

Role Of Artificial Intelligence In Changing Society: A Systematic Review

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Abstract:

With the increased embedment of AI technology in various sectors of life significant changes could be observed in human society. This paper aims to explore the changes brought by AI in society by systematically reviewing the literature available focused¹ on how AI is changing the structure and patterns in society as it is bringing vast changes in all spheres of life (education, industry, healthcare, digital media, religion, business, tourism, etc) and found that while facilitating human beings in improving the quality of their performances also has the potential to transform and change the existing structure of society and creating new opportunities and challenges which needs to be addressed by social scientists.

Introduction

Societies have always been evolving and changing throughout human existence, with certain inventions and innovations bringing more significant change than others. Following the tremendous advancements in technology, societies are now undergoing rapid transformations. The introduction of a new technology known as artificial intelligence has brought about massive changes in human societies. Let's rename the work as an "AI ball" with overwhelming emphasis this type of intelligence is artificial though, more real than actual. Such a momentous concept has got the tremendous response not only from business and industrial faction but also from the social scientists (Chatterjee et. AI 2021). The social impacts of AI are palpable and being emerging in all nooks and crowdies of everyday life it is easy to infer that the future of society in general shall face challenges and opportunities from AI (Dwivedi et. AI 2019). Amazingly wellbeing of all individuals from housewives to CEOs shall be affected by AI. It would engulf globalization by reducing racial and ethnic diversity. The cultural significance of the countries would be under threat but the same may increase the GDP of nations by lucrative tourism (Grundner & Neuhofer 2021). It is important to maintain that the economic dependency of the masses will shift from humans to machines. This shift will mix into the existing global balance, altering the prevailing economic and social dynamics. As artificial intelligence continues to advance, it will become increasingly integral to various industries, potentially

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leading to a new equilibrium where machine labor complements and, in some cases, replaces human labor. This transition requires careful consideration to ensure that the benefits of AI are distributed equitably and that the social and economic impacts are managed effectively.

Hence new study of AI to get new social insight is mandatory by social scientists. A social scientist should assess whether AI is an enabler or an inhibitor of sustainability (Gupta et. Al2021). Furthermore to augment human capacity, in the positive or negative direction, and its evolution needs a thorough study, so the bad consequences of such intelligence on human species may be curtained (Horary 2019).

The complexity is even bigger to social scientist to must assess the impact of AI on the emotions of humans. Keeping in mind the light and dark side of AI an organized study is essential to cope with the upcoming challenges (Cao et.al2021). Similarly many routine jobs would be replaced by such robotics but many top echelon positions would remain vacant for such intelligent people with the duty to harness this giant AI (Horary 2019). Will society be able to produce people with such a high degree of intelligence? The paper would focus on all such momentous issues not by putting forth any primary but simply by looking at the available on these emerging problems.

The rationale of such a review paper is quite obvious a social scientist cannot close from the educational, occupational, societal, and ethical impacts of AI as it has the potential to bring massive change in society. As sociologists, where the focus is on human interaction, AI needs to be critically seen because most of the future relationships would be gushing out from the same phenomena.

Objectives:

1. To explore the changes brought by Artificial Intelligence in different sphere of life.
2. To examine the positive and negative consequences of changes brought by artificial intelligence on society.

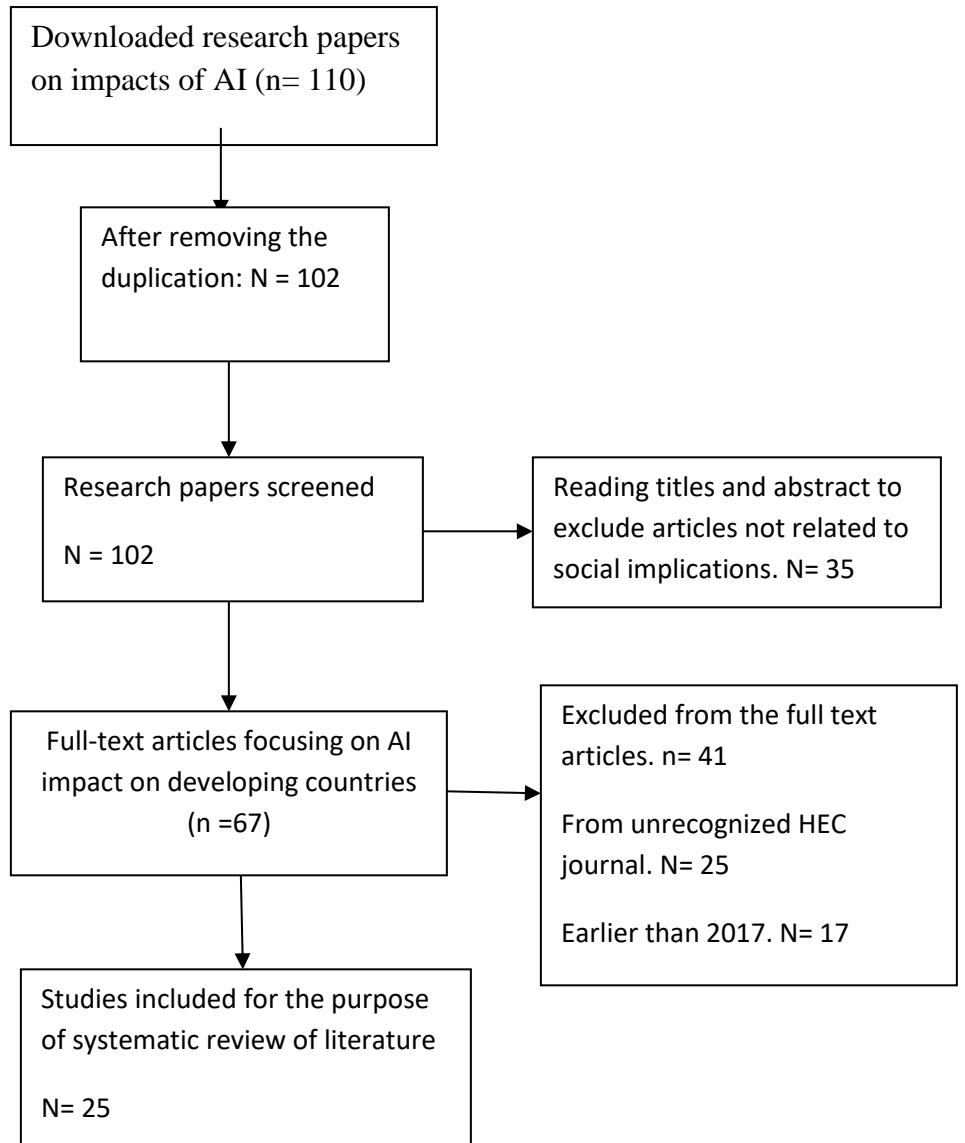
Methodology

As it is already mentioned that this paper is aimed at presenting the current research work done by various social scientists on the role AI in bringing change in Society . The AI is still in its growing stage in developed world, and at initial stages in developing countries. About its social implication not much work has done so far in developed world and developing world is still far behind.

The methodology used to access the relevant data for this paper include downloading research papers on social implication of AI which were 110 in total through different search engines and from these research papers only 26 papers related to social impact of AI on developing countries (like Pakistan) for the year 2017 to 2023 from HEC approved journals with high credibility were selected. Research articles not falling in the criteria were excluded from the study.

Using the Inductive approach the results of all papers were matched to get similarities and differences to conclude.

PRISMA Flow Chart for the Systematic Review of the Identified Research Studies



Artificial intelligence and its social implication

Sr. No	Title	Author year	Objectives	Methodology	Study subject	Findings
1.	Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy	Dwivedi et. AI 2019	To provide important and timely insight to AI technology and to find its impact on future of industry and society	Multiple perspectives by invited contributors	Industry's future and society generally	Growing utilization of AI applications assures the transformation of various aspects of human existence and brings a profound influence on society in general. The path ahead remains uncertain, with an undefined potential course of action. While various advantages can take place due to AI, there are also considerable risks, including the likelihood of swathes of society being disfranchised due to the adoption of this technology.
2.	The impact of automation and artificial intelligence on worker well-being	Nazareno , S. Schiff 2021	To find the general impacts of AI and automation well-being of workers	using General Social Survey dataset from 2002-2018	well-being of workers	Among individuals having comparable demographic traits, employed in the same sectors, and equal working hours, the prospect of automation-related risk is notably associated with a decrease in stress levels and improved overall health
3	The bright and dark sides of artificial intelligence: A futures perspective on tourist destination experiences	Grundner & Neuhofer 2021	To predict how growth of AI in tourism can impact tourist destination experiences by using value co-creation and co-destruction lens	a futures research approach via the futures wheel method	future of AI-facilitated experiences in tourism destinations	The growing integration of AI in the tourism industry could result in a decline in the quality of experiences, a decrease in interpersonal interactions, individual isolation, and creating situations where technology dominates, overshadowing the authentic essence of an experience. On the brighter side, it can improve tourism by giving personalize travel recommendations and making vacations more personalized and enjoyable by providing instant information and support and improving

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						safety and making destinations and activities safer. It has the potential to improve the tourism industry by providing more satisfying and sustainable travel experiences.
4.	Artificial intelligence and unemployment in high-tech developed countries: New insights from dynamic panel data model	Hasraddin Guliyev 2023	To examine the AI's effect on unemployment specifically in high-tech developed countries	Dataset from 24 high-tech developed countries for the period 2005 to 2021 to examine the correlation between a country's AI's related Google Trend Index and the rate of unemployment	AI's effect on unemployment	Unemployment is negatively associated with AI, machine learning, and data science. AI possesses the ability to alter the job market by creating new employment opportunities, automating monotonous tasks, and bolstering overall production.
5.	Assessing whether artificial intelligence is an enabler or an inhibitor of sustainability at indicator level	Gupta et. Al 2021	To understand AI' influence on sustainable development	panel discussion	AI' influence on sustainable development	In these panel discussions, A common consensus among all was the imperative to move beyond the AI's isolated development within specific sectors. It is crucial to understand the broader implications that it may exert on society, the environment, and economics.
6.	To augment human capacity— Artificial intelligence evolution through	Elissa Farrow 2019	To study AI's evolution and its impact on human capacity	Foucault's discontinuity concept related to genealogical analysis by combining it	Human capacity	AI has the potential to become a supportive ally and a source of salvation for humanity. While we might not have a complete understanding of the exact ways in which it will benefit us at this moment, it is increasingly likely, especially

	causal layered analysis			with Causal Layered Analysis and future research methodology		considering the ecological and demographic challenges we face, that we will favor this more optimistic perspective over the notion of AI leading to increased vulnerability.
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7.	The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms	Spyros & Makridakis 2017	To discuss the substantial vagueness about AI's future impacts	Systematic review of literature	Impact of AI	The existence of AI-related risks should not be overlooked, even if they have less chances of occurrence. Critics argue that their possible consequences could be catastrophic, creating challenges for human dominance when human intelligence is surpassed by machines. At the same time, it's acknowledged that the growth of AI cannot be halted. Hence, the most sensible course of action is to recognize these risks and create proactive measures to alleviate their adverse impacts.
8.	Artificial intelligence: The light and the darkness	Grewal et. AI 2021	To offer an organizing framework for understanding the bright side of AI as well as its dark side	Systematic review of AI related literature and literature on the relationship marketing.	Impact of AI	The advantages of AI mainly stem from its capability to facilitate highly specific customization and improve general business efficiency. Conversely, essentials that can have a damaging effect on relationships comprise issues linked to trust, or its absence, and power imbalances.

9.	Understanding managers' attitudes and behavioral intentions towards using artificial intelligence for organizational decision-making	Cao et.al 2021	To understand the managers' attitudes and behavioral intentions towards using AI for organizational decision-making	Survey questionnaire from 269 UK business managers	Manager's attitude towards AI	The suggested IAAAM model has the potential to foster a more equitable discourse concerning both the advantages and the potential drawbacks linked to the utilization of AI in organizational decision-making.
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10.	Societal and ethical impacts of artificial intelligence: Critical notes on European policy frameworks	Alujevic et. Al 2020	To examine the approaches to ethical and societal implications of artificial intelligence	analysis of policy papers produced by European institutions, European national governments, and other organizations	implications of artificial intelligence	Policy documents from national, European, and inter-governmental European organizations share similar socio-technical imaginaries and cohesive visions of achieving a more ethical AI landscape than the current state. This vision is envisioned through various policy instruments and actions. Additionally, an analysis has revealed that these policy documents emphasize ethical frameworks more prominently than they do opportunities for more stringent regulation, indicating a preference for ethical guidelines and principles in shaping AI practices.

11.	Public relations and artificial intelligence: It's not (just) about robots	Galloway & Swiatek 2018	To examine the growing relationship between AI and public relations.	Review of literature	AI and public relations	It's crucial to recognize the diverse range of roles that AI is starting to assume in the field of public relations, with an even broader set of roles anticipated in the future. These roles go beyond mere task automation and give rise to a multitude of technological, economic, and societal consequences that public relations professionals should proactively contemplate
12.	Artificial intelligence in the construction industry: A review of present status, opportunities and future challenges	Abioye et. Al 2021	To unravel AI applications, examine AI techniques being used and identify opportunities and challenges for AI applications in the construction industry	A critical review of available literature on AI applications in the construction industry	AI challenges & opportunities	Numerous AI technologies have found applications in construction research, and recent advancements in these technologies have shown substantial improvements. However, the adoption of these more potent AI tools has been somewhat sluggish within the construction industry
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13.	The propensity to trust in (automated) technology mediates the links between technology self-efficacy and fear and acceptance of artificial intelligence	Montag et. AI 2023	To study the trust in (automated) technology and fear or acceptance of artificial intelligence	Three survey questionnaires from 289 participants	Trust in AI	The findings unveiled strong positive correlations between individuals' inclination to trust in automated technology, their self-perceived efficacy with technology, and their overall acceptance of the ATAI scale, including a positive connection observed at the individual item level concerning trust in AI. Conversely, about the ATAI's fear scale, there were negative correlations with trust in automated technology and self-efficacy with technology.
14.	THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SOCIETY VIEWS OF ISLAMIC RELIGIOUS LEADERS	Vinichenko et. AI 2020	To examined the attitude of imams to artificial intelligence	Questionnaire using the Likert method	Impct of AI on society	In the context of religion, such as Islam, AI is not seen as a replacement for human beings. However, some imams hold the belief that AI can potentially play a role in fostering unity among different faiths, potentially within the framework of Islam. It's important to note that there is no absolute certainty that artificial intelligence will lead to a more efficient utilization of human potential and natural intelligence or enhance the quality and innovativeness of religious education and training.
15.	Evolution of artificial intelligence and its impact on human rights: from socio-legal perspective	Chatterjee et. AI 2021	to examine the evolution of AI and its impacts on human rights from social and legal perspectives	Study of literature and different other AI and human rights-related reports	evolution of AI and its impacts	This study aims to explore the various ways in which different AI applications can both benefit and potentially harm society. It sheds light on the legal challenges and complexities that arise in tandem with the progression of AI technology. Lastly, the study offers several recommendations to governments,

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						private enterprises, and non-governmental organizations regarding the responsible integration of various AI applications within their respective organizations.
16.	Artificial Intelligence Crime: An Overview of Malicious Use and Abuse of AI	Blauth et. AI 2022	to clarify the types of activities and corresponding risks related to malicious use and abuse of AI	reviews of relevant literature, reports, and representative incidents	malicious use and abuse of AI	There are four identified categories of malicious abuse of AI, and four corresponding categories of malicious use of AI have been proposed. To bolster readiness and resilience against these malicious actions, it is imperative to foster enhanced collaboration between governments, industries, and civil society entities
17.	Impact of artificial intelligence on employees working in industry 4.0 led organizations	Malik et. AI 2021	to develop a practical understanding of the positive and negative employee experiences due to artificial intelligence (AI) adoption and the creation of technostress	Semi-structured interviews with 32 professionals	Impact of AI on industry workers	The research outcomes underscore significant negative consequences associated with the implementation of AI, including concerns related to information security, data privacy, substantial disruptions stemming from digital transformations, and growing apprehension about job risk and instability among employees. Conversely, these findings are followed by a hierarchical list of positive effects, such as increased work-related flexibility and autonomy, stimulation of creativity and innovation, and an overall improvement in job performance.

18.	Effects of Gender and Relationship Type on the Response to Artificial Intelligence	Kim et. Al 2019	to identify the effects of an AI's relationship type and gender on a human's response to an AI speaker	Experiment method with 158 participants	Response to AI	The results indicate that the type of relationship has a noteworthy impact on perceptions of warmth and pleasure but does not have a significant effect on perceptions of competence. Moreover, when accounting for the gender of the participants, the gender of the AI did not exhibit any significant effects on perceptions of competence, warmth, or pleasure
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19	Artificial Intelligence and the Implementation Challenge	Shaw et. Al 2019	To provide a framework for thinking about use cases of ML in healthcare	uses cases of ML as falling into the categories of decision support and automation	Use of AI In health care	The outlook for Machine Learning (ML) in healthcare is generally optimistic, but it also carries an element of uncertainty. Realizing its full potential depends on garnering support from patients, the public, and a diverse array of healthcare stakeholders to facilitate its meaningful and effective integration.
20.	The impact of artificial intelligence on event experiences: a scenario technique approach	Neuhofer 2020	To explores the impact of artificial intelligence as an operant resource on event experiences	service-dominant (SD) logic and a scenario technique approach	impact of artificial	The study's results present a conceptualization of three distinct scenarios envisioned for the year 2026. These scenarios range from the collaborative creation of value to the potential for value erosion in various events. This contribution is significant as it bridges the realms of marketing, technology, and the literature on experiences, with a specific focus on AI as a non-human participant within future experiential ecosystems

21.	Artificial intelligence in communication impacts language and social relationships	Hohenstein 2023	To investigate the social consequences of algorithmic response suggestions (“smart replies”)	Two randomized experiments to provide evidence	AI impact on communication and social relations	The research reveals that the adoption of algorithmic responses has a transformative impact on language use and social dynamics. It accelerates communication, promotes the use of positive emotional expressions, and leads conversation partners to perceive each other as closer and more cooperative. Nonetheless, in line with prevailing beliefs regarding the potential drawbacks of AI, individuals tend to form more negative evaluations if they suspect that algorithmic responses are being employed.
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22.	Impact of Artificial intelligence on human loss in decision making, laziness and safety in education	Ahmad et. Al 2023	To examine the impact of artificial intelligence (AI) on loss in decision-making, laziness, and privacy concerns among university students in Pakistan and China	qualitative methodology using PLS-Smart for the data analysis collected from 285 students	Impact of artificial intelligence	One of the most pronounced areas affected by AI is human complacency or laziness. It's imperative to take substantial precautionary measures before integrating AI technology into education. Embracing AI without adequately addressing critical human concerns would be akin to inviting unintended consequences. Focusing on thoughtful and justified design, deployment, and utilization of AI in education is advisable to tackle this issue effectively
23.	Artificial Intelligence in the Industry 4.0, and Its Impact on	David Mhlanga 2021	to investigate the influence of artificial intelligence	content analysis	Impact of AI on SDGs	The findings indicate that Artificial Intelligence (AI) is contributing significantly to the potential reduction of poverty. It achieves this by

Poverty, Innovation, Infrastructure Development, and the Sustainable Development Goals: Lessons from Emerging Economies?	on the attainment of Sustainable Development Goals	enhancing the collection of poverty-related data, particularly through the creation of poverty maps. Furthermore, AI is revolutionizing the agricultural, educational, and financial sectors by promoting financial inclusion. The study underscores the importance of AI in facilitating education and financial sector access for previously marginalized individuals, allowing them to participate in the mainstream economy. Consequently, governments in emerging economies must increase their investments in AI and promote research in this field. This commitment is essential for achieving the Sustainable Development Goals (SDGs) related to innovation, infrastructure development, and poverty reduction
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24,	The Impact of Artificial Intelligence on Sustainable Development in Electronic Markets	Thamik & Wu 2022	to examine the behavioral, cultural, ethical, social, and economic challenges of AI-enabled products and services in consumer markets	Systematic review of literature	AI and electronic market	The findings imply that AI has undeniably brought about significant changes in various aspects of life, accompanied by both positive and negative consequences. Nevertheless, the primary objective when it comes to AI should be its utilization for the greater benefit of humanity as a whole. Additionally, governing bodies operating within e-business environments must establish appropriate rules and regulations while

25.	The Impact of Digital Media and Artificial Intelligence on the SMEs in Developing Countries: An Exploratory Desk Study	Faruk et. Al 2022	to analyze the impact of digital media and artificial intelligence on the SMEs of developing countries	secondary research method, exploratory desk research	Impact of AI on SMEs	ensuring the highest possible level of security for individuals AI and digital media present a potent marketing platform for Small and Medium-sized Enterprises (SMEs). They serve as a foundational framework for boosting sales and revenue, offering an innovative space for cost reduction and profit maximization. These technologies also furnish a transparent platform for direct communication with customers, retailers, wholesalers, and other stakeholders while streamlining and automating various business processes, which is especially beneficial for SMEs in developing countries.
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Discussion

Artificial intelligence (AI) stands at the forefront of technological innovation, reshaping economic dependencies, social dynamics, and cultural interactions in profound ways. Its evolution from theoretical concepts to practical applications has ushered in a new era of possibilities and challenges across diverse sectors of human activity. This expansive influence underscores AI's potential as a transformative force, capable of both enhancing human capabilities and reshaping societal structures.

The Promise and Potential of AI

AI's promise lies in its ability to augment human capabilities and drive efficiency gains across various industries. In sectors like healthcare, AI-powered technologies are revolutionizing diagnostic processes, treatment strategies, and patient care outcomes. Machine learning algorithms analyze vast amounts of medical data to provide personalized treatment recommendations, optimize hospital operations, and predict health trends. For instance, AI applications in medical imaging have improved diagnostic accuracy and speed, leading to earlier detection of diseases and better patient outcomes.

Similarly, AI's impact extends to finance, where algorithms facilitate automated trading, risk assessment, and fraud detection. Fintech innovations powered by AI have democratized access to financial services, particularly in underserved regions where traditional banking infrastructure is lacking. AI-driven predictive analytics enable financial institutions to tailor products and services to individual customer needs, enhance portfolio management strategies, and mitigate financial risks.

In education, AI holds promise for personalized learning experiences tailored to the unique needs and learning styles of students. Adaptive learning platforms use AI algorithms to assess student progress, identify learning gaps, and deliver customized educational content in real time. This approach not only enhances student engagement and academic performance but also supports educators in optimizing teaching strategies and curriculum development.

Challenges and Considerations

However, alongside these advancements, the widespread adoption of AI poses significant challenges and ethical considerations. One prominent concern is the potential impact on employment and workforce dynamics. AI-driven automation threatens to disrupt traditional job markets by replacing routine tasks and repetitive processes previously performed by humans. While this automation can lead to increased productivity and operational efficiency, it also raises concerns about job displacement and the need for workforce re-skilling and up-skilling initiatives.

Moreover, the ethical implications of AI decision-making algorithms raise questions about transparency, accountability, and bias. Machine learning models trained on historical data may perpetuate existing biases, leading to discriminatory outcomes in areas such as hiring practices, criminal justice sentencing, and access to healthcare. Addressing these ethical challenges requires careful design of AI systems, regulatory frameworks that ensure fairness and equity, and ongoing monitoring of algorithmic decision-making processes.

Societal Impact and Transformation

AI's transformative impact extends beyond individual sectors to encompass broader societal structures and dynamics. In agriculture, AI-driven technologies enhance precision farming

practices by optimizing resource allocation, monitoring crop health, and predicting agricultural yields. These advancements contribute to sustainable agriculture practices, food security, and environmental conservation efforts.

In urban planning and infrastructure development, AI-powered simulations and predictive models assist city planners in optimizing transportation networks, managing energy consumption, and enhancing disaster preparedness. Smart city initiatives leverage AI technologies to improve public services, optimize resource utilization, and enhance overall urban livability.

Furthermore, AI's influence on public discourse and media consumption is reshaping communication patterns and social interactions. Automated content moderation tools use AI algorithms to monitor and filter online content, detect misinformation, and promote digital safety. Social media platforms utilize AI-driven recommendation systems to personalize content feeds, optimize user engagement, and influence user behavior.

Sector-specific Applications

AI's applications in traditionally resistant sectors like construction and manufacturing are gradually transforming industry practices and operational efficiencies. Robotics and AI-driven automation systems enhance productivity, improve workplace safety, and enable real-time monitoring of manufacturing processes. In construction, AI-powered algorithms analyze building designs, optimize construction schedules, and mitigate project risks, leading to cost savings and accelerated project timelines.

Small and Medium-sized Enterprises (SMEs) leverage AI technologies in digital marketing, customer relationship management, and supply chain management to gain competitive advantages in global markets. AI-driven insights enable SMEs to identify market trends, personalize customer experiences, and streamline business operations. However, challenges related to data privacy, cybersecurity threats, and regulatory compliance underscore the importance of ethical AI practices in business operations.

Ethical Considerations and Regulatory Frameworks

Navigating the ethical dimensions of AI requires a balanced approach that prioritizes human values, promotes transparency, and safeguards against unintended consequences. Regulatory frameworks play a crucial role in governing AI development and deployment, ensuring compliance with ethical standards, data protection laws, and consumer rights. International collaborations and standards-setting initiatives aim to harmonize AI regulations across global jurisdictions, fostering innovation while upholding ethical principles.

Future Perspectives and Challenges

Looking ahead, the future of AI presents both opportunities and challenges as technological advancements continue to reshape societal norms and behaviors. The evolution of AI technologies, such as quantum computing and autonomous systems, holds the potential for even greater transformative impact across diverse sectors. However, realizing AI's full potential requires addressing technical limitations, ethical considerations, and societal acceptance.

Furthermore, interdisciplinary research collaborations are essential to advancing AI capabilities, exploring new applications, and addressing emerging challenges. Investments in AI research and development are critical for fostering innovation, enhancing global competitiveness, and preparing for future technological disruptions.

Conclusion

In conclusion, artificial intelligence (AI) represents a paradigm shift in how we perceive and interact with technology, offering unprecedented opportunities for innovation, efficiency, and societal advancement. However, the responsible integration of AI requires careful consideration of ethical, legal, and socio-economic implications to ensure that its benefits are equitably distributed and its risks are mitigated effectively. By fostering a collaborative approach among stakeholders, policymakers, and the public, we can harness AI's transformative potential to create a more inclusive, sustainable, and resilient future for humanity.

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