

Artificial Intelligence Robots And Revolutionizing Society In Terms Of Technology, Innovation, Work And Power



Author Notification
01 November 2021
Final Revised
01 November 2021
Published
07 November 2021

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To cite this document:

Nabila, E. A., Santoso, S., Muhtadi, Y., & Tjahjono, B. (2021). Artificial Intelligence Robots And Revolutionizing Society In Terms Of Technology, Innovation, Work And Power. IAIC Transactions on Sustainable Digital Innovation (ITSDI), 3(1), 46–52.

DOI: <https://doi.org/10.34306/itsdi.v3i1.526>

Abstract

In what ways do recent advances in robotics and artificial intelligence signal a historic economic and social transformation? This study presents a critical assessment of the subject, critiques many of the ongoing debates of technical determinism, and reframes the issues involved within a political-economic and social framework. It focuses on technological innovation's economic, political, and historical processes and their implications for employment and financial restructuring, mediated by sovereign and discursive authorities. Several epistemological and empirical issues with a transformational viewpoint are noted, and alternative views are suggested to highlight the complexity and ambiguity surrounding current and future trends. Robotics entered when the industrial revolution had many significant changes for humans. Efficiency is increased to produce various productive things. This paper uses a literature study as a method. The results of his discussion on Revolutionizing Society In Terms Of Technology, Innovation, Work And Power of Robotics.

Keywords: artificial intelligence, social transformation, technological innovation

1. Introduction

Worries about the social elements and ramifications of arising mechanical technology and man-made brainpower (AI) advances have arisen as an unmistakable subject in scholastic, proficient, public arrangement, and business talks[1]. Much consideration has been paid in friendly hypothesis to wide issues of the developing cooperation among people and robots.

This incorporates a general obscuring of natural mechanical/human-machine boundaries, the ascent of the 'post-human' and 'cyborg,' the uniqueness of human exemplification, and new points of view on the mind as 'social.' Other exploration have investigated new kinds of sociality that have arisen because of expanding associations with automated sidekicks. Regularizing originations of 'the human' that impact the plan of human robots and the advancement of wise machine frameworks as powerful innovative social builds Such issues

have been incorporated into more exhaustive investigations of the arrays and practices inside which innovation and human exercises are verbalized, encapsulated, and performed inside friendly investigations of science.

A comprehensive sociological examination of robots and AI that draws on the vast theoretical resources available in technology sociology is still absent. Our goal here is not to undertake such a grandiose analysis. The more limited goal is to give a critical review of corporate and policy-oriented arguments that presume that robots and AI would result in an unparalleled societal revolution in employment as a result of technical innovation processes.

When Australia's Council for Economic Development (ACED) released its study on Australia's Future Workforce in the middle of 2015, its forecasts of high levels of employment vulnerability due to the effect of robotics echoed comparable results elsewhere. Expansions of the scope of robots and AI are frequently characterized as detrimental to future job opportunities, both for unskilled and skilled workers/professionals. In nations such as the United States, the United Kingdom, Japan, and Australia, the total level of job insecurity is estimated to be between 35 and 50 percent. How much this type of job loss would be accompanied by new good chances, and how far the impacts would be completely bad, remains to be seen.

In the face of such situations, some pundits anticipate a dystopian future of robotic substitution for human labor and mass unemployment. This would not only eliminate chances for paid work, but would also alter power systems. Others see smart machines as contributing to the dehumanization of labor or as the creation of a cyber proletariat. Control of information technology, robots, and artificial intelligence, it is assumed, will entail dominance over civilization in some way. These concerns obviously reflect recurring fears about machine dominance in society over the previous two centuries.

This document's technological determinism is as remarkable as its atheoretical and ahistorical approach to the relationship between technology and society[2]. The argument simply ignores social theoretical concerns concerning the 'hidden social conditions of existence' of emerging technologies, as well as the complex discourses and contextual practices that construct, embody, and enact 'technology,' 'machines,' 'human actors,' and 'intelligence.' Rather, engineering is the dominating paradigm through which autonomous technical solutions to issues should and will be implemented[3][4].

In contrast, significant technical change is subsumed under the norm of 'creative disruption' in many corporate discourse. This concept has evolved from its marketing roots to become more closely associated with technical and organizational innovation. In contrast to Schumpeter's more ambiguous idea of "creative destruction," "disruption" is seen positively as the midwife of innovation in modern corporate discourse. Disruption-related business hyperbole should not be accepted at its value. As shown below, there is every reason to be skeptical about such statements because many inventions fail or have a very limited influence, as opposed to the relentless.

Another method to frame positive economic transformation possibilities is through the concept of a Fourth Industrial Revolution centered on robots and AI. This approach goes beyond the concepts of a Third Industrial Revolution that emerged in the 1990s as a result of advances in computer technology (Rifkin, 1995). The more recent claim is that spectacular increases in data storage capacity, computation power, and wireless digital communications, combined with increased capacity to combine technological innovations, indicate that we are rapidly approaching a transformational tipping point where robotics and AI will become a general-purpose platform. For Klaus Schwab, the World Economic Forum's founder, The Fourth Industrial Revolution is a continuation of three previous changes linked with steam power, electricity, and digitization. Schwab, on the other hand, depends on the historically based Schumpeterian insight that periods of great technical development are episodic and discontinuous, rather than subsuming creative disruption into an enthusiastic technological utopianism.

A large part of the hopeful way of talking encompasses talks of mechanical transformation centers, paradoxically, on the contention that 'this time is unique'. Contentions here suggest that an extreme change in relations among people and machines implies unprecedented challenges for human variation. Such contentions might be found in a conversation paper on 'strong and gainful man-made consciousness' caused by the Future of Life Institute, a body comprised of world-driving researchers, engineers, mathematicians, innovation business visionaries, savants, financial experts and science communicators, focused on guaranteeing that arising advances work to support humanity. Yet the actual report passes on a feeling of certainty about the rise of cutting edge AI frameworks[5], fit for conveying 'ensured benefits'. It likewise utilizes a technocentric way to deal with innovation prompted social issues, outlining these in ways that render them agreeable to additional mechanical mediations. In this the sociologies and humanities involve a peripheral and responsive position. The errands doled out to social enquiry community on improving social acclimation to mechanical change, eminently amplifying 'social thriving' in a post-work world.

The mechanical determinism of this record is just about as striking as its atheoretical and ahistorical way to deal with relations among innovation and society. The contention essentially sidesteps social hypothetical issues to do with the 'covered up friendly states of presence' of new innovations and the perplexing talks and arranged practices inside which 'innovation', 'machines', 'human entertainers' and 'knowledge' are developed, epitomized and established. Maybe, designing is the predominant edge, whereby independent innovative answers for issues ought to and will be embraced.

Regardless of whether this is unavoidably so isn't, in any case, an inquiry that can be settled by engineering talk. This inquiry requires investigation of the social and political setting and ramifications for innovative dispersion. One critical component of this more extensive social methodology is the significance of force relations for the 'structure, content, and results' of mechanical change, an understanding originally explained by Marx. Spencer's political-monetary methodology is important, yet there is similarly a requirement for a verbose concentration, particularly in understanding the social development of AI encapsulated robots and their association with human entertainers.

Our contention is, first, that the different extraordinary effects asserted for mechanical technology and AI can't be expected as unavoidable, important or generally exceptional. This scientific stand is one of doubt instead of altogether resistance towards the clatter of voices anticipating an extraordinary innovative insurgency. It is likewise multidisciplinary, drawing on bits of knowledge from financial history and financial aspects just as human science, humanities and political economy. Second, our position is one of regularizing receptiveness regarding whether extremist innovative change will have a positive or adverse consequence on monetary life and social attachment. The basic topic here is one of intricacy and vulnerability as opposed to mechanical utopianism or Judgment day forecast.

2. Literature Study

2.1 Real Change

The 'no-genuine change' position has as of late been strongly put by market analysts. They contend that the IT upset has as of now happened and has not yielded adequate usefulness gains to counter current monetary headwinds like a maturing populace, falling guidelines of schooling, rising imbalance and undeniable degrees of shopper and government obligation[6]. They infer that new innovations are an affecting financial efficiency as steam, power or the interior ignition motor. This recovery of a more established line of contemplating stagnation patterns in western economies (Hansen, 1938) represents a genuine basic test to transformationist contentions. On the one side is the notable experience of consistent losses from the use of any sort of development; on the other, suppositions of constant development at the core of data innovation, represented in Moore's Law anticipate a multiplying of figuring power at regular intervals.

One method of assessing the 'no-genuine change' contention is to think about longitudinal proof on new advancements, including mechanical technology, to build up patterns over the long run[7]. The principal significant review to analyze claims about the effect of advanced mechanics on efficiency and work, utilized the enormous chronicled datasets supported by the

International Federation of Robotics (IFR)[8][9]. This exploration exhibits that the expanded utilization of advanced mechanics between the mid-1990s and mid-2000s depended in enormous measure on massive expense decreases for robots. Robot densification expanded at a quick rate in areas like transportation, synthetic compounds and metal-working. This prompted expanded usefulness, however before the decade's over concentrated on

unavoidable losses set in to additional interest in robots. The speed of mechanical dispersion of this sort seemed to loosen, however there are vulnerabilities in regards to controlling for variations in the help life of robots affecting devaluation and once again supply. Antagonistic impacts on work were in any case found, particularly at the low-expertise end of the work market[10].

2.2 Very Real Transformation

The 'no-genuine change' position is a minority viewpoint notwithstanding a second insightful position, to be specific that innovation and society are currently experiencing extreme change. The people who think this way take differentiating, regularizing positions optimistic on whether such changes will improve or sabotage monetary government assistance and social union. However they share the conviction that revolutionary innovative change is genuine, and novel in its difficulties and resonations.

Investigation into the effect of advanced mechanics/AI on business, referred at the start of this article, has done definitely more than show ground-breaking employment cutback in incompetent work. Prior work on the effect of PC innovation showed work market polarization, with reducing interest for untalented work in more affluent economies and expanding returns to instructed work. More refined examination put more emphasis on the qualification among standard and non-routine business, with routine work—both manual and middle class—confronting the best danger.

A decent arrangement relies upon what are taken to be the drivers of work transformation. For innovative determinists, whether or not keen machines will dislodge human work 'will be replied by the idea of the innovation that shows up later on'. There are, notwithstanding, differentiating viewpoints on the fate of work. One contention drawn from monetary history is that while innovative transformations regularly disintegrate or obliterate a few occupations, new occupations are likewise made through the change interaction. This occurred in the ages of steam power and the manufacturing plant framework, power and digitalization, and will as well, so the contention goes, in advanced mechanics.

Financial history and political economy likewise cause us to notice the corporate strategies behind choices to embrace or reject mechanical advancement[11]. These accept record of the expenses just as advantages of mechanical change, including the dangers just as opportunities guaranteed by development. Worry about the expenses of new mechanical innovation might defer or delay its presentation, particularly where financialization makes tensions to momentary benefit augmentation. In a globalized environment, choices are unmistakably taken with next to no obligation to secure work in a specific area or country, or to choose capital-concentrated as opposed to work escalated or modest work choices. The spatial area and ability blend of work opportunity is extremely intricate to be perused off from 'the idea of the innovation'[12].

3. Result and Discussion

3.1 Complexity and uncertainty: a sociological perspective

Investigation of future patterns consistently has major epistemological and ontological restrictions. For some authors, direct information on what's to come is outlandish. Despite the fact that individuals from all human social orders need to realize what will occur, neither one of the futurologists, determining nor the activity of foreknowledge can stay away from this issue. We don't know with full confidence what will occur, or regardless of whether patterns obvious throughout the last year or decade will proceed, be captured, or superseded by critical cross-

drifts and change locals. Epistemological alert is much more vital when confronted with the inescapable explanatory assurances of innovative determinists.

In a notable report, research depict how the tales made by the pioneers of universal figuring (ubicomp) served both to ground, for non-specialized crowds, the new real factors of human–PC connection they imagined and, for analysts, to sort out, verbalize and rouse the exploration programs that would make these guarantees genuine. These 'technotales' are set apart by a trust in the certainty of ubicomp, yet will in general be written in the 'general future' tense[13]. This feeling that the acknowledgment of ubicomp sits directly into the great beyond endures, ceaselessly postponed, somewhere in the range of twenty years after Wieser composed, and when numerous ubicomp innovations have, as he expected, become truly woven into the texture of day to day existence.

The actual cycles of its realization, taken on structures that vary notably from those imagined. Specifically, flawless and clean dreams of homogeneous stages and consistent interconnections don't square with the untidiness that is the truth for any heterogeneous mechanical framework. The messiness, for instance, going to frameworks requiring persistent upkeep, fix or updating, administrative specialists and norms panels finessing clashing requests, or social and social practices that grade towards 'separation, creases, and discrete domains of movement'.

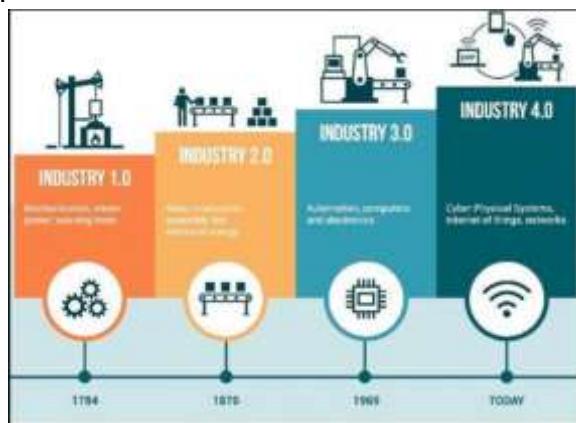


Figure 1. Industrial Revolution 1.0 - 4.0

Figure 1. This explains how the Industrial revolution can develop from Industrial Revolution 1.0 - 4.0. This development is described as follows:

A. Industrial Revolution 1.0

The first Industrial Revolution that occurred in the 18th century was marked by the invention of the steam engine which was used for the production process of goods. At that time, in England, the steam engine was used as the first mechanical loom that could increase the productivity of the textile industry. Work equipment that initially depended on human and animal labor was eventually replaced by these machines[14][15].

B. Industrial Revolution 2.0

The industrial revolution 2.0 occurred at the beginning of the 20th century. The industrial revolution was marked by the invention of electric power. Muscle power which at that time had been replaced by a steam engine, slowly began to be replaced again by electric power. Even so, there are still obstacles that hinder the production process at the factory, namely transportation problems. In the late 1800s, cars began to be mass produced. This mass production does not necessarily make the production process time consuming because each car must be assembled from start to finish at the same point by a car assembler. That is, to assemble many cars, the assembly process must be carried out by many people who

assemble cars at the same time.

C. Industrial Revolution 3.0

If the first revolution is triggered by a steam engine, the second revolution is triggered by conveyor belts and electricity, the third revolution is triggered by machines that can move and think automatically, namely computers and robots[16]. One of the first computers developed in the era of World War II as a machine to decode made in Nazi Germany is a computer called Colossus. The programmable computer was a giant machine the size of a bedroom that had no RAM and could not receive commands from humans via the keyboard. The ancient computer only received orders via paper tape, which required enormous electrical power, which was 8,500 watts. However, advances in computer technology developed very rapidly after the second world war was over. The invention of semiconductors, transistors, and later integrated chips (ICs) made computers smaller in size, required less electricity, and more sophisticated computational abilities[17].

D. Industrial Revolution 4.0

In industry 4.0, manufacturing technology has entered the trend of automation and data exchange. This includes cyber-physical systems, internet of things (IoT), cloud computing, and cognitive computing[18][19]. This trend has changed many areas of human life, including the economy, the world of work, and even lifestyle. In short, the industrial revolution 4.0 in stills intelligent technology that can be connected to various areas of human life.

Robotics is also present in this 4.0 industrial revolution, the presence of robots revolutionizes society in terms of technology, innovation, work and minimizes human labor to do various jobs[20]. This revolution is certainly very useful and helps the efficiency of activities.

4. Conclusion

'This time' is both unmistakable from and like what went before. Furthermore, similarly as in the past, innovative change has ground-breaking potential just as vulnerabilities and cut-off points. However openly banter the explanatory force in business and strategy making is behind the innovative determinists. In this article we contend that social logical and sociological points of view offer methods of getting a less deterministic scientific methodology that is sensitive to control and to vulnerability. While we don't resolve regularizing issues straightforwardly, the third logical point of view portrayed here has regulating suggestions in that it raises the chance of elective prospects, against which the mechanical technology/upgraded AI theory might be assessed. The chance of fates other than the tragic or idealistic strands of the extreme change proposal, permits a variety of contending theories about future patterns to be enunciated and considered in contrast to a majority of standardizing perspectives. Such an activity is pivotal if a deliberative vote based talk is to arise around new innovation.

References

- [1] Q. Aini, U. Rahardja, I. Handayani, M. Hardini, and A. Ali, "Utilization of google spreadsheets as activity information media at the official site alphabet incubator," *Proc. Int. Conf. Ind. Eng. Oper. Manag.*, no. 7, pp. 1330–1341, 2019.
- [2] A. Eiji and A. Gin, "Utilization Of Information Technology In The Field Education (E-education)," *IAIC Trans. Sustain. Digit. Innov.*, vol. 2, no. 2, pp. 197–203, 2021.
- [3] Sudaryono, U. Rahardja, and E. P. Harahap, "Implementation of Information Planning and Strategies Industrial Technology 4.0 to Improve Business Intelligence Performance on Official Site APTISI," in *Journal of Physics: Conference Series*, Aug. 2019, vol. 1179, no. 1, doi: 10.1088/1742-6596/1179/1/012111.

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- [4] A. Purbasari, G. P. Maryono, F. Mulyanto, and W. Gusdy, "Utilization of Google My Business as a Tourism Promotion Media Using Local Search Engine Optimization," *IAIC Trans. Sustain. Digit. Innov.*, vol. 2, no. 2, pp. 169–178, 2021.
 - [5] M. M. Alomari, H. El-Kanj, N. I. Alshdaifat, and A. Topal, "A Framework for the Impact of Human Factors on the Effectiveness of Learning Management Systems," *IEEE Access*, vol. 8, pp. 23542–23558, 2020.
 - [6] T. Hariguna, U. Rahardja, and A. Ruanganjanases, "The impact of citizen perceived value on their intention to use e-government services: an empirical study," *Electron. Gov. an Int. J.*, vol. 16, no. 4, pp. 426–440, 2020.
 - [7] T. Alam, "Cloud Computing and its role in the Information Technology," *IAIC Trans. Sustain. Digit. Innov.*, vol. 1, no. 2, pp. 108–115, 2020.
 - [8] U. Rahardja, Q. Aini, Y. I. Graha, and M. R. Tangkaw, "Gamification Framework Design of Management Education and Development in Industrial Revolution 4.0," *J. Phys. Conf. Ser.*, vol. 1364, no. 1, pp. 0–13, 2019, doi: 10.1088/1742-6596/1364/1/012035.
 - [9] R. J. Sipahutar, A. N. Hidayanto, U. Rahardja, and K. Phusavat, "Drivers and Barriers to IT Service Management Adoption in Indonesian Start-up Based on the Diffusion of Innovation Theory," in *2020 Fifth International Conference on Informatics and Computing (ICIC)*, 2020, pp. 1–8.
 - [10] B. S. Riza, M. Y. Mashor, and E. V. Haryanto, "THE APPLICATION OF RSA AND LSB IN SECURITY OF MESSAGES ON IMAGERY," *ADI J. Recent Innov.*, vol. 1, no. 1, pp. 20–32, 2019.
 - [11] D. Immaniar, M. Mulyati, P. Musliawati, and U. Jannah, "The Utilization Of Financial Information System To Support The Creation From Budget Costs Using e-Budgeting," *Aptisi Trans. Manag.*, vol. 3, no. 2, pp. 119–125, 2019.
 - [12] R. M. H. Thamrin, E. P. Harahap, A. Khoirunisa, A. Faturahman, and K. Zelina, "Blockchain-based Land Certificate Management in Indonesia," *ADI J. Recent Innov.*, vol. 2, no. 2, pp. 232–252, 2021.
 - [13] U. Rahardja, S. Sudaryono, N. P. L. Santoso, A. Faturahman, and Q. Aini, "Covid-19: Digital Signature Impact on Higher Education Motivation Performance," *Int. J. Artif. Intell. Res.*, vol. 4, no. 1, May 2020, doi: 10.29099/ijair.v4i1.171.
 - [14] S. A. Asongu and N. M. Odhiambo, "Basic formal education quality, information technology, and inclusive human development in sub-Saharan Africa," *Sustain. Dev.*, vol. 27, no. 3, pp. 419–428, 2019.
 - [15] S. Pagani, S. M. PD, A. Jantsch, and J. Henkel, "Machine learning for power, energy, and thermal management on multi-core processors: A survey," *IEEE Trans. Comput. Des. Integr. Circuits Syst.*, 2018.
 - [16] W. Li, T. Logenthiran, V.-T. Phan, and W. L. Woo, "Implemented IoT-based self-learning home management system (SHMS) for Singapore," *IEEE Internet Things J.*, vol. 5, no. 3, pp. 2212–2219, 2018.
 - [17] M. Poongodi *et al.*, "Prediction of the price of Ethereum blockchain cryptocurrency in an industrial finance system," *Comput. Electr. Eng.*, vol. 81, p. 106527, 2020.
 - [18] G. Maulani, G. Gunawan, L. Leli, E. A. Nabila, and W. Y. Sari, "Digital Certificate Authority with Blockchain Cybersecurity in Education," *Int. J. Cyber IT Serv. Manag.*, vol. 1, no. 1, pp. 136–150, 2021.
 - [19] W. Setyowati, P. C. Kurniawan, A. Mardiansyah, E. P. Harahap, and N. Lutfiani, "The Role Of Duty Complexity As A Moderation Of The Influence Auditor's Professional Knowledge And Ethics On Audit Quality," *Aptisi Trans. Manag.*, vol. 5, no. 1, pp. 20–29, 2021.
 - [20] D. Andayani, N. P. L. Santoso, A. Khoirunisa, and K. Pangaribuan, "Implementation of the YII Framework-Based Job Training Assessment System," *Aptisi Trans. Manag.*, vol. 5, no. 1, pp. 1–10, 2021.