

TECHNOLOGY – INDUCED WORKPLACE CHANGE AND HUMAN RESOURCES

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ABSTRACT

Growth in technology, increase in computing knowledge to both consumers and enterprises, and internet connectivity has changed the traditional way of doing business. These technological growths have brought about changes in the way a work is done and also changes the worker too. Due to this workers undergo depression and anxiety anticipating job loss by technologically generated workplace changes.

However, increased digitalization of the workplace has been an advantage for the organizations through increased productivity, cost savings, a more mobile and agile workplace and increased adaptability in the complex marketplace.

Moreover, the new digital workplace has its own challenges too. Anxiety is a commonly observed problem among the workers, due to the introduction of technology in the workplace. The feeling of anxiety and frustration leads to resistance; which ultimately rejects the benefits the management had hoped to accumulate by executing it. If such resistance is not properly dealt with at the organizational level, it may compromise with the intellectual and/or emotional capacity of the workers to adjust with the introduction of the growing new technology.

An effort to manage the period of transformation is required to navigate the tension between the negative and positive perspectives on the growing displacement of human labour by technology. The displacement of the worker may result in economic divergence between rich and poor, economic poverty, social unrest for growing numbers of dislocated workers, backlashes against technology and economic and social decline. The use of technology if handled properly, to replace workaday, lackluster, repetitive, dangerous or strenuous labour could make it possible to live more meaningful and contented lives.

KEYWORDS: *Technological Change, Automation, Pareto –Optimal, Digitalisation*

INTRODUCTION

Hiring full-time employees to work eight to nine hours shift in a company, office or factory is fast becoming outdated. Growth in technology, technical capabilities, a drastic increase in computing power available to both consumers and enterprises, and the internet connectivity among other digital advances have changed the system of working among the employees and enterprises (Buchanan& Hatch, 2016). Technological changes have brought about changes in the working pattern which in turn has reduced the requirement of manpower. In the effort of reducing the manpower, the workers develop health issues like anxiety and depression and at times respond catastrophically to the introduction of new technology and anticipating job loss by the technology-induced workplace change.

TECHNOLOGY INDUCED WORKPLACE CHANGE

Increased digitalization of the workplace have in a way been a boon to the organizations as it increased the productivity, it is cost saving, more mobile and agile workplace and increased flexibility in the complex marketplace. Enterprises can interact globally for business collaboration which helps in diversifying their business worldwide. Similarly, even the employees can reach all over the world, from jungle to arctic as long as they have reliable internet (Buchanan& Hatch, 2016). However, new digital technology when introduced in the workplace creates its own challenges; anxiety is observed among the workers facing the new digital technology in the workplace. Even though the workers initially are receptive and open to the new technology, later find it difficult to master it, which also results in anxiety and frustration. This feeling of anxiety and frustration leads to resistance; which ultimately rejects the benefits the management had hoped to achieve by implementing it. If such resistance level not handled properly at the organizational level, it may compromise with the intellectual and/or emotional capacity of the workers to adjust to the introduction of a new technology.

INTERACTION BETWEEN AUTOMATION AND EMPLOYMENT

In the past two centuries, there have been warnings that automation and new technology were going to wipe out a large number of middle-class jobs. Popularly known as the Luddite fear (which refers to the early 19th century movement, where a group of English textile artisans protested against the automation of textile production by seeking to destroy the machines, due to the fear of widespread unemployment, that the technology is expected to bring about), after many false alarms, may be coming true. Behavioral psychologist B.F. Skinner (1948), suggested that idealistic vision of human beings free from a life filled mostly with travail of manual or mindless labour to enjoy a happier, productive and more meaningful level of existence through art, music, literature and rich social relationship, would be realized shortly.

An article “The Automation Jobless” in the TIME magazine of February 24, 1961, stated: *The number of jobs lost to more efficient machines is only part of the problem. What worries many job experts more is that automation may prevent the economy from creating enough new jobs... In the past, new industries hired far more people than those they put out of business. But this is not true of many of today’s new industries. Today’s new industries have comparatively few jobs for the unskilled or semiskilled, just the class of workers whose jobs are being eliminated by automation.* During the 1950s and early 1960s the concern over automation and joblessness were so strong that in 1964, president L B Johnson formed a “blue-Ribbon National Commission on Technology, Automation and Economic Progress” to fight the productivity problem of that period, mainly the rising productivity might outstrip the demand for labour. The commission arrived at a conclusion that automation alone is not the cause that threatens employment, though the technological changes (along with either form of economic changes) is an important determinant of the precise places, industries and people affected by unemployment. The most important factor is how many are affected, for how long they are unemployed and how difficult it is to find an entry into a new job. The basic fact is that technology eliminates jobs, not work (Bowen, 1966). However, the Commission did realise the effect caused by extensive use of technology and suggested “a guaranteed minimum income for each family; using the government as the employer of last resort for the hardcore jobless; two years of free education in either community or vocational colleges; a fully administered federal employment service, and individual Federal Reserve Bank sponsorship in area economic development free from the Fed’s national headquarters”. MIT scholars Erik Brynjolfsson and Andrew McAfee (2014) in their book ‘The Second Machine Age’ discusses about these concerns and gives a perturbing

picture of the likely effects of automation on employment: Rapid and accelerating digitalization is likely to bring economic disruption the environmental, stemming from the fact that as technology that is as computers get more powerful, it replaces the manpower. As technology races ahead it may leave behind a lot of people jobless. As we recall there's never been a better period when there was a demand for special skilled labours or workers with the right education, because these people could use technology to create and capture value. However, there's never been a worse period to be a worker with only 'ordinary skills and abilities to offer, because computer, robots and other digital technologies are acquiring these skills and abilities at an extraordinary pace.

However, this does not mean that automation and technological progress have made human labour outdated; in fact, during the 20th century the employment-to-population ratio rose and the women population started moving from home to market. Of course, there are cases of repeated unemployment but there is no evident increase in long-run unemployment.

Automation is a substitute for labour but in many cases, automation also complements labour, increases the output that leads to higher demand for labour, and interacts with adjustments in labour supply (Autor, 2015). In a company when a payroll is processed by the computer, it alphabetizes the list of names or also tabulates the age distribution of residents in a census enumeration which was previously done by the human. This shows that in most workplaces technologies are designed to save labour. More and more labour-saving technologies are invented day-by-day, however, we can also see that nowhere technology change has wiped out employment. One important observation here is – why does not automation necessarily reduce aggregate employment, even as it demonstrably reduce labour requirements per unit of output produced? This means that tasks are generally complemented by automation; and not substituted by it as is generally believed. . It is a well-known fact that work processes involve multiple sets of inputs like labour and capital, brain and brawn; creativity and rote repetition; technical mastery and intuitive judgement; perspiration and inspiration; abiding by the rules and judicious application of discretion. All these inputs play an Essential role in one and do not avert the need for the other - in fact, increase in productivity in one set increases the economic value of the remaining. Bessen (2015) finds that there has is an interesting complementary between information technology and employment in banks with the experience of automated teller machines (ATMs) and bank tellers. In the US ATMs were introduced in the year 1970 and by 2010 the number of ATMs rose to 400,000. We may think that these machines would have replaced the bank tellers but according to the study, US bank teller employment has risen moderately from 500,000 to 550,000 over a period of 30years (1980-2010). According to Bessen, bank tellers did not vanish because of two factors; first, by reducing the cost of working a bank branch, ATMs indirectly increased the need for tellers though the number of tellers decreased per branch, the number of urban branches rose by a greater percent. Secondly, as the cash-handling system of bank tellers decreased, information technology enabled at the bank personnel a broader range of opportunities like involving in "relationship banking"- bank tellers started working as salesperson, forging relationships with customers and introducing them to additional bank services like credit cards, loan and investment products. Technological changes may not necessarily increase the employment opportunities. Three main factors have been identified that can ease or multiply its impact (Autor, 2015). First, if the workers are involved in tasks that are complemented by automation, then they are likely to benefit directly from automation. For example, a bank teller who can tally currency but cannot provide 'relationship banking' cannot do well in a bank. Second, the elasticity of labour supply can help wage gains. If the complementary tasks are available elsewhere in the economy, then new workers will temper any wage gains that are derived from complementarities between automation and human labour input. Third, the output elasticity of demand combined with

income elasticity demand can either dampen or multiply the gains from automation. As technology advances even if the elasticity of final demand for a given sector is below one (i.e., the sector shrinks as production increases due to technology advances) may not lead to aggregate demand; because the surplus income can be spent elsewhere. Jackson (1993) says that in the 1920s when passenger cars replaced equestrian travel, roadside motels and fast food industries emerged to serve the 'motoring public'.

POLICY OPTIONS

The above discussions make it clear that steering the tension between negative and positive perspectives on the increasing displacement of human labour by technology requires a calculated effort to manage this critical period of transformation. If this is not handled amicably the displacement of workers by technology may result in expanding economic bifurcation between rich and poor, economic poverty and social unrest among the growing numbers of dislocated workers, backlashes against technology and social institutions, and economic and social decline (Marchant, 2014). On the other hand, if managed properly, the use of technology to replace workaday, lackluster, repetitive, dangerous or strenuous labour can help to live more enjoyable, meaningful and leisurely lives.

Appropriate policies should be taken in order to make a smooth transition into an era where machines do more and more jobs which humans have been doing. Brynjolfsson and McAfee (2011) argued that for the first time in the modern era the economic growth has become detached from employment growth. Of course, some other experts (Miller and Atkinson 2013; Bessen 2013) disagree with this prediction, contending it is just a false alarm. Policy interventions must address both shorter and longer-term goals and the short-term actions are to be aligned with longer-term objectives

It is well-known fact that no economy can resist the technology innovation because that would make a nation anti-competitive in the global market; as other countries would step-in to take over the laggards and attain technological, economic and military predominance. By imposing a compulsory retirement age we can possibly share the reducing supply of work among more people. The main advantage of doing this is it would benefit more young people. However, this may have an adverse impact on the individuals and society. As people live longer, many want to continue past their retirement age for both economical and psychological reasons. The organizations tend to lose skilled and experienced workers with many healthy, productive and potential years of work remaining.

Government and other non-market interventions can create additional employment that would not otherwise be available under existing market conditions. Work programs created by the government were successful to lift the economy out of the Great Depression in the 1930s and may now be needed to create new employment opportunities. According to Strain (2013), a government assisted program can include:

- a subsidy and relocation service to serve areas or sectors that are experiencing a shortage. an unemployed worker to be paid a lump sum to secure employment.
- Loans on low-interest provided to start a promising business. Visa and other permit formalities provided in order to retain skilled and highly-educated foreign students or workers; and
- Reduction of red tape and tax implications involved in setting up or establishing and maintaining new businesses. Employment can be increased by giving incentives in the form of tax reduction to companies to hire more workers

(Spence and Hlatshwayo, 2011). Sachs and Kotlikoff (2012) propose using tax policy to benefit young people who may be disproportionately affected by technological unemployment.

Research and development should be emphasized in order to increase job opportunities. Small entrepreneurs may be provided finances and the regulatory burdens reduced to facilitate increased employment. ..

Keeping pace with the changing times, the context of education also need to be changed. Greater emphasis should be given to science, technology, engineering, and mathematics education as the teaching of facts and information has now become outdated. Keeping with the changing times, the context of education also need to change. The teaching of facts and information has now become obsolete and greater emphasis should be given to science, technology, engineering, and mathematics education. During the period of rapid changes the type of adaptive and forecasting skills must be taught, including the study of possibilities and probabilities of human change, awareness of fluctuations and alternatives, a menu of skills for the upcoming jobs and coping skills, flexibility and adaptability to changes (Marchant 2014). According to Abdul Raheem Yusuf (2007), rapid technological changes help the humans to be educated thinkers who are problem solvers, leaving the everyday tasks to the technology. Similarly, Frank Levy and Richard Murnane (2004)) predicted that the major consequence of computerization is not mass unemployment, but a continued decline in the demand for moderately-skilled and less-skilled labour. Job opportunities will grow mostly in high-skilled occupations in which computers complement expert thinking and complex communication to produce new products and services.

In order to find the strategies that work best in an era of evolving technologies and jobs, experimentation in the field of education is a must. Studies show that young people with a university degree do much better than those without in terms of finding quality jobs (Berger and Fisher, 2013; Pielke 2012); though quiet a number of university graduates are not able to find quality jobs. The advent of online education and massive online course (MOOCs) is another opportunity for experimentation. There is risk and opportunity when a change is brought about. Increasing use of technology replaces work (previously done by a human) that presents both risks and opportunities, resulting in unemployment. However, these technologies can enrich our lives and free us from drudgery and monotonous, boring work, thereby enabling us to enjoy a higher quality of life. To achieve this, it is a must to change laws, policies and social contract in tune with the technology change, so that our transition into the new technological era becomes smooth (Perry, 2013). To arrest technological unemployment, it becomes a must for short-term policies that focus on creating/preserving as many jobs as possible and long-term policies should focus on moving the economy to a new social contract, taking into control the technological advances.

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