Artificial Intelligence as an Emerging Technology for Human Capital

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Abstract

The 21st century ushered in continuous change, artificial intelligence is already driving immaterial assets of human capital feature not recorded on nations and organizations' balance sheets. This work examines various points to develop best practice approaches for implementing human capital with artificial intelligence within organizations. Human capital is categorized as the economic value of employees' knowledge, skills, and experiences. Nowadays, organizations must learn to categorize artificial intelligence in their workforce. Such change is driving paradigm shifts. Artificial intelligence has been presented as a new approach to human capital aiming at expanding human capability. The major finding are organizations are faced with a new human capital category, mechanistic learning and its impacts, which must be interviewed into required competencies due to artificial intelligence. A significant conclusion of this work is that there has to be a transformation of job processes as well as redesigns for the purpose of ushering in this new era of employees, plus technologies for more effectual outcomes as collaborative units in this coming fifth industrial revolution that is to encompassing artificial intelligence.

Keywords: Artificial Intelligence, Human Capital, World Industrial Revolutions, Fifth Industrial Revolution, Adaptive Progression, Adaptive Learning.

1. Introduction:

Technology disruption has affected human life since the first industrial revolution, thereby expanding the number of jobs as well as productivity. Through technology we glean artificial intelligence. AI technology and human capital, plus AI's significance to human capital linked performance is still in the beginning stages. A prevailing point at issue is whether or not AI is a boom or blight to the nearness of human preservation? Marcus and Davis (2019) conjectured that science is not near the point of realizing artificial general intelligence; however, there is the possibility to attain this goal. Today, the majority of businesses, especially in developing countries as in Egypt, have implemented what is termed a "digital first" strategy; this change will significantly impact the work environment.

This work reviews the existed AI literature and its connection to human capital in addition to reveal the ubiquitous technology state of strategizing understanding the human capital space. It is also directed to scrutinize today's artificial intelligence perceptions, optimisms, as well as the definition of AI and the insight into AI mechanism. Also, it is examining comprehension of the potential meaning of AI and AI devices for human capital uses as AI technology usage endures to be re-envisioned. Furthermore, this work uncovers developing AI usage in remote as well as diverse locations.

Therefore, this technical paper is to consequence in more contemporary grasp of AI, human capital application along with the vigorous role of AI and human capital in the application and processes of AI in the 1st century of the 3rd millennium, the 21st century.

2. Literature Review:

This literature review about the cyber-world, especially AI, and human capital is to evaluate the literature, and synthesize the data of such literature into a summary. Next the literature review is critically analyzing the data collected by detecting gaps in current knowledge, showing limitations of points of view, reviewing areas of controversy. In addition, the literature review is being present the literature in an organized manner.

Modern society transformed through three main industrial revolutions, i.e., steam engine, age of science and mass production, and the rise of digital technologies (Daemmrich, 2017). Next society began moving through the industrial revolution, technology fusing physical, digital and biological world (Daemmrich, 2017). This is the fourth industrial revolution, Industry 4.0, propelled manufacturers to the sequencing of intelligent devices, machines, systems and building smart networks from materials to production (the value chain). That are able to Kohler and Weisz (2016) response to the 4th industrial revolution, Industry 4.0 that is the German response to the threat posed by the eruption of digital technology on industrial value chains. Industry 4.0 is a technological determination to yield size 1 series at prices equal to those built through mass production by initiating cyber-physical production systems in factories (Kohler & Weisz, 2016). Yet, Prisecaru (2019) offered the interpretation of the 4th Industrial Revolution as not just the next transformation in the manner in which products are developed and consumed, nonetheless an important revolution in the way that the world operates. Influencing all disciplines, economies and industries, as well as all the more so the 4th Industrial Revolution is confronting conceptions and impressions in relation to the meaning of existing as a human beginning in

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the 4th Industrial Revolution, but being extended in the Fifth Industrial Revolution that is artificial intelligence.

3. Industrial Revolutions' Era:

The revolution beginning artificial intelligence is preceded by three industrial revolutions with all revolutions fundamentally changing the world. These distinctive eras unrevealed the concerns of the time utilizing tools available during the period. A communally characteristic held by the industrial revolutions was the search for phenomenal interconnection between manufacturing systems, enhanced ease of data access, increased data transparency, speedier and more capable production models, as well as the launch of diverse equipment needing minimal human intercession (Sykes, 2019).

- **The 1st Industrial Revolution** during the period 1770-1830 ushered in the stream engine and transitioned countries towards manufacturing processes (Ventura & Voth, 2015).
- **The 2nd Industrial Revolution** during the period 1860-1900 is considered a period of swift industrialization and mass production ushered in assembly lines and mass production (Atkeson & Kehoe, 2007; Chappine, 2019).
- **The 3rd Industrial Revolution** ushered in the digital revolution (the microprocessor), nuclear energy, and renewal energy (Krawczynski et al, 2016). The microprocessor developed in 1969 by Intel, utterly altered the workplace with the creation of the personal computer (Malone, 1994). Multifaceted and recurring tasks were completed by

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programs, permitting process orientation and automation (Malone, 1994).

- The next industrial revolution, **the 4th Industrial Revolution**, was occurred with no significant event (Naidoo, 2019). As given by Muir (2019), the 4th Industrial Revolution connected technology to people and thus drove the desire to use mobile phones, tablets or other devices using the Internet. Today, the 4th Industrial Revolution which is expected to infuse each facet of new technological change endeavors, i.e., Internet of Things (IoT), biotechnologies, large developments in artificial intelligence, in this 21st century. This is the 4th Industrial revolution that is the proposition and progression of computer systems capable to complete tasks that customarily necessitates humanoid intelligence, such as decision-making, speech recognition, visual perception, and interpretation connecting languages. Even though it is a technology platform the 4th Industrial Revolution is driving developments in communication and connectivity, i.e., 3G to 4G to 5G (Muir, 2019).

- **AI and the Fifth Industrial Revolution:** arisen of innovation and computational power is what is believed to be the 5th Industrial Revolution (Ericsson, 2019). Globally, the world has crossed the threshold into an innovative era of intelligent and super-intelligent machines. Industries are starting to personalize machines and systems to meet high-demands of individual consumers. This evolution of AI and humanity is also referred to as Industry 5.0 (Rossi, 2018), and recognized as the advancement from 4G to 5G. The 5G mobile broadband, a driver of Industry 5.0 is building from the 4th Industrial Revolution and modifying the socio-economic condition for

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all mankind (Muir, 2019) is functioning on a larger scale than Indusry 4.0. Through Industry 5.0 is the establishment of higher speeds, lessened latency, in addition to amplified dependency and capacity (Ericsson, 2019). Industry 5.0 denotes the essential interaction between people and machines; it regards robots supporting people to work better and faster (Ostegaard, 2019). Possi (2019) alleged the effect of Industry 5.0 on humans is that businesses will be able to craft higher-valued jobs and these businesses will be able to allow employees the autonomy of design responsibility as opposed to manufacturing processes. Also, people will be able to focus on non-laborious tasks. For example, an AI onboarding solution will free the time of those in human resources to perform more strategic tasks (Muir, 2019). Collaborative robots and cobots will lead the next Industrial revolution. In terms of the workforce this industrial revolution will experience increased human robot collaboration (Gotfredson, 2016). There are three key points to remember about the 5th industrial revolution is that humans will be the focus, not machines (Muir, 2019). Human efficiency and productivity will b intensified (Ostegaard, 2019). Whether it is termed Industry 5.0 or the Fifth Industrial Revolution, this trend of technology is on a path of forward movement of no return.

4. Artificial Intelligence Perspective:

Artificial intelligence is the structure, non-static for constructing machine-based decisions as well as action employing machine learning instruments and analyses (DeAelle, 2018; Dimiduk et al, 2018). This framework, artificial

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intelligence, is redesigning business across fields and transitioning the manner in which people communicate, are employed, and live. Articulated by Google's Chief Sundar Pichai, artificial intelligence is essential to humankind than electricity or fire (Chainey, 2018).

Artificial intelligence is expected to cover numerous industries, Business Intelligence, City Planning, construction, cybersecurity, DevOPs and cloud hosting; education, fashion, healthcare, manufacturing, mental health diagnosis and treatment, senior care, retail and supply chain management (Forbes Technology Council, 2019).

According to Bostrom (2014) AI is apportioned largely divided into three separate stages:

1) Artificial narrow intelligence (ANI)
2) Artificial general intelligence (AGI)
3) Artificial superintelligence (ASI)

AI, a term coined in 1955 proposal (AI Timeline, 2018; McCarthy et al, 2006) is the intelligence from human that is simulated by machines. The distinguishing point about McCarthy's plan was his stress on employing mathematical logic (Hayes & Morgenstern, 2007), is that this term of mathematical logic included together a language for signifying the information that an intelligent machine should include and as a means for reasoning without knowledge (Hayes & Morgenstern, 2007).

As given by Andrew Moore at Carnegie Mellon University in Pittsburgh, during 2016 interview artificial intelligence is divided into two subcategories of work that are autonomy and cognitive assistance:

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- **Autonomy** is having machines survive by themselves and figure out staff by themselves when human cannot help them.
- **Cognitive Assistance** is machines helping humans be smarter.

Late Newton (2018) added to the definition and offered that artificial intelligence is that which offers machines' intelligence and enables machines to rationalize like human-beings. Artificial intelligence technology's capacity is to get rid of repetitions, replication, and redundancies. These actions should consequence in a work setting able to provide better gratification to human workers.

5. Fears and Challenges of AI:

Fears and challenges exist regarding AI and the concern its derivers (Newton, 2018). These fears and challenges arise out of the manner in which society as a whole will involve itself with the emerging technologies or whether the rise of technology large portion of the world. What is clear and apparent is that numerous fears and challenges about AI exists.

5.1   Fears About AI:

Among the most noticed fears about AI are:

1) **A Continued fear that machines will take over the Jobs of people**: Thoughts exist that AI will drastically increase unemployment. Some of these fears are swath in individuals' experiences in the field of technology having seen a shift in industry through quicker microprocessors and networks. Manufacturing employees have the implementation of AI-powered analytics to information for enhancement productivity and product quality, to include employee

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safety. Even though workers' experience as given by (Niraula, 2018) regarding the replacement of positions by automation that actually allows workers to advance to other positions which need the decision-making skills of a person. On the other hand, the question is how many employees are able to transfer to other positions and how many are displaced from their existing jobs? Therefore, fears continue to exist.

2) **Fears rise from the Sci-fi genre**: This kind of fears is driving the notion the AI will take over the world and leave the need for human being fruitless. For example, AI robots such as Star-Wars or Extinction's Synths had been on screen robots. According to Greenwald (2018) actual robots are not at the level of possessing humans' native skills to ascertain, research, account for, reason, speak, or establish lookout about abstract and realistic matters. Since AI language examination congregate data on inhabitants all over the world. These suspicious entails the notion that AI become so advanced that technologies will turn against humans and ten take over the world.

5.2 Challenges About AI:

There are various challenges confronting humankind to utilize effectively AI, such as:

1) **Limited Resources and Cost Expensive of AI**: within this important issue that concern developing countries specially, Mesko and others (2018) offer two arguments about the challenges of AI that are: 1) As whether locations with limited resources will be challenged with implementing AI; and 2) in term of price, will this overall disruptive technology to be expensive for developing and under developing countries, consequently pushing these countries even further behind

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in the wake of improving healthcare. Also Dasqupta (2018) postulated that AI helps to deliver medical access to remote locations where there may be no trained doctors, as well as AI can help humans determine and offer diagnostics. It is well known that developing and under developing nations have hard treks to attain the financial backing to develop AI and increase their economic and scientific standing. While, on another hand, developed countries are apt to design and implement AI applications and systems.

2) **Societal challenges**: Another type of challenges is whether society will construct and organize their public and private education systems, social contacts, organizational models to take advantage of implausible potential AI delivers or will the world step back and remain anxious and apprehensive. This situation is being focused on AI as related to the context of human capital. It is important to explain these components. AI is a key deriver of the 4th Industrial Revolution, where in technologies comprise the Internet of Things (IoT), biotechnologies, and significant developments in AI. Ark (2018) offered AI as the extremely vital change force in modern society. Nonetheless, AI remains a usual for high school graduates to not understand the subject matter, the way AI operates, or prospects AI initiatives, plus what citizenry should guard protect against. Therefore, the following main points are considered to be crucial and important for social contact, an understood covenant between citizens and their societies to work together for social benefits (Ark, 2018). The points are:

1) The world is recognized by computers through the use of sensors,

2) Systems retain models/representations of world coupled with utilizing them for interpretation and analysis,

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3) Data feeds computers as for knowledge,

4) Creating systems to interact naturally with humans is a considerable task for AI, and

5) AI applications can effect society positively and negatively.

3) **Social Disorder and Political Breakdown Challenges.** These challenges are streaming from prevalent unemployment and deep inequality. The basis of the social disorder and political breakdown is connected to AI's disruptiveness of citizenry to include the workforce. The changes brought by the infusion of AI are faster and becoming a part of society, and are making a swing to the social contract, Therefore, the question is, how fast will the society adjust to such advancing technologies? All of this technology for AI wraps into organizational models, government agencies, and commercial businesses. For example, organizational models necessitate a large amount of information to perform correctly. Through inputting information into standard AI templates, professionals lacking AI knowledge, skill, and capability become equipped to ascertain by points to augment organizational efficiency (Murawski, 2019).

4) **Human Capital Challenges:** It is considered that the organizations' best resources are their workforces, and the greatest organizations are those which the leadership lead and manage human capital most operatively and proficiently (Burrell, 2018). This emphasis the importance of human capital that is concluded by knowledge, skills, experience, and education everywhere owns and uses with the organizations. The knowledge, skills, and experiences include advantage and benefits, such as acumen, education, knowledge, preparation, promptness, talent, training, wellbeing, plus additional

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points organizations determine as significant. A challenge in term of human capital is to understand at what level will human capital and artificial intelligence augment each other truly, instead of AI taking to role humanity. AI allows machines to reason like humans as well as complete tasks like absorbing information, providing oversight, solving problems, making judgement calls, processing languages, handling exceptions, and intellectualizing. With all this mangers, executives, and leadership will need training, particularly the human resources team in understanding this aspect of cybersecurity (Burrell, 2018). Essential to realize the full possibility of AI across a business entails expanding enterprise-wide backing of AI initiatives, i.e., theorizing with stakeholders the positive organizational results for attainment (Ronanki, 2019). For example, in the area of human capital management (HCM), AI is increasingly being added to HCM applications to match talent supply and demand, predict recruitment success, or optimize recruitment marketing. Candidate-facing chatbots are becoming increasingly common in enabling further automation of this process, such as recommending which jobs to apply for and answering questions or conducting initial candidate screening.

5) **AI continuous Advancement Challenge:** AI continues to improve. Nowadays the question is whether this technology is considered especially nature as noticed by (Vaishnavi & Achwani, 2018). AI is still in its initial phase of not entirely acclimating in today's life. The data allows invented the central design for an AI this is the equivalent neuron design being utilized in today's deep learning networks. Even though, the numbers continue to change the majority of the world's countries have only recently begun to consider their own AI future on

a serious note (Wagner, 2018). AI service obligations related to next-generation tools and methodologies are being offered by leaders of large and multinational IT companies. On the other hand, AI with its potential to change industries, need the assistance of human beings to contribute to advance AI technologies and processes (Greenald, 2018). Towards establishing an advanced world, what is needed are the required means, sources, and know-how to work effectually. AI require the knowledge of people who understand and can exact the right tool at the right time, also, a method that can be implemented to offer a border to multiplicity of knowledge-based tools.

6. Benefits of Human-Beings Connected with AI:

day's business executives and human resource leaders working to derstand AI, and then determine how to manage AI, human resources, d human capital for the advancement of human resources along with reasing the general furtherance of workers' survival (Vaishnavi & hwani, 2018). Akin to other fields AI has a home in human resources, ecifically human resource management, AI is helping, improve human sources in the following ways:

- Survey reporting and analytics
- Scheduling meetings and interviews
- Performing workflow tasks
- Supporting talent acquisitions
- Talent management
- Succession planning

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Human resources management is a coordination of actions, and strategies that face an efficaciously overseeing employees at all levels of organizations, human capital as types of assets that is categorized as economic value of employees' knowledge, skills and experiences (Mathis et al 2017). It is significant that the human asset remains the corner stone to connecting all other assets together to realize positive results (Mathis et al, 2017). Categories comprising advantages and benefits are business acumen, education, knowledge, preparation, promptness, talents, and well-being.

6.1 Machine learning, a form of AI enables a machine to learn from information as opposed to learning via precise programming from human-beings. Therefore, understanding machine learning which is a branch of AI, is significant in today's fast paste technological world. The technology is understood to be mature and effective. Machine learning was grouped in 1950s investigations from IBM (Cowan & Nelson, 2010). Then investigations were called cognitive computer, machine learning (Tsidulko, 2016). Over the years, machine learning evolved. Today's machine learning is different from that previously understand. In the meantime, Arthur Samwuel's program for checkers playing proved successful as it won against checker expert Robert Nearley in 1962 (AI Timeline, 2018. People interact physically with the outside world do not face essential doubt in the manner that objects will respond to touch; however, robots do face this challenge (Hodson, 2018). Through machine learning we get machine learning models in numerous domain (i.e., astronomy, financial services, government, healthcare, manufacturing, oil and gas, on-demand music, streaming services, retailers, smart cities, and transportation). Straight forward machine learning models develop increasingly better at their individual function, but the again, these

models nonetheless need some human guidance. For example, when AI algorithm outputs that are erroneous likelihood, then human information is required to conduct fine-tuning. While machine learning (the subfield of AI), and deep learning (as a part of machine learning).

6.2 Deep Learning: arranges algorithms in layers to generate an artificial neural network (ANN) that enables to absorb information and then deliver knowledgeable findings (Dimiduk et al, 2018). The biological neural network of the human brain informs the plan of an ANN (Duggan, 2018). This informing process learning models of deep learning are crafted to repeatedly scrutinize and evaluate data with a logic structure akin to the manner in that humans come to decisions and inferences (Newton, 2018). Neural networks and deep learning are frequently utilized in computer vision applications image recognition and speech (Dimiduk et al, 2018).

6.3 Internet of Things (IoT) and the Human Factor: To understand the modern AI cyber-world, it is needed to review the Internet of Things (IoT) and adaptive progression, AI is the wits that enable analytics and governing from data collected by IoT. On the other hand, IoT is the billions of computing devices set in objects and connected through the Internet allowing data to be sent and received. But differently, AI deciphers this data so that it is sensible and coherent.

The term "things" of the IoT characterize physical devices and machines in addition to virtual functions and services. The IoT continue to unveil wholly new realms for organizations to address then persistent of linking the devices and utilizing the information to absolutely effect their decision-making procedures. IoT is the differentiator that will facilitate organizations to persist in competitiveness is digitalization and a relentless increasing system of

mobile and wearable devices. This differentiation is changing and altering the manner in which organizations do businesses. These changes affect people, processes and technology.

Worldwide, organizations and governments are transforming to the integration of IoT to diverse facts of businesses, for instance such as human resources, manufacturing, marketing and others. Policies are being created and implemented where in human resources development is one of the significant pillars of IoT effectuality. Organizations and institutions of higher learning are working together to educate the masses to understand the need of IoT and what learners need to know.

Within many industries such as consumer electronics and cars, healthcare, manufacturing, transportation and utilities the human factor will continue to be able to work through people-centered things such as real-time flexibility, definitive assessment, and employing calculated hand maneuvers with objects, in addition to work on tasks within environments outside of factory walls which are vastly problematic for robots (Hodson, 2018).

6.4 Adaptive Progression, Learning and Human Capital: Today we are in a transformative worldwide economy. To remain viable in this shape-shifting environment organizations must be able to be nimble and adaptive. Adaptive describes people and processes that are flexible, malleable or pliable. Progression is the practice of developing or evolving steadily towards a mor forward-looking state. Therefore, adaptive progression is about advancing in the comprehension and application of new information, whether people or machines increasingly in today's ever-changing world. On the other hand, learning is about increasing in discernable know-how as regards to some educational objectives. AI is being used dynamically modify

information as necessitated for each individual's workforce needs. As these budding technologies and methodologies redesign organizational learning, adaptive learning is rising to the forefront of interest (Posner, 2017). Instead of continuing through learning in a direct and undeviating manner, adaptive learning allows learners to gain knowledge in needed areas as efficiently and effectively as possible, plus according to current knowledge of the subject matter. This change drives towards mastery of information as opposed to what can be learned in a certain amount of time. As related to human capital, the progression of knowledge, skills, and ability is a need staple for AI. Specifically, new and enhanced knowledge has to be focused towards learning information that is concentrated in the areas that drive AI maintenance, to include adaptive progression development and training.

6.5 Benefits, Challenges and Resolutions for AI Technology Advancement: The following table expresses benefits, challenges, and resolutions of AI technology.

Table 1: Benefits, Challenges and Resolutions of AI Technology

Benefits	Challenges	Resolutions
AI outperformers	AI low performers	Bridge AI skill gaps
Cost efficiencies due automation	-Reduce of jobs due AI -Economic disadvantages purchase the technologies	-Place people in positions to handle crises and make needed associates' other people. -Ensure work locations, schools, the disabled and the elderly are equipped with necessary technologies.
Ease of Information process	Reduce broadband capabilities in certain locations	Creation of smart cities to enhance overall broadband capability.
Increased Internet connectivity	Security and privacy apprehensions	Enhance technology related to security and privacy of connections
Better communication avenues.	Understanding capabilities not completely grouped by all	Engage in on-going technology communications education.
Mimicking the perceptual tasks of	Grasping conversations or causal relationships	Merge deep learning with other methods to achieve true AI.

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the human brain image of speech recognition		

7. Artificial Intelligence and Human Capital:

In the course of the 4th Industrial Revolution (Industry 4.0), the world is experiencing the breakdown of borders connecting the real world, the virtual world, and machines (Kohler & Weisz, 2016). For example, terabytes of data can be housed remotely and transferred around the biosphere within minutes due to the progression of computer technology. Entrepreneurship is now able to contribute to not just local and national, but to global economies as well (Studdard et al, 2016). In the meantime, mobile learning contributes to virtually connected people across the world (Burton, 2016). Also, IoT tools are permitting manufacturers to observe individual environmental conditions and adjust them, whether automatically or through remote human interaction, according to occupancy, or operational requirements (Sykes, 2019).

It is assisted that industry 4.0 contend that improvement in technologies have constantly been slow and steady subsequent to the beginning of industry (Lewis, 2017). Furthermore, it is assisted that the present view of Industry 4.0 suggests that technological innovations have just lately transpired lately transpired from a stationary period of time, it spile of the believe that the information is not accurate (Lewis, 2017). Since Industry 4.0 comprise concerns about AI, Big Data capture and analysis, as well as record of connectivity, the reservation is about the concerns of Industry 5.0, therefore, how much robotics play an important role over human?

According to Naidoo (2019), the Industry 5.0 will eliminate people's job tasks and leave the tasks to machines that are, without people involvement, able

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to deliberate and learn independently. During the year 2018 the World Economic Forum in Davos, it is noted that AI, specifically concerning Big Data is a menace to humankind (Chainey, 2018).

Makridakis (2018) purported that the proponents of AI asset a future when AI attain and then transcend human intelligence, thus realizing singularity, a period when machines and robots would be efficient enough to do all manual and mental tasks that are completed by human-beings nowadays. This change will present the initial impressive competitor to human's governance of the world (Makridakis, 2018). This change will be more accurately to the future direction of technology, i.e., machines and robots fueled by AI taking over human labor. In addition, inferences of the upcoming developments in every phase of human lives, i.e., work, societies, conceivable mass unemployment, and enormous income disparities.

With the 5th Industrial Revolution (Industry 5.0) usher in new positions that change the trajectory of education to prepare learners for new emerging position requirements of Industry 5.0. People will need to be prepared to make changes in their careers, particularly the jobs that will disappear due to automation. The following table exhibits a sample of new jobs as regard to the 5th Industrial Revolution:

Table 2: Job Changes for Industry 5.0

Discipline/Changing Human Jobs	Industry 5.0 Robotic Jobs	Why the Change
Assembly lines	Automates processes	Software and robots can oupace people regarding repetitive tasks
Data analysis	Statistical process control analyst	Robots able to process the data faster and incorporate more data into analysis
Cashiers	Self-service checkers	Decrease organizational costs
Drills	Automated drilling	Shift to automated, collaborative systems

Data entry	Automated analysis	Shift to automated, collaborative systems
Manual and paper-based processes	Automated processing	Digitization
Sales representatives	Automated assisted	Sales representatives will gain knowledge from AI about where to focus to meet sales quotas

While new roles will emerge for people, the challenge will be to get enough people educated to handle the needed jobs. The challenging understanding that has to be disseminated to workers is that robots and cobots can fulfill the automated manufacturing of goods. Internet of Things (IoT) devices beside manufacturing line will be able to gather significant production data. Automated systems or devices will monitor data to pinpoint information for everything out of ordinary. If data is found to be inconsistent or out of line, systems will activate a procedure that will alert the assigned employee to act and make the required decisions.

Akin to decision-made by people, limitations exist considering the limits on trust to place on automation decisions as tools and putting such decisions have been documented to exaggerate or cloud their practicality or correctness, thereby provoking undeserved trust (Center for Democracy and Technology, 2019). While AI holds promise of delivering valuable knowledge and insights across a multitude of applications, broad adopting of AI systems will rely heavily on the ability to trust their output. Human trust in technology is based on understanding of how it works, and the humanoids assessed of safety and reliability.

To attain an optimistic and sustainable usage of AI, developing individual trust concerning this type of technology turns into an exceedingly serious task. Therefore, in order to trust a pronouncement given by an algorithm, there is the requirement to know that that the information is dependable

Tigger any harm. Also, confidence is needed that algorithms cannot be tampered with, and that the system remains safe (Majsilovic, 2019). Further, AI professionals will require confidence that the worth and norms of the recent era societies are also mirrored in diverse systems and applications' outcomes.

8. Conclusions:

AI's influence on workforce is expected to be profound. Certain jobs, professions, and definite skills will wane, conversely others will increase and change as people complete job tasks, while working beside consistently changing and progressively adept machines. The mammoth task is to preserve the flexibility to improve through people, processes, and technology, while splintering blockades that obstruct harmonious change through knowledge growth and collaboration. Society's need to be believed that they can trust leadership and implemented systems is waning.

It is noticed that AI will not replace humans. Organizations will Continue to value human interaction. Since AI is not positioned to offer all needed answer questions asked as it is challenging to maneuver all distinctions of human interaction. More research is still required to develop best practice approaches for implementing human capital in AI approaches in organizations.

The required research works should focus on:

- Determination on new job categories. Data needs to determine whether the job categories will materialize partly or absolutely, therefore replacing others.

- Preparing current and future workers to meet the age of AI. Also, data needs to understand that change is coming, and that all jobs will not remain the same. Therefore, certain positions are expected to disappear and new ones will be emerged that need new skills.

- Developing a process for human resource leaders to learn to implement human resource processes and procedures, of how to handle ethical considerations when robots and cobots are concerned, and how to better support leaders to lead in this world of robot and cobots.

Therefore, in this ubiquitous Industry 5.0 differences in levels of understanding of automation, and AI andragogy were prevalent. Consequently, more studies are still needed to stimulate discussions towards the comprehension of AI and its useful practices as well as long-term implication of technology in personal, work and social life.

References:

1. AI Timeline (2018). Modern Healthcare, Vol. 48, No. 10. https://www.proxmy.cecybrary.com/docview

2. Ark, T. V. (2018). "What K-12 Students Should Know about Artificial Intelligence," Forbes Magazine. htpps://www.forbes.com/sites/tomvanderark/2018/12/12/what-k-12-students-should-know-about-artificial-intelligence#210a80456611/

3. Atkeson, A. & Kehoe, P. J. (2007). "Modeling the Transition to a New Economy: Lessons from Technological Revolutions," The American Economic Review, Vol. 97, No. 1, pp. 1-88.

4. Atwell, C. (2017). Yes, Industry 5.0 is Already on the Horizon. Machine Design. https://proxy.cecybrary.com/login?url

5. Bostrom, N. (2014). Superintelligence: Paths, Dangers, Strategies.UK: Oxford University Press

6. Burrell, D. (2018). "An Exploration and the Critical Need for Formal Training in Leadership for Cybersecurity and Technology Management Professionals," International Journal of Hyperconnectivity and the Internet of Things," Vol 2, No. 1, pp. 52-67.

7. Burton, S. L. (2016). Transitioning to I can From I Can't. Raleigh, NC: Lulu Publications.

8. Center for Democracy and Technology (2019). Digital Decisions: Unreliable Decisions; Violating Expectations and Betraying Trust. https://cdt.org/issue/privacy-data/digital-decisions

9. Chappine, P. (2019). The Second Industrial Revolution: Timelines & Inventions.
Study.com.   https://study.com/academy/lesson/the-second-industrial-re   volution-timeline-inventions.html/

10. Center for Democracy and Technology (2019).

11. Chainey, R. (2018). What Just Happened? The Biggest Stories from Davos 2018. World Economic Forum.   https://weforum.org/agenda/2018/01/davos-2018-biggest-stories/

12. Cowan, J. & Nelson, J. (2010). "The Company of the Future," Canadian Business. Vol. 83, pp.32-36.
https://proxy.cecybrary.com/login?url=https://search-prouest-com.cecybrary.com/docvew

13. Daemmrich, A. (w2017)." Invention, Innovation Systems and the Fourth Industrial Revolution," Technology and Innovation, Vol. 18, No. 4, pp. 257-265.
http://dx.doi.org.proxy.cecybrary.com

14. Dasqupta, G. (2018). "Artificial Intelligence," Financial Express.
https://proxy.cecbrary.com/login?url=https://search-proquest-com/proxy.cecbrary.com/docview

15. DeAelle, C. (2018). A.I. has Arrived in Investing. Humans as Still Dominating. The New York Times.   https://www.nytimes.com/2018/01/12/business/ai-investing-humans-dominating.html/

16. Dimiduk, D. M. et al (2018). "Perspective on the Impact of the Machine learning, Deep Learning, and Artificial Intelligence on Materials, Processes, and Manufacturing Innovation, Vol. 7, No. 3, pp. 157-172. By Artificial Intelligence. Forbes. https://www.forbes.com/sites/forbestechcouncil/2019/01/16/1e3-industries-soon-to-be-revolutionalized-by-artificial-intelligence/#594759093dc1/

17. Duggan, W. (2017). "What is Machine Learning? Deep Learning? Here's Your AI Glossary," Benzinga Newswires. https://proxy.cecybrary.com/login?url=https://search-proquest-com-proxy.cecybrary.com/docview

18. Ericsson (2019). "Bridging the Cellular Generation Gap," The New York Times. https://www.nytimes.com/paidpost/ericson/bridging-the-cellular-generation-gap/

19. Forbes Technology Council (2019). 13 Industries soon to be Revolutionized by artificial Intelligence. Forbes. https://www.forbes.com/sites/forbestechcouncil/2019/01/16/13-industries-soon-to-be-revolutionalized-by-artificial-intelligence/#594759093dc1

20. Gotfredson, S. (2016). "Industry 5.0, a New Era of Modern Manufacturing," Asia Outlook. https://wwwasiaoutlookmag.com/news/industry-50-a-new-era-of-modern-manufacturing/

21. Greenwald, T. (2018). "Artificial Intelligence (A Special Report) --- What Exactly is Artificial Intelligence Anyway? Everyday's Talking about AI these days. Here's What all the Fuss is about," Wall Street Journal. https://proxy.cecbrary.com/login?url=https://search-prorequest-com-proxy.cecrabray.com/docview

22. Hayes, P. J. & Morgenstern, L. (2007). "On John McCarthy's 80's Birthday, in Honor of his Contributions," AI Magazine, Vol. 28, No. r, pp. 93-102. https://proxy.cecybrary.com/login?url=https://search-proquest.com.proxy.cecybrary.com/docview/

23. Hodson, R. (2018). "How are Grasping the Art of Gripping?" International Journal of Science. https://www.nature.com/articles/d41586-018-05093-1

24. Karwczynski, M. et al (2015). "Reindustrialization: A Challenge to the Economy in the first Quarter of the Twenty-First Century," Foundations of Management,

Vol. 8, No. 1, pp. 107-122. http://dx.doi.org.proxy.cecybrary.com/10.1515/fman-2016-0009/

25. Kohler, D. & Weisz, J. (2016). "Industry 4.0: How to Characterize this Fourth Industrial Revolution and its Challenges? / Industry 4.0: How to Characterize this Fourth Industrial Revolution and its Stakes?" Industrial Realities, 51-55, 91, 96, 100, 10t5, 107. https://proxy.cecybrafry.com/login?url-https://search-proquest.com/proxy.cecybrary.com/docview/

26. Lewis, A. (2017). "Guide to Industry 4.0 & 5.0," Global Electronic Services. https://blog.gesrepair.com/2017/11/6/industry-4and-5/

27. Makridakis, S. (2018). "High Tech Advances in Artificial Intelligence (AI) and Cyprus," The Cyprus Review, Vol. 30, No. 2, 159. https://proxy.cecybrary.com/login?url=https://service-proquest-com.proxy.cecybrary.com/docview

28. Malone, M. S. (1994). "Microprocessor: The First 25 Years," Upside, Vol. 6, No. 10,p.54. https://proxy.cecybrary.com/login?url=https://search-proquest.com/proxy.cecybrary.com/docview/

29. Marcus, G. & Davis, E. (2019). Rebooting AI: Building Artificial Intelligence we Can Trust. New York: Pantheon Books

30. Mathis, R. L. (2017). Human Resource Management, 15th ed. Boston, MA: Cengage Learning.

31. McCarhy, et al (2006). "A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence: August 31, 1955," AI Magazine, Vol 27, No. 4, pp. 12-14. https://proxy.cecybrary.com/login?url=https://search-proquest.com.proxy/docview

32. Mesko, B. et al (2018). "Will Artificial Intelligence Solve the Human Resource Crisis in healthcare?" BMC Health Service Research. http://sx.doi.org.proxy.cecbrary.com/10.1186/s12913-018-3359-4

33. Mojsilov, A. (2019). "We Need to Build Systems We Can Trust," TNW. https://thenextweb.com/contributors/2018/1006/we-need-to-buils-ai-systems-we-can-trust/

25

34. Muir, G. (2019)."AI – The Fifth Industrial Revolution," AI Business. https://aibusiness.com/livetiles-fifth-industrial-revolution/

35. Murawski, J. (2019). "Artificial Intelligence (A Special Report) – Yes, You Too Can be an AI Expert: New Trends Allow Intelligence in their Jobs. But Some Supervisioon is Recommended?" Wall Street Journal. https://proxy.cecbrary.com/login?url=https://search-proquest-com.proxy.cecbrary.com/docview

36. Naidoo, V. (2019). The Fifth Industrial Revolution Looms. Innovation. https://www.itweb.co.za/content/WnxpE74D2jg7v8XL

37. Newton, P. (2018). Guide to How Artificial Intelligence can Change the World-part 3. London: Newstex. https://proxy.cecybrary.com/login?url=https://search-proquest.com.proxy.cecyrary.comdocview/

38. Niraula, A. (2018). "Machines Won't Steal our Job But Might Revamp Your Skill Sets," Catalyst. https://catalyst.independent.org/2018/12/31/machines-wont-steal-your-job?gclid=EA1alQobchm1xOmxiK2H5SAiv2FGhoeTA4EAAYAyEgrr-BwE

39. Ostegaard, E. (2019). "Welcome to Industry 5.0," Quality, Vol. 56, No. 5, pp. 36-39. https://proxy.ccybrary.com/login?url=https://search-proquest-com.proxy.cecybrary.com/docview

40. Posner, Z. (2017). What is Adaptive Learning Anywhere? New York: McGrawhill

41. Prisecaru, P. (20q17). "The Challenges of 4.0," Global Economic Observer, Vol. 5, No. 1, pp. 66-72. https://proxy.cecybrary.com/login?url=https://search-proquest.com

42. Ronanki, R. (2019). "Building an AI-First Orgnization," Forbes Magazine. https://www.forbes.com/sites/cognitveworld/2019/02/25/building-an-ai-first-organization/#39476e14d88/

43. Rossi, B. (2018). "What will Industry 5.0 Mean for Manufacturing?" Raconteur. https://raconteur.net/technology/manufacturing-gets-personal-industry-5-0/

44. Studdard, N. et al (2016). "Nurturing Social Entrepreneurship and Building Social Entrepreneurship Self-Reliance: Focusing on Primary and Secondary Schooling

to Develop Future Social Entrepreneurs," In: Fields, Z. (ed.). Incorporating Business Models and Strategies into Social Entrepreneurship, 54-75.

45. Sykes, N. (2019). Emerging Technologies, Industry 4.0 and New Age of Manufacturing. TechTalks. https://bdtechtalks.com/2019/04/25/what-is-industry-4-emerging-technologies/

46. Tsidulko, J. (2016). The race is on: IBM, Google, Microsoft, and AWS Aim to Deliver Machine Learning as a Cloud Service. https://crn..com/news/cloud/3000081289/the-race-is-on-ibm-google-microsoft-and-aws-aim-to-deliver-machine-learning-as-a-cloud-service.htmll

47. Vaishnavi, A. & Achwani, S. (2018). "A Study on Use of Artificial Intelligence in Human Resource Management," Gavesana Journal of Management, Vol.10, No.2, pp.45-56. https://proxy.cecybrary.com/login?url=https://search-proquest-com.proxy.cecybrary.com/docview

48. Ventura, J. & Voth, H. (2015). Debt into Growth: How Sovereign Debt Accelerated the First Industrial Revolution. Cambridge: National Bureau of Economic Research.

49. Wagner, D. (2018). "Haw Artificial Intelligence is Changing Global Economy," Our World. https://ourworld.unu.edu/en/how-ai-is-changing-the-global-economy

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