Chapter 15
Future of Work:
Skill Obsolescence, Acquisition of New Skills, and Upskilling in the 4IR

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ABSTRACT

Work as we know it has changed with the emergence of the Fourth Industrial Revolution (4IR). Prior to the advent of the 41R, skill gaps have been widening. Though the 4IR comes with bright projections, it also will predict the way things are done and the requisite skills to have. Clearly, not everyone will be up to date with the needed skills in the future work environment. Intricate underlying factors about the future of work have fuelled debates bothering on the issues of digitization on work and professions, artificial intelligence (AI), and the uncertainty of work and careers left after automation. The changing patterns of work and work arrangements, the gig economy, as well as fissured jobs (involving employ-ment as outsourced services) are of great concern. Also rife are matters around work-skill misalignment expected in the 4IR as the presentation skills that employees have may not be relevant in the new world of work. Therefore, skill obsolescence and the need to reskill and/or upskill is expected.

INTRODUCTION

This chapter examines the unclear impact of technological digitisation and automation of work processes on the cultivation of new skills by the workforce and the future of work in various sectors. Since the 20th century advancement in technology and machine automation which it brought with it, a reduction

in the economic value of applied knowledge and skill sets previously acquired by machine operators, artisans, and various highly skilled workers (Braverman, 1974), while also compelling the acquisition of new skills in various engineering and professional careers.

Discussions around the future of work concept centre around the issues embedded therein, namely the impact of digitisation on work and professions, artificial intelligence (AI), and the uncertainty of work and careers left after automation. The second point of discussion centres around the changing patterns of work and work arrangements, the gig economy, as well as *fissured* jobs (involving employment as outsourced services). There is also the concern about these emerging patterns of work becoming the new normal of the future, possibility of engaging effectively and sustainably with work, with living wages and assistance in the world where work is typically varied.

Thirdly, the matter of income is also of topical discussion and concern. In the past decade, wage freezes have been recorded in developed countries. This has naturally flowed into the discussions about wage inequality, where questions are being asked about the possibility of individuals being able to work and be paid decent wages which they can survive on. The concern is whether digitisation and new technologies will worsen the situation. These questions underlie the concept of future of work and discussions surrounding it (McKinsey Global Institute, 2020).

THE FUTURE OF WORK ACROSS SOME SECTORS

The future of work is not singular. It will vary along sector and industrial axis and is impacted by initial situations surrounding the distribution of roles, various financial outlays for adopting new technology, access to skills, and the adaptability of employees. In this context, dissimilar experiences will accompany the structure of new functions and the characteristics of the functions that will no longer be in high demand. The World Economic Forum (2018) (WEF) reports that within the period 2018-2022, development in internet as accessed by smart phones and other mobile gadgets will possibly influence the financial services and investment sector, aviation, consumer commerce, and travel and tourism sector.

Digital technologies (e.g. 3D printers) can speedily execute a variety of operations and produce products while robots and *nanotechnology, genetic engineering,* and *biotechnology* can distribute goods and services cheaply and significantly alter production procedures and their outcomes (Prisecaru, 2016). These will have implication on job losses and create the need for upskilling. Magyar (2016) agrees that these digital technologies offering exceptional possibilities for industrial expansion could also pose major challenges. She submitted various forecasts for the year 2025 in the *Technology Tipping Points and Societal Impact Report* published in September 2015. Clearly, as technological advancement supports the decrease in manufacturing wastes and reshaping of manufacturing and consumption techniques towards better efficiency in resource use, it will also endanger jobs due to the engagement of robotics, humanoids, and other innovations. Additionally, the Internet will allow fast learning and interaction and open up several opportunities for broadening information and best practices, however developed countries will derive the most benefit.

Speedy adoption of recent technologies by consumers and the developments in cloud computing will propel fast growth in the information and communication technology (ICT) sector, while big data availability will widely influence the financial services and investors, energy use and technological sectors respectively. Also, the range of need and type of sector will push the adoption of specific technologies. As reported in WEF (2018), businesses in every sector will possibly implement the use of immobile

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