"More than 50 per cent of IT industry professionals believe that future growth is in emerging and new technology areas like cloud computing, big data, cyber security, data science and mobile and a vast majority of them are keen to upgrade their skills," Simplilearn Chief Business Officer Kashyap Dalal said.

Interestingly, 62 per cent did not invest into learning newer technologies in the last 12 months, however, going forward, more than 35 per cent respondents want to up-skill with online courses over the next 6 months and digital marketing, big data and analytics are some popular domains professionals want to build their skills. But at IT and BPO multinationals, large numbers of employees are being asked to leave. According to analyst firm Sanford Bernstein, IBM is looking to lay off 14,000 employees, rendered surplus by automation.

WHEN BANKS TURN TO ROBOTS TO MANAGE THEIR BRANCHES

Two of India's largest private sector banks, ICICI Bank Ltd. and HDFC Bank Ltd. are turning to artificial intelligence for a whole host of services, which would otherwise need a stronger workforce, be it for compliance or customer service.

While ICICI Bank's Software Robotics is completing over 500 day-to-day banking processes, primarily focusing on compliance and verification work, its peer HDFC Bank has roped in a new employee – a humanoid, named IRA (Intelligent Robotic Assistant), who stands at the branch's welcome desk, and is programmed to guide customers to the requisite counters.

The philosophy is let's automate whatever we think can be automated.

NS Kannan, Executive Director, ICICI Bank

Artificial intelligence and automation are now considered to be amongst the biggest threats to job creation and industry voices across the board agree that so-called traditional jobs may soon cease to exist. According to Infosys' chief executive officer, Vishal Sikka, advances in technology removing a lot of mechanical and scripted jobs, besides many related to business process outsourcing, IT and IT infrastructure operations. But automation will also lead to creation of a new set of jobs, Sikka added.

Around 20 crore middle class young people would have no jobs by 2025 if our education system doesn't keep pace with the changes in automation and technology, Mohandas Pai, the chairman of Manipal Global Education Services told Bloomberg Quint in an interview.

And the level of automation is only going to get higher. Both ICICI and HDFC Bank say this is only the start, and there's a lot more to come.

IRA's developer, Asimov Robotics, believes that robots will definitely replace blue collar jobs in future.

If you look at India, India is very rich in human resources. But the fact is that for a lot of jobs like blue collar jobs, you won't find resources. You won't find people to work. Like security guards. People don't want to work in that space. These are all the areas where robots will dominate in the coming future. Whether we digest it now. It will be there for sure.

Jaykrishnan T, CEO, ASIMOV Robotics

Apparel, leather industries capable of creating half a million jobs annually: Economic Survey 2017, recently released by the Ministry of Finance, agrees to the fact that 'creating jobs is India's central challenge' and with that, it says that India needs to generate jobs by promoting the apparel, leather and footwear sectors.

The survey says that the two sectors have immense opportunities to generate jobs that are formal and productive, provide bang-for-buck in terms of job creation relative to investment, have the potential for broader social transformation, and can generate exports and growth. Recognizing this possibility, the government has already announced important steps to incentivize the production and exports of apparel.

However, throughout history, people have lost their jobs to machines. First the manual, then the clerical and now – it is feared – the intellectual and conceptual. The US study suggests that computerization's effects will spread to encompass service occupations as well as transportation, logistics, office and administrative support. And it supports the idea the more educated you are, the less likely your job is to be computerized.

Automation to impact 69% jobs in India: World Bank research

According to a recent World Bank research, automation will impact 69 per cent of the jobs in India and 77 per cent in China. The research states that technology could fundamentally disrupt the traditional economic growth paths/patterns in developing countries. To prevent that from negatively impacting people, such countries will have to focus a lot more on enhancing their human capital as well.

Based on what the research predicts about how automation will replace a significant number of jobs in India and China, and as high as 85 per cent jobs in Ethiopia, Kim says, World Bank president, "If this is true, we need to understand the paths to economic growth that will be available for these countries and then adapt our approach to infrastructure accordingly. Moreover, with increasing reliance on private-sector investments, we will have to increase our vigilance to ensure that privatization does not equal exclusion of the poor and marginalized."

Investing in the earliest part of people's lives will significantly impact the countries' ability to compete. The cost of falling short in equipping children with foundational skills is unacceptably high, and the evidence supporting this conclusion grows every day. Also, "Governments that do not invest early in a skilled, healthy and productive workforce are undermining their current and future economic growth," explains Kim.

According to IT industry insiders, hiring was all right when the going was good. But as the operating environment gets tougher, client expectations are changing. Clients tell them that if they don't get 30 per cent savings, they are not interested. Automation is one way of achieving this. Optimists argue that automation could speed up the growth of the \$143-billion sector into newer areas, and lead to demand for a new kind of workforce.

CONCLUSION

The upgrading of skills and re-skilling then becomes mandatory for employees at every level. Without urgent and targeted action today, to manage the near-term transition and build a workforce with future-proof skills, governments will have to cope with ever-growing unemployment and inequality, and businesses with a shrinking consumer base. Government may need to extensively revamp its economic structures to sustain development and prevent mass disruption.

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