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## ANTHROPOLOGY OF THE FUTURE: HOW TECHNOLOGY WILL CHANGE OUR UNDERSTANDING OF HUMANITY IN 2025

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### Summary

As we venture into 2025, the intersection of anthropology and technology presents a fascinating frontier for understanding humanity. This article explores the transformative impact of emerging technologies on our perceptions and experiences of being human. Anthropology, traditionally focused on the study of human societies, cultures, and evolutionary development, is now increasingly intertwined with the rapid advancements in technology. (*Lytvynova, L. V. 2004*)

The article delves into the evolution of anthropological studies in the context of technological innovation. Historically, anthropology has provided insights into the cultural and social dynamics of human societies. However, the advent of digital technologies, artificial intelligence, and biotechnology is reshaping these dynamics, prompting anthropologists to reconsider their frameworks and methodologies. The integration of big data analytics, for instance, allows for a more nuanced understanding of human behavior on a global scale, uncovering patterns and trends that were previously elusive.

Next, the article examines how technologies such as virtual reality (VR) and augmented reality (AR) are revolutionizing anthropological research and education. These immersive technologies enable researchers to recreate and explore ancient civilizations, offering new perspectives on historical and cultural contexts. Moreover, VR and AR provide powerful tools for education, allowing students to engage with anthropological content in more interactive and impactful ways.

**Key words:** humanity, artificial intelligence, biotechnology, human evolution, ethical implications.

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### 1. Introduction

As we approach the year 2025, the synergy between anthropology and technology presents a compelling new frontier for understanding human nature and society. Anthropology, with its focus on human cultures, behaviors, and evolutionary development, is being transformed by rapid technological advancements. This intersection prompts a reexamination of traditional anthropological methods and theories.

Emerging technologies such as artificial intelligence, biotechnology, virtual reality, and big data analytics are not only altering how anthropologists conduct research but also influencing the subjects they study. These tools provide unprecedented opportunities to gather, analyze, and interpret data on human societies, offering deeper insights into cultural patterns and evolutionary processes.

This article explores the profound implications of integrating technology into anthropological research. It examines how these advancements are enhancing our ability to understand

human diversity, social dynamics, and the evolving nature of humanity. By embracing these technologies, anthropologists are better equipped to address contemporary challenges and anticipate future developments in human society. The anthropology of the future promises to be a dynamic and interdisciplinary field, continually evolving to incorporate new technological insights and deepen our understanding of humanity.

**The aim** of the article is to explore and analyze the potential impacts of emerging technologies on the concept of humanity by 2025, focusing on how advancements in fields such as artificial intelligence, biotechnology, and digital communication may reshape our understanding of human identity, culture, and social interactions.

## 2. Identification of previously unresolved parts of the general problem

The integration of advanced technologies into anthropology highlights several previously unresolved issues within the field. These challenges arise from the complexity of human societies and the rapid pace of technological development, necessitating a fresh perspective and innovative solutions. Here are some key unresolved parts of the general problem:

1. **Data Overload and Analysis.** With the advent of big data analytics, anthropologists now have access to vast amounts of data on human behavior and cultural patterns. However, the sheer volume of this data presents significant challenges in terms of analysis, interpretation, and meaningful application. Traditional anthropological methods may not be equipped to handle such large datasets, necessitating new analytical frameworks and tools.

2. **Ethical Considerations:** The use of technologies like artificial intelligence and biotechnology raises ethical questions about privacy, consent, and the potential for misuse. Anthropologists must navigate these ethical dilemmas while ensuring that their research respects the rights and dignity of individuals and communities. The implications of genetic engineering and personalized medicine, for instance, require careful consideration of their impact on concepts of identity and human diversity.

3. **Cultural Sensitivity.** As technology permeates different societies, there is a risk of cultural homogenization and the loss of unique cultural identities. Anthropologists must find ways to study and preserve cultural diversity in the face of global technological influences. This includes addressing how technology affects traditional practices, beliefs, and social structures.

4. **Interdisciplinary Collaboration.** Addressing the complexities of the intersection between anthropology and technology requires collaboration across multiple disciplines, including computer science, biology, ethics, and sociology. Establishing effective interdisciplinary communication and cooperation is crucial but often challenging due to differing methodologies, terminologies, and research goals.

5. **Impact on Human Evolution.** Biotechnology and genetic engineering are beginning to influence human evolution in unprecedented ways. Anthropologists need to study the long-term implications of these technologies on human genetic diversity and evolutionary processes. This includes understanding how such technologies might alter our understanding of natural selection and adaptation.

6. **Methodological Adaptation.** Traditional anthropological methods, such as participant observation and ethnography, may need to be adapted to incorporate new technological tools. Virtual reality, for instance, offers new ways to conduct immersive fieldwork, but also presents challenges in maintaining the authenticity and depth of cultural insights gained through more conventional methods. (*Ovsyannikova, V. V. 2014*)

7. Socioeconomic Inequalities. Technological advancements can exacerbate existing socioeconomic inequalities, with marginalized communities potentially having less access to new technologies and their benefits. Anthropologists must address how these disparities affect different groups and work towards more inclusive and equitable technological integration.

By identifying and addressing these unresolved issues, anthropologists can better understand and navigate the complex interplay between technology and humanity, ensuring that their research remains relevant and impactful in a rapidly changing world.

### 3. Revolution in Data Collection and Analysis

With the advent of big data, anthropologists have gained access to vast amounts of information on human behavior and cultural patterns. This new data set includes diverse sources such as social networks, mobile applications, online forums, and digital archives, significantly expanding research possibilities. However, this volume of data presents significant challenges in terms of analysis, interpretation, and practical application. Traditional anthropological methods, such as community participation, interviewing, and observation, may not be able to handle such large datasets, necessitating the development of new analytical frameworks and tools. (Miller, D., Horst, H. 2012)

Modern technologies such as machine learning, artificial intelligence, and big data analytics allow for deeper data analysis, revealing hidden patterns and trends that were previously inaccessible. For example, using machine learning algorithms helps researchers find correlations between different social phenomena and predict their development. These algorithms can analyze massive datasets in a short time, uncovering complex interrelationships and forecasting possible changes in behavior and cultural practices. (Senft, T. M., Baym, N. K. 2015)

Moreover, big data provides the opportunity for more precise and detailed mapping of cultural patterns on a global scale. This includes analyzing migration flows, changes in language dynamics, the evolution of social networks, and other aspects of human life. Using geospatial data allows researchers to explore how physical space and geography influence cultural and social processes. For instance, analyzing migration data can reveal new patterns of settlement and integration of various ethnic groups, as well as understand how these processes impact cultural diversity and social interactions.

Technologies also open up new opportunities for data visualization, making research results more accessible and understandable to a wide audience. Interactive maps, charts, and infographics help visualize complex data, facilitating better understanding and interpretation of the results. This is especially important for anthropologists who aim to convey their findings not only to the academic audience but also to the public, policymakers, and other stakeholders.

However, alongside new opportunities, the use of big data in anthropology raises several ethical questions. Anthropologists must be mindful of issues of privacy, confidentiality, and informed consent when collecting and analyzing data. This is particularly crucial in the context of using data from social networks and other online platforms, where personal information can be easily accessible and potentially vulnerable to misuse. (Kozhina, H. M. 2022)

In conclusion, big data and modern technologies offer immense opportunities for anthropological research, opening new horizons for understanding human behavior and cultural patterns. However, successful utilization of this data requires the development of new analytical methods, careful attention to ethical issues, and interdisciplinary collaboration. Only in this way can anthropologists fully leverage the potential of big data and make a significant contribution to our understanding of contemporary and future human society.

#### 4. Ethical Issues and Cultural Sensitivity

The use of technologies such as artificial intelligence and biotechnology raises ethical questions for anthropologists regarding privacy, consent, and potential misuse. For instance, collecting and analyzing data with artificial intelligence can infringe on the privacy of research participants, especially if data is gathered without their explicit consent. This raises concerns about how to protect personal information and ensure that data is used only within the agreed-upon parameters. Anthropologists must address these ethical dilemmas by ensuring the protection of individual and community rights and dignity. This requires the development of clear protocols and standards that ensure transparency and accountability in the use of data and technologies. (*Manovich, L. 2013*)

For example, the consequences of genetic engineering and personalized medicine require careful analysis of their impact on identity and human diversity. Genetic engineering can alter hereditary traits, potentially leading to new forms of discrimination or social stigmatization. Personalized medicine, while promising more precise treatments, can also create new inequalities in access to medical services. Anthropologists must consider these aspects to avoid negative outcomes and promote the equitable distribution of technological benefits.

Cultural sensitivity is also a crucial aspect, as technologies penetrate different societies, there is a risk of cultural homogenization and the loss of unique cultural identities. The global spread of technologies can lead to unique cultural practices and traditions being overshadowed by more dominant cultural influences. Anthropologists must find ways to study and preserve cultural diversity in the face of global technological influence. This includes analyzing how technologies affect traditional practices, beliefs, and social structures.

To achieve this, anthropologists can use ethnographic research methods to understand how different communities interact with new technologies and adapt them to their cultural contexts. For example, studying the use of mobile technologies in remote regions can show how local residents integrate new communication tools into their traditional social structures and practices. (*Levitskaia A. 2024*)

Additionally, anthropologists can help preserve cultural heritage through digital technologies. Creating digital archives, virtual museums, and interactive educational platforms allows for the documentation and dissemination of knowledge about various cultures, preserving them for future generations. These initiatives help not only to preserve cultural diversity but also to raise awareness and respect for different cultural traditions among a broader audience. (*Clark, A., Chalmers, D. 2020*)

Ultimately, the role of anthropologists in the growing influence of technology is to promote the ethical and responsible use of technologies while ensuring the preservation and respect of cultural diversity. This requires ongoing monitoring and adaptation of research methods and approaches to remain relevant and effective in a rapidly changing technological landscape.

#### 5. Interdisciplinary Collaboration and Methodological Adaptations

Addressing the complex issues at the intersection of anthropology and technology requires collaboration across various disciplines, including computer science, biology, ethics, and sociology. The interaction of experts from these diverse fields enables the creation of a comprehensive approach to the study and analysis of intricate social and cultural phenomena. Effective interdisciplinary collaboration often encounters challenges due to differences in methodologies, terminologies, and research objectives. For example, anthropologists may emphasize



qualitative data and a deep understanding of context, while computer scientists might focus on quantitative analysis and algorithmic solutions. However, such collaboration is essential for achieving a deeper understanding and resolving current issues. (*Yakubovska, I. O. et al. 2013*)

To overcome these difficulties, it is necessary to establish platforms and initiatives that foster interdisciplinary dialogue and knowledge exchange. Conferences, joint research projects, and working groups can serve as effective tools for integrating knowledge and methodologies from different disciplines. Additionally, developing common standards and protocols can help unify approaches and facilitate collaborative work.

Traditional anthropological methods, such as community participation and ethnography, may need to be adapted to incorporate new technological tools. For instance, virtual reality (VR) offers new opportunities for field research by allowing researchers to recreate and explore various cultural and historical contexts from a new perspective. However, when using VR, it is crucial to consider that virtual reconstructions may not fully convey the complexity and nuances of real cultural experiences. (*Haraway, D. 2016*)

Adapting traditional methods to new technological tools may also involve using digital platforms for data collection and interaction with studied communities. Online surveys, video conferences, and social networks can complement traditional field research methods, providing broader reach and access to data. However, it is essential to maintain a balance between using technology and preserving personal contact and interaction with research participants, which is a key aspect of anthropological work. (*Castells, M. 2010*)

Furthermore, anthropologists can leverage technologies for data analysis and interpretation. Software tools for text, video, and audio analysis enable the processing of large volumes of data and the identification of hidden patterns and trends. For example, text analysis programs can assist in studying large corpora of interviews and field notes, identifying common themes and patterns.

Ultimately, the successful integration of technologies into anthropological research requires not only the adaptation of traditional methods but also a willingness to engage in interdisciplinary collaboration and innovation. This approach will enable anthropologists to more effectively investigate contemporary social and cultural phenomena and propose solutions to current problems arising at the intersection of technology and human society.

## 6. The Influence on Evolution and Social Inequality

Biotechnologies and genetic engineering are beginning to influence human evolution in unprecedented ways. These technologies offer the potential for genome editing, treatment of genetic diseases, and enhancement of physical and cognitive abilities, potentially altering the trajectory of human evolution. Anthropologists must study the long-term consequences of these technologies on genetic diversity and evolutionary processes. This includes understanding how such technologies might change our perception of natural selection and adaptation.

Genetic engineering could lead to new forms of genetic modifications that may significantly affect the biological characteristics of future generations. For example, the capabilities of CRISPR-Cas9 and other genome editing technologies allow for DNA alterations at the germ cell level, leading to the inheritance of modified genes. Anthropologists need to consider how such changes might impact genetic diversity, causing both positive and negative consequences for the human population. This involves examining ethical questions related to the potential outcomes of deliberate human genome alterations and analyzing how these changes could affect concepts of identity and individuality.



Technological progress may also exacerbate existing socio-economic inequalities, as marginalized communities might have less access to new technologies and their benefits. For instance, expensive gene therapy procedures and personalized medicine may only be accessible to the wealthy, creating new barriers to equitable healthcare access. Anthropologists must investigate how these inequalities impact different groups and work towards making technology integration more inclusive and fair. (Boyd, d., Crawford, K. 2012)

Anthropologists can conduct research aimed at understanding the socio-economic factors that influence access to biotechnologies and develop strategies to overcome these barriers. This may involve collaborating with policymakers and community organizations to create programs that ensure a more equitable distribution of technological advancements across all societal layers. It is also important to consider the cultural and social aspects of biotechnologies' perception in different communities to ensure their acceptability and alignment with local traditions and norms.

Biotechnologies also raise questions about potential changes in social structure and interpersonal relationships. For example, access to enhanced physical or cognitive abilities could shift power dynamics and social hierarchies. Anthropologists must explore how such changes could affect social interactions and what new forms of social organization might emerge from the use of these technologies.

In conclusion, the role of anthropologists in studying the impact of biotechnologies and genetic engineering on human evolution and social structures is critically important. Their research will help identify potential risks and opportunities associated with these technologies and develop strategies to ensure their fair and ethical use. Anthropologists must continue to collaborate with other disciplines and community organizations to contribute to shaping an inclusive and just future where technologies serve the benefit of all humanity.

## 7. Conclusions

As we advance into the digital era, it is crucial to consider the complex interplay between anthropology and technology. Technological progress brings with it vast opportunities as well as significant challenges, necessitating an interdisciplinary approach to address them. Collaboration among anthropologists, technologists, ethicists, and policymakers will be key in navigating this new frontier, ensuring a comprehensive understanding and management of the impact of technologies on human societies.

The anthropology of the future promises to be a dynamic field that will continually evolve to integrate new technological advancements and offer deeper insights into the essence of humanity. Technologies such as artificial intelligence, big data, virtual reality, and biotechnology are transforming how anthropologists conduct research and interpret their data. These tools allow for more precise and detailed investigation of complex social and cultural phenomena, providing new methods and perspectives for analysis.

For instance, the use of big data and machine learning algorithms enables anthropologists to analyze vast amounts of information, uncover hidden patterns, and predict social trends. Virtual and augmented reality offer new opportunities for field research, allowing researchers to create interactive and immersive models of studied cultures and social processes. Biotechnology and genetic engineering open new horizons in studying human evolution and genetic diversity.

However, alongside new opportunities, new ethical and social questions arise that require attention. It is essential to ensure that the use of technologies in anthropological research does not violate the rights and dignity of people and considers cultural and social contexts. This

demands the development of ethical standards and protocols that will help manage the use of technologies and protect the interests of research participants.

Another critical task is addressing socio-economic inequalities related to access to new technologies. Anthropologists must actively participate in developing policies and programs aimed at ensuring the equitable distribution of technological advancements and preventing the exacerbation of inequalities. This may involve working with local communities to identify their needs and create inclusive strategies for technological development.

The future of anthropology will depend on the ability to integrate technological innovations into research practice and adapt to a rapidly changing world. Anthropologists must continue to collaborate with other disciplines, developing comprehensive approaches to studying the human experience and promoting the creation of a more just and sustainable society.

In conclusion, advancing into the digital era requires anthropologists to be flexible, innovative, and collaborative across disciplines. Only in this way can the potential of technologies be effectively harnessed to deepen our understanding of humanity and create positive changes in society. The anthropology of the future will become an essential tool for navigating the complex landscape of technological and social changes, helping us better understand and manage the interaction between people and technologies.

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