



Internet Of Things And Artificial Intelligence For Sustainable Development: New Opportunities And Risks In Technology And Society

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Abstract.

By minimizing unsustainability that affects society, the environment, and natural resources, artificial intelligence (AI) and the internet of things (IoT) will contribute to a bright future for sustainable development. Further research is needed due to the fast-moving, transdisciplinary evolution of AI and IoT, the concept's relative novelty, and the paucity of literature on their contribution to the achievement of sustainable development goals. Our goal is to investigate the potential and risk of AI and IoT for achieving sustainable development, with an emphasis on the labor market. We conducted a bibliometric analysis to determine how these technologies, particularly technical aspects and labor market effects, affect the achievement of sustainable development goals. Results showed that the widespread adoption of AI and IoT poses serious dangers, but opportunities and potential advantages outweigh any conceivable drawbacks.

Keywords: Internet of Things, Artificial intelligence, development goals sustainable, environment

1. Introduction

One of the key elements in making the digital future reality is sustainability. One of the ideas that will enable this sustained digitalization and community growth is the Internet of Things (IoT). In this work, a community is defined as any geographic area that has resources available to it to meet its present and future requirements and operates under some kind of organizational framework. Risk tolerance is essential to the sustainability

of the community. By 2030, the industrial IoT, including the public and customer sectors, is expected to have a total economic worth of over \$15 trillion. Additionally, the IoT's fusion with other technologies offers enormous promise for sustainable neighborhood growth.

An expanding number of industries are being shaped by artificial intelligence (AI) as it emerges. AI, for instance, is anticipated to have both immediate and long-term effects on the global economy, [1]inclusion and diversity, environmental results, and many other domains. Both pros and cons of sustainable development are indicated by the reported potential effects of AI. Although this study defines sustainable development as the 17 Sustainable Development Goals [2] (SDGs) and 169 targets that were internationally agreed upon in the 2030 Agenda for Sustainable Development, to date, no published study has evaluated the extent to which AI might affect all elements of sustainable development. We conclude that the ability to achieve all SDGs may be impacted by AI, indicating a crucial research need.

[3] This research combines the Internet of Things and machine learning technology as the basis to analyse the agricultural sustainable development platform in order to enhance the management impact of agricultural sustainable development. The architecture of wireless sensor nodes and networks targeted at complicated agricultural habitat circumstances is also studied in this research.

[4] Sažetak Warehouse and logistics system innovations and market shifts necessitate the adaptation and transformation of the current business model into a business model based on contemporary technologies. As the Internet, RFID (radio-frequency identification) technology, and sensors advance, new technologies are being developed that allow the current way of action to be improved. Organizations must develop solutions for a number of issues that come with using the new technology.

[5] Here, experts show and debate the consequences of how the 169 targets and 17 goals of the 2030 Sustainable development Agenda could all be achieved with or without the help of AI. The methodologies described after this study, which may be summed up as a consensus-based expert elicitation approach, [6] which was influenced by earlier studies aiming at mapping SDGs interlinkages, were used to characterize relationships.

While there is no universally accepted definition of artificial intelligence, for this study, [7]we defined it as any software technology that possesses at least one of the preceding qualities: perception, such as visual, audio, tactile, and textual perception; decision-making; prediction; automatic knowledge extraction and pattern identification from data; immersive communication; and logical reasoning. This perspective covers many different subfields, especially machine learning techniques.

Due to more common security lapses and invasions of privacy in many e-commerce businesses, which had a big impact on how company operations are carried out, artificial

intelligence has undergone a considerable evolution recently.[8] The issues that AI has brought to consumers and communities in electronic markets are discussed in the current paper. As AI technology has advanced, its use in a variety of contexts—from the personal to the professional—has sparked a wide spectrum of ethical discussions. Many different forms of research have discussed the ethical principles, accountability, and openness of AI decision-making systems.

[9]Recently, e-markets have developed into a tool for boosting speed and efficiency in almost every commercial business. E-markets are described as "inter-organizational trading platforms that strive to smooth out supply chain bottlenecks by enabling the buyer-supplier exchange of information on products, services, pricing, and payments in a unified and synchronized Internet-based environment" in the definition.[10] The nature of corporate transactions and operations has changed globally as a result. Contrary to traditional trade, electronic commerce eliminates direct contact between buyers and sellers. This argument, however, raises a host of challenges related to technology, trust, privacy, security, and the law, among others.

Building more confidence and acceptance in tech is the main objective of the ethical rise of Ai. There must be a push to develop a safe and dependable system as AI develops in every firm across the globe.[11] The capacity of a machine to mimic human behavior is what is meant by AI, which has revolutionized the world and sparked a great deal of curiosity. AI stands for human dependence on obsolescence, technology, and inaction on the one hand, and freedom, effectiveness, miracles, and aspirations on the other. AI-enabled technologies present moral and ethical questions about issues including cybersecurity, decision-making, and jobless. These issues have been considerably harder to solve with the development of AI systems. Studying AI ethical standards and laws is therefore urgently needed to keep it under conscious intervention.

[12]For a nation to maintain its growth and achieve sustainable development, fighting poverty must go hand in hand with initiatives that promote economic development and meet a variety of social demands, including those related to health, education, environmental, and social protection. there are many billions of people on earth. The epidemic is a special wake-up call that highlights serious inequities and the shortcomings of the Paris Climate Agreement and the 2030 Sustainable Development Agenda. The world may revert to the SDGs by taking benefit of a crisis when conventional policies and social norms have been upended through bold efforts. The SDGs are essential for creating societies that are resilient, inclusive, strong, and sustainable. The ability to replicate or even enhance human mental skills has recently undergone a revolution thanks to improvements in computing, speed of processing, Web, and big data accessibility. As a result, AI-driven forces are currently having an impact on various industries, including transportation, communication, manufacturing, finance, and healthcare, on a worldwide scale.

In 2017, the market for AI technologies was valued at \$16.06 billion, and by 2025, it is predicted to be worth \$190.61 billion. Digital personal assistants like Amazon's Alexa and Apple's Siri, robots, and other AI gadgets are becoming widely used and crucial components of daily life. [13] At the same time, because of its speed, effectiveness, infinite memory, and capacity for self-learning, researchers and practitioners view AI as a useful tool. Google CEO Sundar Pichai stated that artificial intelligence (AI) is the most crucial project that humanity is engaging in. It is deeper than electricity or fire. Studies generally concentrate on worries that have developed as a result of the adoption of AI, which has significantly impacted our daily life. The underlying problems that AI technology presents have led to severe doubts about the long-term sustainability of the electronic market. AI imperils the long-term stability of the economy by posing a host of behavioral, social, and ethical challenges for individuals, corporations, and society. Therefore, the purpose of this study is to investigate the present cultural, behavioral, social, economic, and ethical limitations of AI-enabled goods and services in consumer marketplaces and to discuss how businesses may reshape their actions to meet ethical concerns linked to AI.

Although consumers acknowledge AI's better abilities, many are worried about how such sophisticated technology may affect their privacy and security. The idea of sustainable development was crucial to the e-commerce industry. Sustainable development is now widely used in consumer and corporate operations and is therefore regarded as a successful strategy for retaining competitiveness and attracting more customers in online markets.[14] Sustainable development models have a significant impact on e-commerce enterprises in terms of societal, environmental, and economic factors. The application of sustainable growth in e-commerce, however, as well as the appropriate balancing of each level, can have a favorable effect on an enterprise's effectiveness and efficiency.

Privacy and security must be the main concern for AI systems in the upcoming industrial revolution, with a concentrate on keeping the technology as morally sound as is practical under control. Previous research focused on the market's prospects, benefits, and efficiency of AI technology but ignored its drawbacks. For economies to expand sustainably, it is important to talk about the privacy, social, and security issues associated with AI. The current study addresses the topic, "How does AI affect behavioral, ethical, psychological, cultural, and social issues in electronic markets?" to close this knowledge gap.[15] Because it is dependent on thorough data and systematic techniques that strengthen research credibility and get rid of biases, this study used systematic review as its research methodology.

2. Methodology

2.1. Issues with Behavior, Culture, and Psychology

The development of technology has several benefits for the workplace. Nevertheless, it creates unrealistic expectations and social issues about AI and IoT technologies, which are made worse by a lack of knowledge about the advantages of utilizing AI technology. Researchers have discussed the social effects of AI and IoT, specifically the possibility of employment losses brought on by the development of these technologies. The media and other platforms have given this subject a lot of attention. As a result of AI, the human workforce will develop and change. The real issue is establishing new duties needing specialized human talents as humans lose professions to machines. This increases the constraints placed on people by society, changes how they behave, and puts them under mental stress, making them work even harder to live. In the UK alone, from 2017 to 2037, more than 7 million present occupations will be automated, according to PwC. It also looked at 700 jobs that might be replaced and discovered that 47% of them face the threat of being completely replaced by robots and algorithms. Through unemployment, this labor substitution will lower people's social standing. People's ways of living would change as a result of this worrying situation, which may be very difficult. AI and IoT are getting so good at some occupations that they could have a big influence on society.

Risse argued that AI and IoT could disturb working patterns, having an impact on the status of individuals as members of society. Humans, on the other hand, are concentrating on utilizing human attributes to advance in problem-solving and to bring in a new era of technology with a combined AI and human-centric workforce. The current advancements of AI and IoT aim to help society by motivating advanced research in various domains, ranging from money and law to scientific concerns, such as security, verification, control, and validation. However, it might create trouble for users or even much of society if a device involved in a major system gets hacked or crashes. As AI and IoT become more involved in our automobiles, planes, and trading, there will be serious concerns.

Regarding AI and IoT technology, controlling dangerous autonomous weapons is a major concern. Systems like super-intelligence may generate a tsunami of intellectual innovation that might leave human brains in the dust as AI and IoT continues to advance quickly. On the other hand, super-intelligent systems and other cutting-edge technology might aid in the fight against sickness, poverty, and conflict, making powerful AI breakthroughs the most significant in history. Apart from that, the most important thing to note about AI is that it is a network without any human-like emotions, therefore there is no reason to think that any AI or IoT might turn evil or good in the future. Indeed, AI decisions are based on programming and lack access to sentiments and emotions, but this is not necessarily a positive thing because these choices could have unexpected effects on the people involved.

2.2. Social and Ethical Problems

The section of technology ethics that specifically applies to AI systems is known as "artificial intelligence ethics." It is divided into worries about the actions of the people

who create, produce, utilize, and handle artificially intelligent systems, as well as the actions of the systems themselves. Using AI systems for routine chores opens up new job prospects and raises new ethical and legal issues related to psychological procedures. With the advancement of AI technology, there were numerous social and ethical concerns regarding human actions and the management of autonomous technologies. In his seminal "Three Laws of Robotics," popular science fiction author Isaac Asimov raised ethical concerns about the use of sentient machines in the early 1940s. These regulations stipulate that sentient machines must be able to protect themselves, must not hurt any humans, and must comply with human commands. Asimov later clarified that intelligent robots should not endanger humans. This also made the case that an AI system couldn't jeopardize the development of humanity.

Because AI and IoT are impartial and encourage justice, they currently satisfy humans in terms of the products they produce. Even if the majority of experts disagree on whether and when super AI and IoT will exist, they all agree that they should be appropriately integrated with societal norms. Additionally, many studies emphasize the necessity of ethical concerns in socio-technical approaches, both at the level of the customer and society as a whole. It is crucial to determine the effects AI technologies have on society and challenges, such as those that affect cyber-security, consumer privacy, and employment. These issues should all be assessed and addressed in light of AI's and IoT's explosive growth. Several societal problems are brought up about AI, such as the possibility of widespread unemployment, diminished autonomy, and a loss in wellbeing. Many individuals are currently losing their occupations as a result of the development of AI technology; machines are taking their place. The deterioration of this condition is being accelerated by technological improvements.

2.3. Effects of AI and IoT on Market and Economy

Where sellers and buyers trade goods and services at the market. Digital sites and social networking sites now provide customers with online goods and services as a result of the development of AI and IoT in digital shopping. On the other hand, the administration of a community's or an organization's financial affairs is referred to as the economy. The global economy has benefited from AI and IoT, particularly in those markets where adoption has been strong. Researchers have talked about how IoT and AI have altered conventional purchasing and selling practices in markets. These electronic markets affect market effectiveness, information collecting, costs associated with product searches, and price dispersion. In a traditional market, people spend a lot of money learning about the attributes of goods and services. However, because of developments in AI and IoT technologies in electronic markets, such as product presentation, parametric looking, and other shopping intermediaries, looking for goods and services online is now simple and costs a very small amount of money. Additionally, consumers have more product options and choices in international commerce, which increases competition and, as a result, lowers the price of the good or service.

2.4. Privacy and Security Risk

Security is the preservation of authenticity confidentiality and integrity of data as well as the protection of sensitive data from online susceptibility. In the context of privacy, it is stated that consumers will retain control over sensitive data. AI systems should concentrate on user data, advancements in privacy techniques, and rules on managing users' and objects' identities to provide a secure atmosphere to their users. Only a few efforts to precisely establish a "right to privacy" were made in recent years. Privacy rights "must not be regarded as a distinct legal right," according to some academics. According to their logic, the current legislation about privacy should be enough in general. So, the following is a working definition of "right to privacy": The ability to protect a space around us that incorporates all facets of who we are—our bodies, possessions, houses, emotions, ideas, identities, and secrets—is referred to as the right to privacy. Our ability to restrict which areas of our website are accessible to outsiders, as well as the scope, mode, and timing of such usage, is made possible by our right to privacy.

Today's atmosphere offers various disadvantages for revealing one's identity online because of technological improvements, particularly social media. These issues have many different facets, including internet interactions, image, and location broadcasting, and group activities that make one's character and personality known to others. Sharing on social media compromises openness, privacy, and visibility, and research underlines that users are not in charge of their information, conversations, identities, and photographs on these social media platforms, creating a variety of privacy and security hazards. The security and privacy concerns that young adults and children have when using social media platforms have recently come to light in the UK. Recently, concerns about the information produced were brought up by the use of AI gadgets. The first problem relates to the organizations that gather data on their own and must use caution when storing the data that individuals supply. The second issue, though, is how to protect such data from cyberattacks and other harmful entities.

2.5. Legal and Accountability Problems

The development of AI and IoT technology has resulted in a major increase in accountability and legal concerns for businesses utilizing these technologies. There are further legal repercussions associated with the use of AI technologies in all industries, in addition to the issues with data privacy and protection. One of the major legal concerns with deploying AI technology is accountability. When AI begins to make judgments on its own, it ceases to be only a tool for support, and the question of whether its inventor or developer may be held responsible for its choices arises. Who will be held accountable if the AI gadget is found to have made a mistake? is the question of accountability. AI relies entirely on data for making decisions, and its algorithms are pre-programmed into the system.

The human brain cannot be imitated by AI or IoT systems or networks in terms of how it thinks about various issues and makes judgments in various contexts. These are merely programs that can do preprogrammed repetitive choices, but the advantages of these tools are that they make decisions quickly and accurately. Because human brains often examine obvious data and make conclusions based on a certain set of data that we can easily obtain, humans cannot filter all the information and decide about a huge number of data in every case. However, with AI and IoT devices, it is simple to digest all data, regardless of volume, and look at it from all angles in a matter of seconds before making conclusions. This is frequently impossible for humans to do.

2.6. IoT for Sustainable Energy

It is clear from the discussion of energy and sustainability that technological adoption is necessary for achieving global energy accessibility. The efficiency and operation of the existing energy systems could be improved through the development of robust solutions for dependable low-cost energy access. Therefore, the community's need for economical energy can be satisfied by deploying next-generation devices and sensors technology (Fig.1). To provide this fundamental human demand for energy, IoT technology which can effectively supply affordable electricity supply is required. To fulfill needs in the future and the difficulties of clean energy access in the twenty-first century, the Internet of Things (IoT) in sustainable energy systems is anticipated as the networking of energy things throughout the entire electrical grid network, services supply chains and human resources. This paradigm can link different energy technologies and creative solutions on a global scale and has the potential to create next-generation energy systems. IoT offers a huge potential to improve the sustainability and resilience of the current energy infrastructure. It can also lower energy risks in the future by creating innovative, safe, and effective energy infrastructure and technologies. The IoT in energy systems allows a variety of approaches and routes to global energy access through the installation of clean renewable energy technologies with large-scale availability and flexibility for sustainable provision of low-cost energy sources.

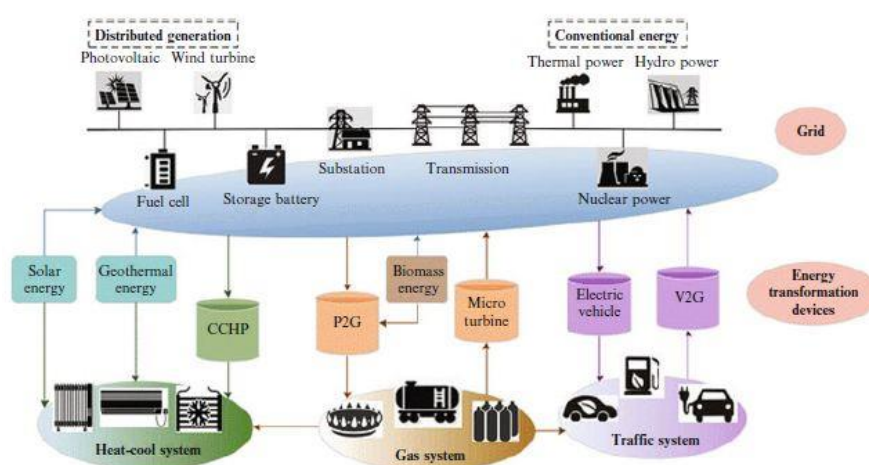


Fig. 1 IoT for sustainable energy

3 Results

3.1 Areas for deploying AI and IoT in sustainable development

Many important fields, including finance, economics, marketing, healthcare, management, research and development, energy, transportation, ecology, and environment, can all contribute to sustainable development. Even though AI and IoT can be used in a variety of contexts, practical solutions are not that different. In contrast to IoT, which is being reshaped into new paradigms like IIoT, Green IoT, EIoT, ZeroIoT, and Social IoT, AI approaches are most frequently applied in decision support systems. IIoT is connected to smart factories and uses cyber-physical systems to assist decentralized decision-making and control physical manufacturing processes, such as material handling, engineering, product lifecycle management, and supply chain management.

The EIoT's mission is to advance urban environmental science in the design, development, and administration of sustainable cities. One of the potential future development options for the IoT is the ZeroIoT (also known as ZeroSpace Interconnection of Things), which is capable of realizing operations in which time, space, error, and insecurity are all close to zero. Green IoT is an IoT that is focused on lowering energy usage, the greenhouse effect, or even the greenhouse footprint. Future sensor clouds may also develop into social sensor clouds (SSC) by integrating cloud computing, social media, and WSNs.

3.2 Technical criteria

If researchers can realize AI and IoT's full potential, they are poised to become one of the essential technology components for accomplishing sustainable development goals. They provide a new standard for the realization of processes and are, at the same time, not without flaws as intelligent, learning, autonomous systems.

Table 1. Pros and drawbacks of implementing AI and IoT.

	Benefits	Weaknesses
AI	Superiority in time series processing ; Capability to deal with noise data ; Higher prediction accuracy in terms of MAE, MSE, MAPE, and RMSE errors [46];	Predictions without knowing the internal relationship between variables ; A spurious regression problem occurs in a wide range of time series analysis
	Benefits	Weaknesses
	Shortening analysis time allows to identify problems earlier, allowing decision makers to be proactive not reactive ; Improving diagnostic procedures by recognizing subtle patterns.	in econometrics owing to its non-stationarity; Learning algorithms over fitting, subject to local convergence and slow learning
IoT	Effective in terms of energy consumption, CPU and memory usage ; Improving automation, asset utilization, employees' productivity, supply chain management, customer experience, resource efficiency; Reducing time to market; Creating full transparency along the value chain for informed environmental management; Strengthening the sustainable energy role in manufacturing	Lack of fully defined standards for IoT architectures; Little comparative study has offered any evidence of low-cost of IoT-based services; Power requirements in finding an appropriate device discovery protocol are still difficult to find.

Realistic potential for sustainable growth is provided by AI and IoT. Current systems must contend with internet misinformation, filling in gaps in data, eventually unused data kept across platforms, a lack of structures that enable data sharing, and heterogeneity of data comprising a lot of unnecessary information. These weaknesses can be minimized and decision-making processes can be improved with the help of AI and IoT-based technologies. As a result, AI and IoT may open up new chances for decision-makers in the private and governmental sectors by establishing regulations or raising a nation's industrial level, global competitiveness, and sustainability.

Numerous risks to the privacy and security of consumer information will arise as a result of these developing technologies' use of a vast number of devices and sensors to connect numerous aspects of daily life and company operations to the Internet. Their effect will be quicker, deeper, and more permanent than that of earlier technology. Literature mentions a variety of threats and challenges, including strict requirements for sophisticated systems' architectures, exposing IoT devices to security flaws, lack of standardization, challenges in making a smooth transition from older technologies, availability of service and scalability, developing business models, ensuring service quality, and confidentiality and environmental concerns. Due to their low processing power, external storage, and computing, sensors may communicate data without any encryption, posing a threat to data security and privacy. Because of this, AI and IoT-based

solutions could be susceptible to cyberattacks such as those that install malware, cause a time delay, alter data, cause a denial of service, inject false data, use a side channel or covert channel, eavesdrop on users, replay attacks, use spoofing, target AI analytics, and more. Attacks can be carried out by lone criminals, organized groups of criminals, terrorist organizations, competing organizations, amateur hackers, patriotic hackers who are frequently motivated by political ideals, or even insiders with access to the organization's resources. The important threat also is brought up in the social context, as users of AI and IoT applications may claim that these technologies put them in a conflict of interest, make them feel uneasy about their future employment prospects, and force them to refuse to utilize them. There are so many concerns and expectations about AI and IoT's possible impact on the labor market that a separate section was created to address them.

3.3 Employment market impact

The employment landscape has already been dramatically altered by the information technology revolution (both in terms of the number and type of jobs), and new technologies will have much more of an influence. According to some studies, 600 million new jobs will need to be created in the next 15 years, mostly in Asia and Sub-Saharan Africa, and 137 million jobs would need to be replaced in Southeast Asia within 20 years owing to AI and IoT. Automation of significant processes in many industries may result in job losses, but it may also create new opportunities for highly qualified workers, particularly in industrialized nations. Table 2 lists potential advantages and disadvantages for workers affected by AI and IoT implementation.

Table 2. Impact of new technology on the job economy.

New opportunities arguments from implementation of AI and IoT	Job losses arguments from implementation of AI and IoT
<p>New job opportunities requiring high skills; Augmentation of human capacity and the effectiveness of human potential; Freeing up capacities of the employees to engage in non-routine decisions and tasks [; Simplification of the work tasks at the level of skilled work; Developing expert systems as a tool for qualified skilled workers; Employees could focus mainly on social interactions, collaboration, continuous improvement, and innovation; High-skill jobs will become more intrinsically motivating, diverse, enabling more skills, and decentralization.</p>	<p>Jobs may become redundant or reduced through automation and the digitization; Reduced demand for mid-skill workers; Providing quicker, more accurate and fact-based performances comparing to human work; Limitation of the autonomy of accomplished skilled workforce; Reduced motivation for middle-skill jobs due to fewer tasks and skills, more centralization and monitoring; The qualification requirements of new jobs will be more strict; Elimination of a possible human error source; Lower qualified personnel can be quickly deployed at lesser wages; Reduced extended on-the-job training for lower qualified workforce; Vast numbers of job seekers will require financial support to catch up with new jobs; Decrease of demand for manufacturing work in high-income countries; The skill sets for today's jobs will be totally changed.</p>

AI and IoT are now extending beyond easily automatable jobs like delivery drivers and into non-routine jobs. The organizing of jobs may also use emerging technology. In recent literature, the first strategies for businesses to choose, hire, foster, develop, and retain long-term competency of people were already outlined.

Although a large portion of human physically and mentally work will eventually be substituted by AI and IoT, complex cognitive talents, such as innovation and social-emotional intelligence, will be harder to replace, leading to longer-term increases in employment prospects for occupations. We can presume that new jobs might well be created, many of which will incorporate machine and human "intelligence" in a symbiotic way. This is true even though some investigators are concerned that the role of human performers will be taking a back seat, one billion people will be unemployed globally, or that we experience a dramatic labor market compression and then its unforeseen transformation.

4. Discussion

Our findings appear to support the notion that AI and IoT may be crucial to accomplishing sustainable development objectives. However, developing extremely effective, trustworthy, and accurate algorithms could continue to be a major difficulty in the future. Such solutions necessitate appropriate business models to control revenue allocation to cover the costs of the involved subjects, security mechanisms to guard against unauthorized access and threat hackers, anonymizing algorithms for robust analyses, norms for obtaining interoperability, accuracy, and storage systems for big data operations, communication models to increase functionality, and efforts to involve users in the deployment of AI and IoT systems.

We also recommend conducting pilot projects because they can be used to match the appropriate risk mitigation and application development strategies. This will help to improve the protocols, algorithms, and hardware design of AI and IoT-based platforms and reduce the risk of non-professional project deployment. A partnership between all parties concerned should be developed since the merger of wireless IoT and AI will lead to future systems that are context-aware, intelligent, and able to take the preferences of the users into account. To safeguard security, technological, ethical, and privacy issues, every created solution should be supported by six pillars: management, social, legal, economic, sustainability, and technology. When integrating AI and IoT into our corporate, social reality, and economics, humans must pay attention to how technological advancement and new practices are aligned to address societal concerns, including the influence on the labor market.

5. Conclusions

According to a recent study, emerging technologies like AI and IoT will have a big impact on reaching sustainable development goals. The technical factors influencing their

deployment and any prospective effects on the labor market in the future were the subject of the bibliometric analysis researchers carried out for this work. Although AI and IoT are developed enough to spread widely, their effect is still up for dispute as to whether or not opportunities outweigh potential risks. Therefore, these studies ought to be conducted to comprehend the nature of these technologies.

Reference:

1. Acharya, Shambhu, Vivian Lin, and Natasha Dhingra. "The role of health in achieving the sustainable development goals." *Bulletin of the World Health Organization* 96.9 (2018): 591.
2. Alkire, Sabina, and Selim Jahan. "The new global MPI 2018: Aligning with the sustainable development goals." (2018).
3. Allen, Cameron, Graciela Metternicht, and Thomas Wiedmann. "An iterative framework for national scenario modelling for the Sustainable Development Goals (SDGs)." *Sustainable Development* 25.5 (2017): 372-385.
4. Apostolopoulos, Nikolaos, et al. "Entrepreneurship and the sustainable development goals." *Entrepreneurship and the sustainable development goals*. Vol. 8. Emerald Publishing Limited, 2018. 1-7.
5. Asma, Samira, et al. "Monitoring the health-related Sustainable Development Goals: lessons learned and recommendations for improved measurement." *The Lancet* 395.10219 (2020): 240-246.
6. Dybdahl, Ragnhild, and Lars Lien. "Mental health is an integral part of the sustainable development goals." *Prev Med Commun Health* 1.1 (2017): 1-3.
7. Hone, Thomas, James Macinko, and Christopher Millett. "Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals?" *The Lancet* 392.10156 (2018): 1461-1472.
8. Jägermeyr, Jonas, et al. "Reconciling irrigated food production with environmental flows for Sustainable Development Goals implementation." *Nature communications* 8.1 (2017): 1-9.
9. Lane, Andy. "Open education and the sustainable development goals: Making change happen." *Journal of Learning for Development* 4.3 (2017): 275-286.
10. Mohammed, Amina J., and Tedros Adhanom Ghebreyesus. "Healthy living, well-being and the sustainable development goals." *Bulletin of the World Health Organization* 96.9 (2018): 590.
11. Mohieldin, Mahmoud. "The sustainable development goals and private sector opportunities." *World bank group* (2017).
12. Ono, Takayuki, Kenichi Iida, and Seiya Yamazaki. "Achieving sustainable development goals (SDGs) through ICT services." *Fujitsu Sci. Tech. J* 53.6 (2017): 17-22.
13. Stenberg, Karin, et al. "Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected

resource needs in 67 low-income and middle-income countries." *The Lancet Global Health* 5.9 (2017): e875-e887.

14. Weber, Heloise. "Politics of 'leaving no one behind': contesting the 2030 Sustainable Development Goals agenda." *Globalizations* 14.3 (2017): 399-414.

15. Willis, Katie. "The sustainable development goals." *The Routledge Handbook of Latin American Development*. Routledge, 2018. 121-131.