



**Dr. T N. Swaminathan**

Dr. T N. Swaminathan, Professor - Marketing, Great Lakes Institute of Management, Chennai.

# Machine Learning - Job Loss or Not?

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In the last article having explained Machine learning as the field of Computer Science that “learns” from data without human intervention leads therefore to a logical question that is really a guessing game - which jobs will or won't be replaced by machines – this article looks at some aspects of job impact on account of Machine learning / AI.

Recalling, as a youngster in 70's, when LIC of India automated and created in what was then called as EDP (Electronic Data Processing) Department, the employees declared a National strike ! The reason for the strike was that the machines will adversely impact current employees and future recruits. Many of those employees who are happily retired now, thank LIC for the creation of EDP department that in fact created additional jobs. Earlier this week media reported WIPRO setting up of bots and cutting jobs. Also was reported Tata Motors cutting jobs but not that of Blue Collar.

Any automation, by definition will affect portions of almost all jobs to a greater or lesser degree, depending on the type of work they entail. However it is unlikely to eliminate occupations / jobs entirely in the foreseeable future, at least in India. A McKinsey study (McKinsey Quarterly, July 2016) in USA indicated that technologies available today, could automate 45 percent of the activities for which people are paid to perform and that about 60 percent of all occupations could see 30 percent or more of their activities automated in the next few years.

In industry many types of activities have the technical potential to be automated, but that potential varies significantly based on % of time spent on predictability and repetitiveness of the job performed. The hardest activities to automate with currently available technologies are those that involve managing and developing people or that apply expertise to decision making, planning, or creative work. These activities, often characterized as knowledge work, can be varied, spontaneous, where automation can provide an excellent support job but humans are still needed to provide proper goals, interpret results, or provide checks and balances. Thus in Managing others (HR) Applying expertise (Doctors, Chefs, Sportsmen) Stakeholder interactions (P.R., Waiters & Nurses) Unpredictable physical work (Forestry, projects )that are essentially non repetitive / unpredictable, automation could only be a support and not an eliminator of a job.

Besides Technical potential, Technical feasibility needs to be considered since each whole occupation/ job is made up of multiple types of activities, each with varying degrees of technical feasibility! For example though a Salesman's job may seem repetitive and admin and reports part of it can be automated, it is unlikely a salesman

will be eliminated. Similarly, the importance of human interaction is clearly evident in two sectors that, so far, have a relatively low technical potential for automation: Healthcare and Education!

Therefore, in practice, automation will depend on more than just technical feasibility - four other factors are involved viz. 1) costs to automate; 2) the relative scarcity, skills, and cost of workers who might otherwise do the activity; 3) benefits (eg, superior performance) of automation beyond labour-cost substitution; and 4) regulatory and social-acceptance considerations. The above considerations were the primary for India to become major ITES outsourcing destinations essentially on account of cost arbitrage versus skills and automation. Now Indian IT / ITES is also slowly gearing up to the fact that in some sectors machine learning & AI will impact their revenues thus making significant realignment to their portfolios and jobs.