**The fifth revolution**

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The world is in a process of permanent transformation. The transformation of the modern manufacturing process to enable humans and machines to work hand in hand is the next stage of the industrial revolution – known now as the Fifth Industrial Revolution (IR5.0).

‘Industrial Revolution’ was used by 19th-century economic historian Arnold Toynbee to describe Britain’s economic development from 1760 to 1840. The term ‘revolution’ was obviously used to describe the fast transformation from an earlier simple life to a more modern sophisticated means of living. Before discussing the Fifth Industrial Revolution, let’s take a panoramic view of the earlier industrial revolutions in the series.

The First Industrial Revolution began in the second half of the 18th century and lasted till the late 19th century. During this period, machines were introduced in factories to mass-produce products in textiles, iron-making and other industrial processes. The steam engine was the main invention that revolutionised the production process, shifting it from agriculture to industry.

The Second Industrial Revolution began at the end of the 19th century and led into the 20th century, witnessing new forms of energy such as electricity, gas, oil produced through internal combustion engines. The method of communication totally transformed with the invention of the telegraph and the telephone. The automobile and the airplane were the most important products of this period.

The Third Industrial Revolution began in the second half of the 20th century. This period saw the emergence of computers, internet, electronics and telecommunications. Nuclear energy is also a product of this period. It is often referred to as the Digital Revolution that opened the doors to space explorations in the upcoming new version of the revolution.

The Fourth Industrial Revolution is, in fact, the period we are living in right now, and which has brought about an internet explosion. Klaus Schwab, the founder of the World Economic Forum, coined the term ‘The Fourth Industrial Revolution’ at the WEF meeting in Davos in 2016. The internet of Things (IoT), Big Data, Artificial Intelligence (AI), quantum computing and Blockchain are new realities of this age. The next big tech thing, which is going to happen, is all about collaborative robots systems (Cobots) stepping into the Fifth Industrial Revolution, integrating humans and technology.

It is quite interesting to see the Fourth Industrial Revolution that has mixed up humans with technological advancements for profitability vis-a-vis commerce and businesses. It is almost clear from the technological advancements that humans have become subservient to anatomical artificial intelligence (AI) dominated machines. The utopian appeal of the certainty of machines to perform the best of functions, compared with humans, has its own importance while making the decisions. The Fifth Industrial Revolution seems to be the extension of the fourth one (industry 4.0), destined to improve the conditions and atmosphere of the workplace for people.

The main difference between the fourth and fifth industrial revolutions would be that of the working relationship between increasingly smart technologies and humans. Humans will be no more scared of robots as of their possible rival substitutes (as in IR 4.0), rather they will be happy to see them as collaborative partners. Cobots or collaborative robots will be integrated in the production processes, providing greater opportunities to humans by performing more of the ordinary and mundane tasks. That is the whole game-changer envisioned and envisaged in the Fifth Industrial Revolution that we are going to embrace soon.

The frequency of industrial revolutions has increased, as most of us have experienced the last three industrial revolutions in our lifetime. The Fifth Industrial Revolution can best be described as a hybrid model of humans and machines working together in a congenial atmosphere. The third and fourth revolutions were totally dependent upon machines, but the fifth is different in a way that humans are now front and centre. There is a non-exhaustive list of changes that are part of the new fifth generation revolution.

During IR5.0, there will be a fundamental change of administrative work that would be from home; most people will regularly work remotely and menial administration will be performed by the machines. The implantable technologies for health would result in a healthier and longer lifespan. Another change during this period would be that of chatbots becoming a routine part of the customer experience and 3D printing will become more and more prevalent. It is highly probable that you and I will work with robots and smart machines. This does not mean that human beings would become redundant. There is no doubt that robots are much more consistent than humans but they are inflexible and incapable of the adaptability and critical thinking that define us as humans.

As we are evenly poised to jump forward, the question looming is how IR5.0 will bring back the focus from machines to humanity, as it is generally understood that inclusivity and personalisation would be the hallmark of this revolution. The collaborative part of this revolution is the positive side of all the changes we are expecting out of it. The new versions of e-commerce, IT and IT-enabled services, social media apps, distance learning and e-health services will be playing a major role during this period. Ethical questions may arise in the process but it is believed that they may not become a hurdle. We are passing through mass automation towards an improved working environment in order to achieve personalization by means of customization.

There is no doubt that the Fifth Industrial Revolution will bring a total transformation in the manufacturing and services sectors by way of allowing humans and machines to work in collaboration. This would be a unique combination of the cognitive capabilities of the human workforce and the technical expertise of the robots, thus revolutionising the whole process. It is generally misunderstood that robots would be replacing humans at the workplace when in fact they will be complementing each other through improved versions of new applications. The new versions of software and digital applications in this process would be very effective in the fast forward transformations.

There is an immediate need to move forward to reap the benefits of this new version of the industrial revolution, as the fourth revolution brought only profitability, ignoring human-related issues of collaboration and personalization. The new collaboration of human and machine can make this possible. It is expected that the fifth version of the new industrial revolution will tend to humanity in its entirety and not in exclusivity. Robotics will play a major role during this revolution but there is no reason to be scared of robots, as the human capability of critical thinking would be central in any case and will be driving the whole system.

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