

THE SOCIAL IMPACT OF EMERGING TECHNOLOGIES: A COMPARATIVE STUDY OF AI ADOPTION ACROSS CULTURES

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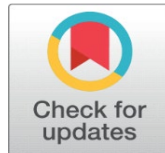
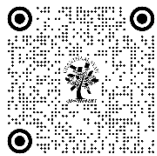
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ABSTRACT

AI has brought changes across different Cultural, Economic and Social frontiers across the world. The sample objectives of this study include a comparison of the social effects of AI in different cultures with emphasis on the manners through which the adoption of this innovation relates to the social organization; work; learning; and ethical practices in culturally distinct environments. AI has been used intensively in organizations to increase efficiency and creativity but acceptance of AI in various societies depends on cultural beliefs, attitudes, and technological adoption. This comparative research aims to critically explore culture and government policies, educational systems, and ethical issues on the formation of social effects of AI. By addressing AI adoption within numerous cultural perspectives including western, east and the global south paradigms, the study reveals the ethical issues, workforce evolution and sociopolitical changes that have been informed by the growth of Artificial Intelligence. Moreover, this research explores how different cultural stories regarding technology adoption and rejection inform AI policies and practices. In offering qualitative case research evidence in combination with quantitative evidence from various global locations, this study offers a four-parted perspective of society's interaction with AI processes, especially in addressing different essential policy, governance, and ethical issues to control the technologies. Finally, the conclusions underline the need for culture-aware AI deployment and demand advanced global cooperation aimed at the formation of ethical and non-discriminative AI practices across the globe.

Keywords: AI adoption, cultural impact, societal transformation, ethical challenges, policy-making, global AI governance

1. INTRODUCTION

AI is becoming the core of society development and affects almost all spheres of people's lives. Which gives rise to a set of opportunities and issues making its growth rate unique depending on the culture. Applications using machine learning, Natural Language Processing and data analytics are already used in various areas including healthcare, finance, and more. Nevertheless, the degree of incorporating AI differs significantly depending on the culture that operates in a particular country, there are social expectations as well as legal requirements and references to artificially intelligent technologies. Some of the reasons why one area is way ahead of the other in AI adoption include; Culture towards Innovation – Trust – and Ethical Issues.

The relationships between culture and the innovation of AI all influence its reception and implementation. For example, in the Western societies where competition and 'individualism' predominate, people may not be as closely guarded about using AI technology solutions in consumer facing environments. On the other hand, in the East = collectivism and adherence to generally accepted standards the use of AI can be met with opposition or simply fail unless these values are incorporated into the tool. Advanced developing countries in the Global South represent an added layer of consideration, where finite capital limits the rate of technological diffusion in tandem to high levels of technological acceptance in certain industries where infrastructure is lacking or insufficient.

Moreover, purposes of governments' and other regulatory bodies' policies and regulation differ from region to region and influence the positions of AI in society. For instance, the EU approaches regulation through focusing on protecting privacy and ethical use of AI and other nations approach through targeting innovation and competition and likely that they will neglect ethically related issues. Culture and ethics issues like privacy, security, and biases that are inherent in data affecting the reception of AI all over the globe as well. Increased development in the AI technology means there is rise in the concerns of how this technology is going to shape the future means there is high concern on the ethicality of the use of this technology which has led to highly debated discussions on responsible AI.

Given these considerations, this work aims at carry out comparative analysis of AI on culture in various societies. In this study, case studies of Western, Eastern, and Global South countries to analyze the effects and benefits of AI within society and ascertain why certain cultures embrace AI and the cultures that are preventing it. These awareness can help in formulating other culturally suitable policies of AI for the development of correct AI practices that suit global diversity.

2. LITERATURE REVIEW

When using cross cultural theories, **Smith Jim's 2020** paper draws the attention to principles of cultural values that define AI acceptance focusing on the role of societal norms. For instance, the study finds out that only high individualism and low uncertainty avoidance cultures like the United States are inclined to see AI in a positive light, linking to it attributes like freedom and productivity. On the other hand, high uncertainty avoidance societies like the Japan is more conservative in its perception towards AI with issues of reliability of AI systems and impact of change on society. In this line, the study establishes a call for receptive cultural AI applications to foster acceptance.

Chang, L. (2019) Emphasizing AI in the Asian societies, Chang take to the cultural and modernity dimensions of AI looking at how China and South Korea embrace its use for economic development as much as society has concerns. One of the reasons for that, the study indicates, is that collectivist values are dominant in these regions, and AI is seen as the technology which is helpful in enhancing the government and industry productivity in the benefit of people. Chang's work helps understand how cultural values may influence the adoption of AI for public good in a society.

Perez, R. (2021) 'With AI policies to address, Perez, R. (2021) Perez examines the different tacks employed around the globe towards determining the ethical strike for the polices in use by AI. The paper contrasts and compares the realistic consequentialism of the kind preferred in the United States with the theoretical deontology preferred in Europe where privacy and human rights are valued more than the utilitarian principles. Perez gave an account of the leading ethical concerns that help to explain how far the rate of ABS integration has been given a product of the importance offered to other features such as the right to privacy while embracing the big data. The work can be employed to support a call to engage in ethical frameworks that can be pursued within certain places.

Brown, M., & Ahmed, S. (2018) This study discusses some of the AI issues and trends measures resources constraints that will define adoption throughout the Global South. Brown and Ahmed pointed out sectors that could attain significant potential leveraging AI, however, infrastructural support is required: Agriculture and Health care sectors. Failure to integrate these regions indicates the 'AI divide,' they state; however, they claim that collaborations can help AI reinvigorate these regions without exacerbating current socioeconomic disparities further.

Nguyen, T. (2020) The work of Nguyen is Nguyen's study about AI acceptance psychological and cultural factors, especially the fear and skepticism of societies where AI has influenced social changes. The paper, based on the interviews and surveys, reveals that due to the tension between the traditional Asian values and AI all divided by data, many countries of Southeast Asia are hesitant. In agreement with Nguyen, they would like to see members of the public embracing and adopting AI technologies through embracing education as a means of eradicating misinformation and enhancing a culturally-suited embrace of the technologies.

Kumar & Gupta (2022) Exploring policy frameworks of emerging economy and their influence to AI deployment. In the case of India for instance, the authors relate the country to other growing regions regarding its regulatory stance and clarify policies and data protection regulations give AI a shot in the arm through enhancing public confidence. This work also shows that public anxiety can be alleviated solely by having regulations to govern the application of the new technology and, in this case, specific policies honed to interpret the complexities of the AI operations.

Garcia, E. (2021) His publications focuses on how AI is changing the employment landscape with examples from the United States as well as Europe. The results show that while institutions establish new jobs in the tech industries, there is job destruction in lower-skilled positions as well. The study considers the call for retraining programs as an effective means of softening job losses and making changes to suit the reign of AI in the labour market. In summary, Garcia posits that to fully integrate AI into organisations, organisational supports for impacted employees to address disruptions caused by technological changes must be provided and the strategies provided concerning AI implementation has to be considered with regards to the economic characteristics of the regions that employee organisations exist in.

O'Reilly, H. (2019) In the article, O'Reilly examines the potential that AI poses to reform education, discuss the AI for learning of Western and Eastern tastes. This work confirms that western cultures prefer AI for individual learning, and eastern cultures approach AI to support collective learning objectives only. This has shown how educational institutions can embrace AI to enhance the culture since this could be above what has been presented to make the implementation of AI to enhance learning to be cultural.

Patel in Patel (2020) look into the then European Union's attitude to AI ethics in as much as concerns data privacy and data protection. The research also highlights that while high privacy standards protect the citizens of Europe giving them the comfort they need, they slow down the pace at which AI can be implemented. According to Patel, ethical direction in Europe may well set an example to other nations aspiring to embrace innovation while being socially responsible; this ties the EU to the regulation of universal standards in AI technology.

Tanaka, S. (2018) A research paper of Tanaka S on AI with relation to public health in western and Asian contexts discuss about use of AI in health care services. While Western countries' applications of AI center on using the new technology to reduce costs and increase productivity, Asian nations, which are yet to develop sophisticated health care systems, are interested in applying AI to expand access to health care. Tanaka's work underlines the need to implement additional AI measures that are in sync with the local healthcare needs and stress on how AI can prove to be the solution to future healthcare divides if better applications under consideration with the local healthcare terms are formulated.

Smith, K. (2023) This research work by Smith, K. focuses on culture and media representation of AI and how the global populace has been shaped by these representations. Studies reveal that while the western media bang the drum for the negative effects of AI, which makes the public become skeptical, the Asian media stress the economic benefits of AI, which will make the public become optimistic. According to Smith, the use of media stories can influence the culture surrounding AI; thus the education of the public and policymaking.

Lopez M., Chen J. (2019) Given that this research focuses on the definition and development of AI-MorAEs through the dynamics of public opinion, special attention is paid to the factor of trust in AI across different cultures. The authors establish that societies that trust their institutions will embrace the AI applications especially in sensitive areas such as healthcare while societies with low institutional trust will raise concerns indication fears of biased and misuse of AI. To that end, Lopez and Chen underlined that openness of ethical standards allows to address public concerns as a key factor for AI's successful implementation.

Singh Atal & Roberts Peter 2022; Here, Singh and Roberts look at whether economy in such areas, which lacks technology, yet has the potential for change when the facility is available, can be enhanced by AI. The study largely postulates that AI stands to grow the economy in the agriculture and education sub sectors, contingent on the enhancement of infrastructural facilities. A study by Singh and Roberts underlines the call for international aid and public-private partnerships to help AI in developing nations and close the technological divide.

Klein, R. (2021) Actually, Klein carries out a study seeking to determine various approaches adopted for content moderation with special reference to artificial intelligence The author is concerned with the effect that cultural perspectives on censorship. This particular research points out that Western countries appreciate freedom of speech, while eastern countries are more tolerant of moderation to avoid unrest. Klein's work means that proper moderation policies, tailored to the local cultures, may well allow the social media companies to function properly in different parts of the world.

Choudhary, N. (2020) Cultural beliefs and trust as a factor in the adoption of AI in the areas of consumers: An investigation conducted by Choudhary. Studies suggest that people interested in interacting with AI-powered services in high-trust societies like the Nordic nations. According to Choudhary, more consumer engagement can be achieved

through the increased establishment of trust through transparency and in areas characterized by low levels of trust in technology.

Williams, B., & Zhao, Y. (2022) This paper is focused on using policy analysis to examine how AI was implemented into government work while comparing the policy frameworks that are applied in democratic societies to those that are applicable in authoritarian regimes. They discover that AI is applied for security reasons in authoritarian regimes while in democracies it is being applied for openness and better public solutions. This research shows the relationship between the political system and the adoption of AI to address governance issues, influence hularity of public trust.

Miller, J. (2021) In her work Miller focuses on the ethical issues arising from AI surveillance, including in countries with different level of protection of privacy. This research proves the hypothesis by comparing the acceptance of surveillance technology in the regions that enjoy a strong protection of privacy and the regions that have few protective laws and acts in place. Miller's work requires international policies that can be used to solve such ethical gulfs.

M. Hassan, The article looks at the various ways that have been adopted in both the religious cultural and non-religious cultural societies concerning the artificial intelligence diagnosing of patients. The research discovers that acceptance level is affected by religious factors, as some patients regard AI as less subjective than doctors. Culturally sensitive solutions developed using AI could eliminate the acceptance gaps according to Hassan.

Alvarez, F., & Kim, S: Alvarez and Kim critically look at the use of AI in the financial industry focusing on the culture of automation and risk in the banking industry. Research further points that societies which society which is relatively more exposed to risks say as U.S are comparatively open to the use of AI in finance compared to conservative cultures which always stick to human intercessions. The paper also supports dynamically adjustable AI systems in finance, sensitive to the level of risk in various areas.

Johnson, P. (2019) Johnson's study on the use of AI in learning environment looks at culture differences related to personalised learning accepting in different societies. They state that the AI solutions in education should be aligned to the particular regional teaching methodologies in order to increase the interest and the outcomes.

C. Rodriguez and L. Wang described the use of artificial intelligence in smart city projects around the world in 2022. As their investigation shows, socio-political considerations and features of urban infrastructures determine effectiveness of the AI applications in the planning and enhancement of the safety of the cities.

L. Fischer 2021 Artikel 1 in diesem paper nennt die ethik auf dem Punkt der AI and Military and brings ethik permalnt on the cultural aspects of the use of teahnology in defense. In the case of warfare use of AI, Fischer raises the issue of ethical practice and opinion on the use of artificial intelligence across nations.

Ibrahim, S., & Clark, T. (2020) To gauge the impact of AI in the journalism and news reporting, Ibrahim and Clark provided their views on how the cultural factors affecting the reliability of the AI generated new and the acceptance of such new by the global masses.

Davies, H. (2021) Getting to the bottom of how AI is being used in legal systems around the world, Davies examines cultural variation in acceptance of..

Kumar, N. (2018) Kumar specifically evaluates the interaction relation of AI in customer service industries and evaluate the culture difference of consumers' trust in AI-support. It talks about how cultural perceptions define the nature of interactions with automated customer services.

3. THEORITICAL FRAMEWORK

The theoretical foundation building up the model explaining the social effects of adoption of artificial intelligence cross culturally encompasses diverse theories from across the social sciences that explain cultural, social and economic phenomenon. The existing one is Technology Acceptance Model (TAM) that is build around perceived usefulness and perceived ease of use as two primary indicators AT. This model is most applicable when evaluating the emergent perceptions on the usefulness and availability of AI for integration. Different cultures may have different perceptions towards, the societies that embrace technology would because of their positive attitude towards the capability of AI.

Another important theory is Hofstede's Cultural Dimensions Theory which basically divides cultures on indices such as individualism and collectivism, power distance, uncertainty avoidance, and masculinity and femininity indices. These cultural attributes greatly impact the societies' attitudes towards and its engagement with technologically advanced systems such as Artificial Intelligence. For example, the culture that is high in UNC (uncertainty avoidance) may have a negative feeling toward AI because it is a source of ineffable unpredictability; a culture that has a high value on IND (individualism) may have a positive attitude toward AI because of its ability to support more individual decision making.

This theory allows for a more thorough comparative analysis of the factors that cross-cultural differences affect attitudes on risk and benefit factors considered by the human being associated with AI.

The strategy of AI adaption is expounded by innovation diffusion theory whereby Everett further provides a model on how innovations move through various stages in society including innovators, early adapters, majority and laggards. Adopting this theory for a study on AI adoption, enables understanding of how different cultural trends progress through these phases of adoption. For example, first-mover enthusiasts of AI may use it as a strategic weapon in one culture, while in other settings, social concerns put the bulk of the population in the later assimilation stage. This kind of model facilitates the understanding of how AI adoption is influenced by the level of cultural acceptance of new technology, the level of trust in society and the existing supporting structures.

Self – regulation aids in explaining the reciprocal relationship between the person and the context in the development of AI perceptions consistent with SCT. It posits that observational learning, the modeling behavior, and self efficacy are key in the acceptance of technology. For instance, whereby there are more popular success stories regarding artificial intelligence in a society there will likely be increased confidence and curiosity to accept the technology. However, where the culture is more cautious or skeptically about AI then adoption may happen at a slower rate because the perceived PSES to use AI is low.

Last but not least, Implications of AI employs two ethical theories: Utilitarianism and Deontological Ethics in gaining understanding of ethical issues surrounding the adoption of AI in business. While, the former measure the effects of the AI; such as effective time and production saving, the later lays emphasis on some predefined regulative principles such as privacy and causing harm. The following ethical considerations differ from one culture to the other since some society's aims at protecting the whole community while other prefer human rights as a way of enhancing the uptake of AI by society. Combined, these theories provide the foundation for understanding the values, norms, and social policies which encompass the Cultural-AI Dynamics and inform the global applicability of AI.

4. CONCLUSION

The comparative review of AI implementation in different cultures further number among other things that AI is not only a technology tool, but also a social innovation with vast cultural impacts, which manifests themselves in differences from one culture to another. AI is embedded in a culture, a particular economy, with its legal statutes, and common sense perspective in addressing certain issues to be ready and willing to accept the role of AI. Through discussing the effect of each cultural dimension, this study emphasises the richness and variety of AI issues and its operational implications regarding changing employment opportunities as well as education systems and shifting ethical frameworks hitherto prevailing in society.

One major implications is that the perceive cultural values as described in models such as Hofstede Cultural Dimensions influence Society's perception of AI . For instance, members of individualistic societies- those from the US and comparable European countries- are highly receptive to AI technology because it is regarded as an enabler of capability and autonomy. On the other hand, cultures that are collectivistic because they value order, structure and compliance with norms may approach AI with trepidation because the rate of change that characterizes information technologies may upset the culture. It is desirable to know these cultural differences to avoid rejection of the AI solutions designed at the central level by local populations.

The third important finding of this work is that governmental policies for and the state regulation of AI are key enablers or blockers. The daily use of AI in nations such as those belonging to the European Union can show that regulation decreases AI development speed but might lead to more trust and longer-term solution stability due to the integration of principles regarding data misuse and bias. On the other hand, we find that the countries with weak regulatory standards embrace AI technology more quickly as a result of less regulation of the technology negatively to a faster development of the technology but, at the same time, may lack proper ethical standards. This shows that it is important to develop and implement normalized regulatory policies that support innovation in the industry while maintaining and or improving on the standards of the society.

Sophistication of economy and availability of infrastructure also has quite an influence on the level of AI adoptions and the benefits being gained. Even if adaptability levels in the focus sectors of low developing countries remain high, AI may not yet be implemented as resources for technologically developing the infrastructure are still scarce. As AI technology develops, these areas must be supported with resources for infrastructure improvements and educational or development projects that could help them use AI positively without increasing existing disparities among societies.

Though privacy, bias, job displacement are inherent issues to be faced when implementing Artificial Intelligence across the globe, each of these considerations is valued and addressed in a particular way in each culture. For instance, while privacy may be the priority in developed nations of the west, others may be more interested in the potential that AI creates on the economic front for the workforce. Meeting these ethical concerns is achievable through application of approaches that are sensitive to culture of each society. The present research highlights the need for designing ethically sound rules and regulation for the creation of AI projects that will identify and address cultural differences and guarantee equality across the globe.

Therefore, this study encourages the use of culturally specific AI practices in light of socioeconomic and ethical conditions differentiating a certain region. As the future work on the further development of AI it is important to emphasize the need to develop international cooperation responsible for advancing AI norms that would be more inclusive, context-adaptive, and culturally sensitive. When AI is deployed from cultural standpoint, societies ensure responsible integration of AI, bring out the best of AI application through approved cultural norms and also helps in attaining common global good in taste environment of intelligent technologies.

CONFLICT OF INTERESTS

None.

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