

Artificial Intelligence – Will it Hasten or Hamper Women Career Progression

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Abstract--Since the advent of industrial revolution and mass production, machines replacing men has been a matter of heated debate and discussions. The threat of job losses on account of automation and consequent labor unrest has been the hallmark of growth and progress over the past few centuries. However the resistance to change has been successfully managed by finding new avenues of employment by enabling the labor with better skill sets. Similarly, computerization, which was also viewed as a threat, disproved the fears and created more direct and indirect employment for the young work force in India and elsewhere in the world. The growth of service sector in the first decade of the new millennium brought about 9.3% GDP growth for 3 years from the financial year 2004-05 before the global financial crisis resulted in an economic slowdown. Issues such as lean initiatives, cost leader ship and saving in labor cost again came to the forefront and global MNC's continued their efforts to seek low cost destinations for off shoring noncore routine work. In the meantime the shared services model also began to gain momentum with a shift of emphasis from people to processes and technology. The world was slowly moving towards artificial intelligence and machine learning to standardize processes and procedures and achieve cost efficiency.

I. INTRODUCTION

The experimentation with artificial intelligence(AI) and the euphoria on account of initial success let to increase in use of AI in every function including the human resources department. Slowly and steady noncore routine work like a resumes screening, first level communication and short listing have all been taken over by machines and bought in recent times. The concept of video resumes is also gaining momentums which combines the very first two stages of communication testing and resume short listing by machines instead of men. Hence, the age old question of whether it will result in job losses has come to the fore again. As a result speculations are ripe about the impact of AI on women employees and their career progression. Since gender inclusivity is already low at 22% in banking and IT on an average, the issue of women career progression in the light of the AI era is of more serious concern today ever before.

II. JUSTIFICATION FOR THE STUDY:

Enabling technology to bring about cost efficiency is the order of the day. So a seem less integration of people, processes and technology to handle noncore routine work is bound to replace men and women by machines. In that case

there are greater chances of job losses, particularly for women who are already under-represented in the work force. This is bound to hamper their career progression because job security itself has become a matter of serious threat. At this juncture it is necessary to carry out analyses of the possible impact of AI on jobs and career progression of women in IT and ITES where the diversity in work force is higher as compared to other sectors. Even after a SEBI mandate women representation in corporate board rooms is pathetically low at less than 1% till 31st march 2017. Hence job losses at the entry and the middle levels may possibly slow down the career progression of the women to the senior levels and board rooms. This study attempts to evaluate the impact of artificial intelligence on women career progression in the IT and ITES sector in India.

III. SCOPE OF THE STUDY:

This study confines itself to women career progression in IT and ITES where the use of artificial intelligence is on the rise. It covers a period of 3 years from the financial year 2015-16 to the financial year 2017-18. The study considers women participation in board room as a proportion to women participation in work force at all levels.

IV. OBJECTIVES OF THE STUDY:

This study is carried out with the following objectives:

- To grasp the applications of artificial intelligence in IT and ITES sectors and how it results in job losses.
- To critically examine the after effects of AI on women participation in work force and women career progression.
- To analyze the impact of AI on women career progression on the top 10 IT companies in the India.
- To suggest measures to overcome the challenge and bring about the greater gender diversity at all levels in the chosen sector.

V. METHODOLOGY:

This study is descriptive in nature and is based entirely on secondary data drawn from published reports in journals, periodicals and websites. It uses simple statistical tools such as tables, charts, graphs and percentages for analyses and interpretation of data.

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VI. LIMITATIONS OF THE STUDY:

The study is hampered by the following limitations:

- It assumes that artificial intelligence may lead to job losses to women and hamper the career progression of women. This is the serious limitation.
- It considers only IT and ITES sectors where as AI is all-pervasive in banking and financial services as well.
- It considers data only from financial year 2015-16 and doesn't cover the longer period.
- It is based entirely on secondary data and suffers from all the limitations of the same.

VII. REVIEW OF LITERATURE:

Rebecca Searles²⁰¹⁸, suggested the future of artificial intelligence will be female because they takeover upcoming jobs to reduce their financial crisis and they manage to increase their skills relating to job.

Sarah Kessler²⁰¹⁷, explained that the optimist's guide to the robot apocalypse that machine work is increasing based on human work and men is reducing to women. It handles book keeping, insurance claims, performs basic HR tasks, etc.,

Esther Myers²⁰¹⁷, observed and explained that artificial intelligence is a threat to women's jobs because robots make job safer easier and quicker.

In January 2018 Google CEO Sundar Pichai spoke about artificial intelligence, more women need to involve in development of technology products, amid a debate at the World Economic Forum (WEF) about growing gender inequality.

Sandro Monetti²⁰¹⁷, discussed about Artificial intelligence will take more jobs from women than men i.e., rise of mass unemployment is the cause to predict that robots will work with women's in special works.

Professor Toby Walsh on 10 ways society will change by 2050 and gave his decision on artificial intelligence i.e., he is warning about artificial intelligence makes us sleep walking which billions of machines and computers able to think.

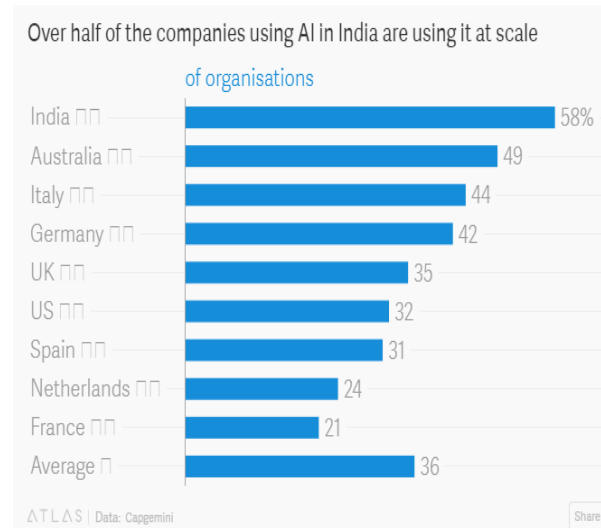
Ivana Bartoletti gave his opinion on women must act now, or male-designed robots will take over our lives. Artificial intelligence is more useful when compared to human work. The issue is not innovation or technology but the problem is government artificial intelligence.

Kate Taylor²⁰¹⁷, described about Automation will affect women twice as much as men are likely to lose their jobs and replaces by human labour. Automation risks are more for women employees than men.

VIII. ANALYSIS AND INTERPRETATION OF DATA:

Numerous reports are flooding in the market place cautioning women against possible job losses on account of migration to artificial intelligence platform world over. An estimated of 5 million job losses are threatening to erode the career opportunities of women in India on account of this disruptive technology according to Patrick and Karl.F. MacDorman.

There is clear evidence that the Indian government and corporate business houses have stepped up their budget allocation for enabling artificial intelligence to minimize cost and maximize efficiency. They seem less integration of process with technology and standardization have both become top priority for all concerned. The chart shown below brings out clearly the strong push towards taking the artificial intelligence platform not only in India but also in other matured and emerging economies.



The stepped up budget allocation for Artificial intelligence is a matter of compelling necessity in India because most of the foreign multinationals have either setup their own captives or outsource their non-core routine functions to India. Shared services as an emerging model also places emphasis on processors and procedures integrated with technology so that bots and machines take over from men and women. India is top of the table with 58% companies moving to the artificial intelligence platform whereas USA is lower end of the table with 32%. This clearly proves that the American investment is more in India for implementation where as it is more in their own country for innovation research and development.

According to Ananya Battacharya, there is a strong push by India towards Digitalization, 3-D printing, Machine learning and other technologies with a budget allocation of Rs.3,073 crores which is almost double the allocation in the previous year. However China is ahead in the race with allocation that is several times more both in terms of man power and money as evidenced by the following table.

	Absolute R&D (\$billion)	Number of researchers
China	409.2	3,926
India	50.3	546

Source: UBS Research

However the R&D Investment is still in you as

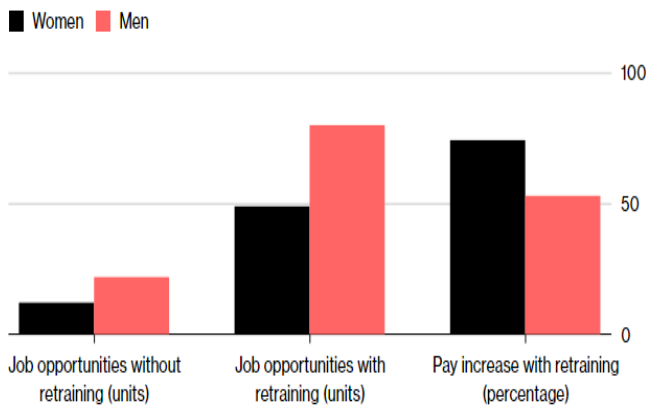


with over 41% of investments for research in Artificial intelligence going to San Francisco Bay area according to Synced view of China.

This unprecedented trust towards automation and artificial intelligence is most likely to have some side effects particularly on the employment front. Since the aim of artificial intelligence implementation is to bring about process and cost efficiency, it is bound to replace men and women in non-core low end functions. This would necessarily result in job losses and available data points to greater impact on women than on men at least in the initial stages

It would be interesting to note that the participation of women in work force is quite low but in terms of pay with or without training they seem to be competing with men as shown in the chart below:

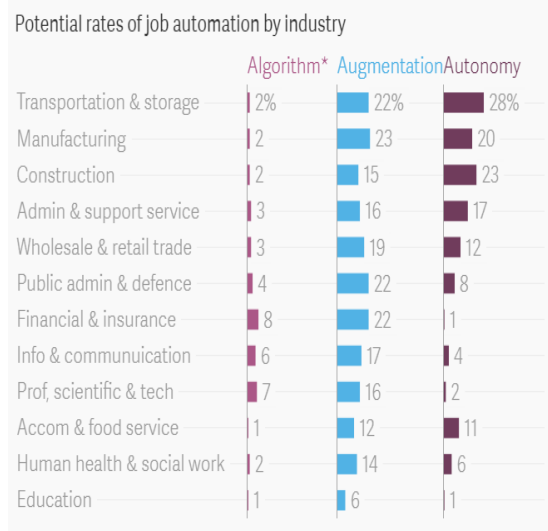
IX. CHART SHOWING PAY PARITY BETWEEN MEN AND WOMEN:



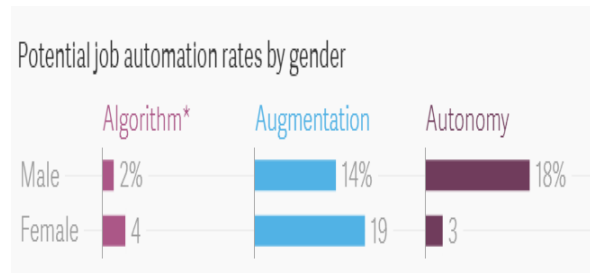
Source: World Economic Forum

The above chart clearly brings out the fact that pay increase for women is much higher with retraining as compared to men. However in terms of job opportunities with or without retraining the women are still at a disadvantage as compared to men. Hence further job losses are more likely to bring down the percentage of women in work force rendering all attempts at gender diversity meaningless. In this context it is important to note that the already male dominated Indian work force may witness a further shrinkage of women participation with the advent of artificial intelligence in work place. Moreover the percentage of women at the entry level may also witness a drastic fall with routine noncore functions being taken over by machines. This is bound to effect career progression opportunities for the depleted women work force in IT and ITES sectors.

A quick look at increase in degree of automation in Indian industries would reveal that the rush for automation is on the rise as depicted by the shown below:



IT and ITES is the backbone of automation, artificial intelligence and machine learning. Consequently increase in levels of automation by the end users would naturally translate in to job losses not only in the industries adopting the technology, but also in the industries that develop and facilitate the technology and migration. Overall an estimated 20 million job losses all over the world are visualized but there are also the indications that over 30 million new jobs may be created with training and retraining the work force and moving them to higher end job profiles. In this scenario it is quite likely that the women may fall behind the race on account of possible career breaks in late 20's and early 30's hampering the progression to higher levels. It would be interesting to analyse potential gender wise job automation as captured by table below:



This table clearly brings out that algorithm and augmentation affect women more than men where as in terms of autonomy the males account for a higher proportion. Evidently the routine jobs angled by the women in work force are slowly and surely moving towards automation there are taken over by bots and machines. The real challenge at this point in time would be to ensure that the core routine jobs still provide for gender inclusivity with greater women participation in the work force. Otherwise the already low rate of participation may resulting much lower rate and pace of progression to the higher levels and almost negligible representation in corporate board rooms.

A reason price water cooper report projected the issue until 2030 taking algorithm, augmentation and autonomy with gender wise impact till 2020 and 2030 in UNITED KINGDOM. The results are



represented in the form of a table shown below.

Wave	Cumulative % of UK jobs that could be impacted by automation	% of women that could be impacted	% of men that could be impacted
Algorithm wave - to early 2020s	2-3%	4%	1%
Augmentation wave - to late 2020s	20%	23%	17%
Autonomy wave - by mid 2030s	30%	26%	34%

Table: PwC estimates for the UK based on OECD PIAAC data

In line with expectations this table also reveals a similar pattern of greater impact on women than men in both algorithm and automation where as men account for higher proportion in autonomy. An advance economy like UK may probably manage to find other ways and means of greater women participation and career progression with the help of both legal and social backing. On the other hand emerging economies like India have a more serious concern to bring about inclusive growth to give an impetus to economic progress while the ratio of men to women is expected to be constant over the next decade at 100:90+ as estimated by a

reason price water cooper survey, leaving a major chunk of female population out of the work force may not auger well for countries economy.

The poor wait of women representation senior management and corporate board rooms can only get worse with shrinking women participation in work force at the lower level.

A mere 6.69% participation of women in corporate board rooms in India poorly compares with over 40% in Norway. In fact Norway is the rolemodel for gender inclusivity with 46% of participation of women in the workforce and 40% of women make it to the corporate board rooms. A recent SEBI directive mandated companies to have at least one woman in their board feeling which there is a threat of penalty. Even then the companies managed to hoodwink SEBI by including their own family members (daughters, daughters-in-laws or wife in the board room). Birla group managed to achieve the highest percentage of women in board rooms with more than 5 women directors.

X. THE ROAD AHEAD:

“Progress is the exchange of one from of nuisance for another but that doesn’t prevent us from progressing”. Every disruption in terms of technology also brings it with self a lot of hidden opportunities that need to be unearthed and leveraged for progress and betterment. The women in India are quite capable of overcoming the challenge and move up the value chain to achieve their career goals whenever they face a crisis. The high percentage of women in higher education is a welcome trend and this has to be translated into employment in the near term and progression

in the longterm for ensuring inclusive growth. In this regard the following suggestions are made.

XI. SUGGESTIONS:

- They should be a through revamp of curriculum at the school and college levels to bring out creativity and high end employment instead of preparing the students to handle routine non-poor functions.
- The period of internship with the industry should begin right from higher secondary level in school and should continue throughout the tenure in college. Currently students go for internship only before they commence their final year.
- The industry should take up the responsibility to prepare students for handling high end jobs through intensive training at the college and in their own premises.
- The issue of gender diversity should be taken as a top priority and atleast 40% of the jobs should go to women during campus recruitment or off-campus recruitment.
- The industry should also enter into MOU’s with institutions to include one course of their own choice in the curriculum to make the students job ready.
- The industry should also commit itself morally to the cause of gender diversity and women career progression in the respective industry and organizations.
- The industry should focus on continuous training to women employees and also involve them in the process of migration to artificial intelligence.
- The women on their part should focus on continuous learning through certification to stay competitive in the market. They should take the career progression more seriously than ever before.
- Change management is a both a science and an art and becomes relevant particularly during periods of disruptive technological changes. The top management would ensure adaptability and acceptance during the strategy, implementation and post-implementation stages while migrate into AI and machine learning.
- The broader goals of inclusive growth, adequate representation in corporate board rooms for women and gender diversity in workforce should be given top priority while formulating policies for change and attempting cost and process efficiencies. The government should also strictly enforce loss favorable to women in work force and stipulate atleast 40% gender inclusivity in workforce and atleast 20% representation in corporate board rooms.

CONCLUSION:

“Even the decision to invest in one place than another is a matter of cultural and moral choice”. Similarly, the decision to hire a woman instead of a man when other things remain equal is also a matter of



compelling social responsibility. Organizations that have the will to commit huge sums of money in capital expenditure for assuring in an era of innovation and technological changes should also develop a strong moral and social will to sustain and improve gender diversity at all levels in their organizational structure. They should also make continuous efforts to remove the robot out of the human being and make both of them more empower to handle tasks in their own domain. Men/ Women were not created barely a two legged animal, to be superceded by machines and feel insignificant. He who made the machines knows how to handle them and how to handle himself better today than ever before in time.

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