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Artificial Intelligence (AI) and Civilization Evolution: Technology, Strategy, and Societal Transformation

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Abstract: Human society's development starts with the most superficial cultures and now goes on with knowledge-based civilizations. In this evolution, we see that balance is very important, with spirituality and technology being the main points. Powerhouses such as DeepMind, NVIDIA, FAIR, and Microsoft Azure are taking the lead in shaping modern civilization through artificial intelligence (AI), which hasn't only transformed industries but also created norms in healthcare, communication, and digital interaction. This paper highlights AI's potential to be used in a way that goes beyond commercial use to make society better and create sustainable global progress. It emphasizes how important it is for international collaborations to tackle borderless challenges such as climate change or pandemics using automation's analytical prowess. While these companies are at the forefront of innovation, they have created a landscape filled with ethical dilemmas — reflecting today's more considerable uncertainties for modern civilizations. This discussion brings forward the nature of the volatile tech industry, where intense competition and economic pressures require a delicate balance between immediate technological triumphs and society's overall welfare. This analysis advocates for an approach not limited to pure technological advancement but also harmonized with ethical values focused on culture and humans. It emphasizes that AI development must come from a moral compass, ensuring it resonates with global cultural diversity while upholding human civilization's existence. The paper acknowledges its limitations due to its reliance on current literature or specific case studies, which may not show us the full picture, especially when considering perspectives from underrepresented communities or cultures with few documented AI interactions. Because of this limitation, all-inclusive research and dialogue towards AI discourse is invited.

Keywords: AI adoption, human-machine relationships, knowledge civilization, new forms of civilization, societal transformation

1. Introduction

Rapid technological growth has seen artificial intelligence (AI) permeate various sectors, such as medicine, energy, and the oil industry. This breadth of applications reflects AI's potential value and demonstrates how countries accept and utilize AI differently. The use of AI technologies in the medical field, especially NSCLC treatment, has become a topic of broad interest. The top five countries with the highest number of patents on AI technology related to NSCLC between 2001 and 2010 were the USA, Japan, South Korea, Taiwan Province, and China respectively (Cheng & Chen, 2021):

- From a trend development perspective, there was an increase in the number of non-small cell lung cancer medical treatment-related patents on artificial intelligence technology from 2001 till 2020;
- Most patents for non-small cell lung cancer medical treatments are given out in the USA. However, East Asia nations have become the second biggest source of related patents.
- Researchers can focus more on CWRU IBM and Pure Storage companies within the next few years since patent numbers are increasing. These inventors believe that these corporations make good investments because they issued many patents. Top innovators no longer do research for multiple companies alone but cooperate to obtain higher-quality patents.

Meanwhile, 31,221 HVAC energy-saving equipment-related patent applications were explored by eleven interest groups to show that AI use is widespread in this sector. In practice, AI technology has started being used in oil and gas construction projects to deal with their risks and challenges (Ahsan et al., 2023). These projects have played a key role in meeting the global demand for fossil fuels; thus, AI technology may be considered as one way, among others, to help cope with such challenges.

From the start to the end of the year 2018, the USPTO granted more than 123500 artificial intelligence-related patents. United States has the largest number of AI patents (87,244), followed by Japan (9,787), South Korea (4,798) (Abadi et al., 2020):

- The State Council of China, in 2017, released a development plan that aims to make China a global leader in AI by 2030;
- In February 2019, the U.S. president issued an executive order on maintaining the country's leading position in AI;
- Japanese newspaper Nikkei News revealed in March 2019 that since 2015, China has had more AI-related patent applications than the USA yearly. For instance, in 2018, China submitted more than thirty thousand AI-related patents, which is equivalent to two and a half times what was submitted by the US for the same year;
- More than one hundred fifty-four thousand AI-connected patents have been filed worldwide since 2010, out of which approximately eighty thousand were filed within the United States.

Even though these figures do not reveal the research methodologies behind them and the criteria for considering those patents, they still indicate a growing rate of activities in the field of artificial intelligence. In order to develop AI technology further, various countries have been promoting and supporting algorithm development using artificial intelligence, artificial intelligence hardware, and software based on artificial intelligence.

In COVID-19, the use of AI technology has been spreading fast, and there are over 100 papers published monthly which give us insights on how to apply AI technology globally in combating the pandemic and also discover that knowledge transfer is equally important in fostering technological innovation (Wu & Shao, 2022). Moreover, another important aspect of knowledge transfer lies in promoting effective communication between science and society, not only for technological innovations but also for ensuring that these technologies have practical value to society (Gallego et al., 2021).

Analysis of patent trends showed that AI applications applied in the care of non-small cell lung cancer (NSCLC) have caught global attention (Wen & Chen, 2021). A virtual reality laboratory built for automobile service experts or a digital age knowledge transferring system can create an immersive learning environment for students while giving students a chance to interact with the real world so they better understand what they are learning and apply it more effectively as was discovered by Makarova et al. (2018).

Knowledge transfer is central to facilitating the worldwide adoption of AI technology. Whether in the medical field, technological innovation, or the digital era, knowledge transfer provides us with the most effective tool to help us better understand and grasp possible applications of AI.

2. Literature Review

The development of human civilization has gone through several significant stages (See Table 1): primitive culture, agricultural, industrial, and knowledge civilization (He, 2020). Primitive culture marks the initial stage of human existence prior to substantial technological advancements. It's characterized by rudimentary societies and basic social structures, and that leads to stability. This kind of severe underdevelopment forces people into a primitive lifestyle until they learn to grow their own crops. No significant correlation between female kinship matrices and association behavior patterns offers insights into the internal mechanisms governing social stability in a complex primate social system (Fang et al., 2022). Agricultural civilization was established to allow humans to settle and create initial social structures (Kingwell-Banhametal., 2015). The Industrial Revolution created mechanization and factory production, which marked the advent of industrial civilization and its increasing dominance in economic and social life. Throughout history, each civilization has left a lasting impression through its unique innovations and characteristics, with all civilizations evolving towards the next stage, offering fresh opportunities; for example, today's modern civilization distinguishes itself from traditional ones by embracing a novel approach rooted in current intellectual, scientific, technical, and technological advancements, leading to the emergence of a manufactured civilization (Avlakulov, 2023).

The distinguishing feature of the new form of human civilization lies in the societal shift toward balancing spirituality and technology (Kuznetsova, 2023). The concept of civilization is being redefined as the survival mode of a group of people during a certain historical period and the characteristics that dominate mainstream values (Huang, 2018). The emergence of modern science and technology and the global ecological crisis have accelerated the end of old age and the arrival of a new civilization (Lu, 2021). This new civilization is defined by two perspectives: one emphasizes ecology, while the other focuses on the realm of information (Zhang, 2023). The ecological perspective argues that the new civilization should prioritize environmental protection and sustainable development while advocating for a lifestyle that values nature, simplicity, and sharing (Xu, 2023). However, the information perspective contends that the new civilization should revolve around information technology, emphasizing the digital, intelligent, and virtual forms of societal structure (Yu

& Geng, 2022). As one of the more complex and progressive models for civilization, countries like China consider ecological civilization as one of their national development strategies (Du et al., 2015).

Under the accelerated pressure of globalization, different civilizations interact with each other, which makes it difficult for all civilizations to coexist (Zhou, 2022). For example, in recent decades, China has experienced an unprecedented economic and industrial revolution. Although this rapid transformation has brought great economic benefits to the country, it has also brought a series of serious environmental problems. Urbanization is a historical process in the global scope. Although urbanization in China started late, its rapid growth, huge scale, and high energy consumption have led to a series of water and thermal environment problems. At the same time, under the dual pressures of global climate change and urbanization, Chinese cities are facing serious ecological and environmental challenges such as water shortage, water pollution, urban heat island effect, and eco-hydrological disasters (Qiu & Zhang, 2019). These environmental problems not only threaten the health of China's ecosystem but also have a far-reaching impact on public health and economic sustainability. In order to cope with these increasingly serious problems, the government of China put forward the concept of "ecological civilization" to ensure a healthy and sustainable ecological environment while pursuing economic growth. At the same time, globalization, as the main trend in the 21st century, is profoundly changing the whole world. It provides unprecedented opportunities for exchanges and cooperation between different civilizations and brings a series of challenges. It mainly stems from the differences in values, beliefs, and lifestyles (Li, 2023). For example, there is a fundamental conflict between Western individualism culture and Eastern collectivist culture in some aspects (Wang & Li, 2023). In fact, every civilization has its unique historical background, values, and traditions, which may amplify frictions and conflicts on a global scale involving factors such as resource competition, economic interests, and political interests, which further complicates the problem (Wu, 2020).

Driven by information technology and the global internet, knowledge and information have become one of the leading forces, playing a crucial role in fostering innovation and globalization. As entering the era of knowledge civilization, we should also address contemporary perspectives on the nature of this era and outline its critical aspects, including identifying challenges facing humanity and proposing potential solutions (Kameoka & Andrzej, 2005). The advent of technology, including artificial intelligence, automation, and digital connectivity, is ushering in a transformative era of innovation with vast potential but also ethical and social complexities.

Table 1: Civilization Periodic Table (PTOC) (He, 2020)

Civilization Period	Stage	Description
Primitive Culture	Start	The initial stage of human existence before significant technological advances.
	Developing	Evolution of primitive societies, establishment of basic social structures.
	Mature	Stability in primitive societies, development of early cultural norms.
	Transition	Beginning of the transition from primitive lifestyles to agricultural practices.
Agricultural Civilization	Start	Introduction of agricultural practices and early settlements.
	Developing	Expansion of agricultural practices, growth of early
	Mature	The peak of agricultural civilization, the establishment of empires.
	Transition	Transition to industrial practices, decline of agricultural societies.
Industrial Civilization	Start	At the beginning of the Industrial Revolution, machinery was introduced.
	Developing	Rapid industrial growth and urbanization.
	Mature	The peak of the industrial age was global expansion.
	Transition	Transition to a knowledge-based society, decline of traditional industries.
Knowledge Civilization	Start	Emergence of information technology and digital revolution.
	Developing	Growth of globalization and the digital age.

	Maturity	Establishment of global networks, the peak of the knowledge age,
	Transition	Transition to the next stage of human civilization, possible space civilization.

In all aspects, globalization has brought along a mix of challenges and opportunities. The biggest challenge is the digital divide, where people without access to technology find it hard to get onto the internet (Arsyad et al., 2023). Madrasah Ibtidaiyah also faces challenges with adopting globalization while still keeping teachings from Islamic and solving cultural sensitivity issues; however, it also provides an opportunity for Ibtidaiyah Islamic School to enhance the curriculum by promoting cross-cultural communication and global citizenship awareness so as to prepare students for a globalized world (Beribe, 2023). Globalization and AI have become two very powerful forces all on their own, with some negative aspects, especially with globalization. When it comes to monetary policy, globalization throws a wrench in things by affecting the determination of global interest rates and how we pay digitally on a worldwide scale (Obstfeld, 2021).

The objective of this study is to summarize the systematic classification of human historical civilization in the Periodic Table of Civilization and to discuss the SWOT analysis of five AI companies in the field of artificial intelligence so as to understand the periodic characteristics of civilization and the strategic positioning of AI companies (see Table 2). The article aims to critically evaluate the transformative influence of Artificial Intelligence (AI) on contemporary civilization. Especially putting emphasis on its ethical, societal, and cultural implications. The purpose is to understand how leading AI entities are changing social norms and industries. At the same time, we are looking into how AI can help promote sustainable global progress that goes beyond commercial interests. However, it also does not shy away from acknowledging some challenges and moral dilemmas being faced by these pioneers. Advocating for a more integrated approach that merges technological advancement with humanistic and cultural values. In addition, it pleads for more diverse opinions that include global perspectives from communities that are not often represented:

- How current societal norms be affected by dominant players like DeepMind, NVIDIA, FAIR, and Microsoft Azure across healthcare communication channels or digital interaction platforms?
- Is there a way AI could contribute towards betterment within society while also promoting sustainable global progress?
- What are some conflicts in morals or broader uncertainties seen among today's civilizations amidst rapid advancements in AI?

The goal of these research inquiries is to dig deeper into all aspects surrounding AI's role in modern society and looking at both positive impacts made worldwide as well as locating complexities and ethical considerations along the way.

3. Research Design: Case study

In today's world driven by technology, artificial intelligence (AI) has become a core technology field, with major businesses actively seeking partners to promote the development and application of AI technology. Almost 2,800 companies use IBM Watson, with 39% of Watson users being large businesses (Getov, 2023). These practices not only accelerate the development of AI technology but also provide empirical support for related theories, proving global cooperation and knowledge transfer have a key influence on its promotion.

A case study not only gives us an in-depth understanding of the global promotion of AI technology but also provides empirical support for existing theories. These cases exhibit the practical application and influence of global cooperation and knowledge transfer in promoting the development of AI technology and stress the importance of cross-border cooperation and strategic transformation in such a rapidly changing technical field. For example, traditional pharmaceutical, medical-tech, and biotech companies such as Amazon, Google (and its parent company Alphabet), Microsoft, NVIDIA, IBM, Apple, and Samsung have entered the digital health field to utilize tech's potential in medicine (Gergő & Mesko, 2023). This decision derives from increased reliance on tech from both patients and medical professionals to improve access to healthcare services as well as data acquisition and analysis. These examples give us a powerful case exhibiting how big tech strategy adapts to shape evolving medical fields. It also provides valuable enlightenment for future research practice. Through thorough study, we can grasp how interaction between healthcare providers can be taken advantage of through technological means for better preparation against future challenges.

The choices made by these companies are diverse, yet representative representatives representing many aspects like hardware manufacturing (NVIDIA), deep learning research (DeepMind), or large-scale solutions

providers(IBM Watson + Microsoft Research AI). Each encompasses a vast array, too! They also extend their influence globally, putting them at the forefront of AI technology.

4. Strategic Analysis of Artificial Intelligence Company

The evidence for AI's entrenchment in the progress of civilization is seen in the SWOT analysis of leading AI entities such as DeepMind, NVIDIA, FAIR, and Microsoft Azure (see Table 2). DeepMind is a frontier leader. Spearheading developments that offer new intervention possibilities at a global level, especially within healthcare. The transformative potential of AI is displayed through their work. It is an amazing thing to see the major strides made in disease prediction, patient care, and medical research accessibility. However, as great as it may be, this rapid technological ascendancy brings a whole host of problems that require immediate attention. Societal systems have become more complex with the digital revolution, according to Taverna and Mortati (2018) in their insightful discourse. In doing so, it introduces intricate dynamics that traditional regulatory frameworks struggle to accommodate. The integration of AI into these systems has shown great benefits, but it also comes at the cost of ethical dilemmas and public apprehensions. Responsibility lies on the shoulders of entities like DeepMind because their innovations shape societal and ethical landscapes. They're not just responsible for technological advancements but also for shaping adaptive policies that acknowledge societal progression as well as breakthroughs in technology. Harmony between society and AI hinges on striking a balance between innovation, ethics, and collaboration across all sectors.

NVIDIA — a pillar in the technological revolution — has made significant contributions to artificial intelligence through groundbreaking GPU innovations (Puaschunder et al., 2022). These have been felt across various sectors, including healthcare. Puaschunder's paper highlights how transformative integrating AI with big data has been for diagnostics, patient care, and epidemiological research. Unfortunately, every good thing comes with its challenges. As Puaschunder points out, navigating complex ethical landscapes is difficult. But robust data protection measures need to be put in place by companies such as NVIDIA to maintain public trust if they ever hope to dominate the market (Puaschunder et al., 2022). This isn't the only thing that threatens their dominance. The competition between NVIDIA and other tech giants has grown in intensity compared to ever before, specifically from competitors like AMD and Intel (Breyer et al., 2022). In a market with this much growth, everyone needs to stay vigilant but, more importantly, proactive in order to maintain its industry position. NVIDIA must balance its drive for innovation with ethical considerations and a strategic approach to market diversification. With these technological advancements, they can contribute positively to society as well as the industry (Breyer et al., 2022).

Socially, Facebook's AI Research (FAIR) can be influenced to shape the way we interact online. As one of the largest social media companies in the world, FAIR shapes our interactions and changes how we behave as individuals, too. This includes their use of algorithms such as content moderation and user engagement strategies. Having said that, this also comes with its own set of negatives. Because there are many concerns about Facebook's data privacy practices, they have to carefully balance out new innovations and get ethical considerations on point (Prunkl et al., 2021). All research has pointed to the fact that AI must not only change how we think but also need to reflect in actionable governance within research and applications (Ashurst et al., 2021). With all these concerns, what is clear is that there needs to be a framework that will not only foster innovation but keep us safe from potential misuse, too. It's important for entities like FAIR to take full responsibility when it comes to AI ethics or even public deliberation regarding AI's impacts on society (De Pagter, 2023). As researchers study more into this field, they've found a consensus in major conferences that expectations need to be clear, while incentives and constructive deliberation should help address any potential issues it might bring (Liu et al., 2022). All these things speak towards a future where AI's transformative influence is guided by compliance, engagement with the public, and dedication towards something greater than itself.

When considering various technological domains – especially cloud-based services and artificial intelligence (AI) – Microsoft Azure plays an essential role in its development. Its capabilities have proven time and time again how effective it can be in enhancing different systems like social robots (Elfaki et al., 2023). Their studies created a framework specifically designed to enhance robot capabilities using Microsoft Azure Machine Learning, which also utilized cloud computing benefits. Additionally, it has also shown its strength in the realm of IoT by performing better than other cloud services like AWS and Google Cloud Platform. This study observes MQTT Broker performance across different cloud services, and Microsoft Azure was observed to perform better in terms of throughput and message handling (Ansyah et al., 2023). Having a low bandwidth usage is important when it comes to IoT communications, so this performance nuance can be considered promising. Lastly, web server implementations were evaluated for their efficacy and reliability. A comparative study highlights that certain web servers outperformed expectations on the Microsoft Azure platform (Amrullah et al., 2023).

These companies paint a picture of how complex and powerful AI is in advancing civilization. While it comes with scary things that can't be brushed off, the opportunities they present are like no other, so we need to come at it with smart approaches that were created through collaboration and ethics. By looking into these corporations and analyzing them, we'll get an idea of what kind of society we're in right now while experiencing this technological revolution. It's characterized by astonishing progressions like artificial intelligence used for healthcare and societal improvements but it also has a hard time catching up to innovation without crossing ethical lines.

NVIDIA here shows us how crucial diversified innovation is to society today. Companies aren't just thriving on their main offerings anymore but are getting to new areas by partnering up with others (Silva, 2022). The threats they're under from market volatility and competition pressures show how economic interdependence has become global. Now, everyone needs to keep innovating despite all the uncertainties (Dufek et al., 2021). FAIR's joint work with Facebook gives us another sign of our connected era. Technology has already entered every part of our lives, so dealing with privacy issues will always be a challenge.

Dependence on digital infrastructures makes Microsoft Azure rely heavily on the cloud as it does everything from societal tasks to economic ones (Morar et al., 2017). As good as this is, there are still drawbacks emphasizing globalization versus localization, which companies find themselves having to operate in regulatory landscapes while enjoying the benefits of our connected world. Economic and tech trends aren't the only things being shaped by these companies, though, even societal values, aspirations, and fears too! In turn, making them civilization's path barometers.

Table 2: SWOT Analysis of Five Major AI Companies

Company	SWOT Categories	Description
DeepMind	Strengths	• Innovative Capabilities: Pioneering AI research (Tanksley & Wunsch, 2019) • Reproducibility and Collaborative Success: Robust, reliable AI models (Tanksley & Wunsch, 2019). • Healthcare Advancement: Innovations in healthcare AI (Logan et al., 2021).
	Weaknesses	• Public Perception and Trust: Societal apprehension towards AI (Oh et al., 2017). • Transparency and Privacy Concerns: Need for greater data handling transparency (Powles & Hodson, 2017).
	Opportunities	• Global Health Impact: Potential expansion in healthcare AI (Logan et al., 2021). • Broader Applications of AI: Opportunities in various sectors (Tanksley & Wunsch, 2019). • Public Engagement and Education: Enhancing societal trust (Oh et al., 2017).
	Threats	• Ethical and Regulatory Challenges: Scrutiny in innovation and data management (Powles & Hodson, 2017). • Competitive Market: Need for continuous innovation. • Dependency on Public Perception: Impact of negative sentiment (Oh et al., 2017).
NVIDIA	Strengths	• Wide Geographic Presence: Diverse customer network (Silva, 2022). • R&D Focus: Strong investment in R&D (Silva, 2022). • Strategic Partnerships: Expanded portfolio (Silva, 2022). • Innovation in GPU Technology: Leadership in GPU tech (Dufek et al., 2021). • Robust R&D and Product Diversification: Commitment to evolving market demands (Janbi et al., 2022).
	Weaknesses	• Accounts Receivable: Financial risk (Silva, 2022). • Fabless Manufacturing Process: Dependence on third parties (Silva, 2022). • Revenue Seasonality: Financial instability (Silva, 2022). • Security Vulnerabilities: Challenges in hardware security (Bittner et al., 2021).

Company	SWOT Categories	Description
	Opportunities	• New Product Launches: Expected growth drivers (Silva, 2022). • Semiconductor Market: Expansion opportunities (Silva, 2022). • Data Center Market: Growth in computing markets (Silva, 2022). • Automotive Market: Burgeoning opportunities (Silva, 2022). • Cryptocurrency Market: Meeting professional miners' demands (Silva, 2022). • Expansion in AI and Healthcare: Significant growth opportunities (Janbi et al., 2022).
	Threats	• Intense Competition: Competitive landscape pressures (Silva, 2022). • Cryptocurrency Market Volatility: Potential market flooding (Silva, 2022). • Semiconductor Chip Shortage: Market disruptions (Silva, 2022). • Intense Competition: Challenges from other tech giants (Dufek et al., 2021).
FAIR	Strengths	• Cutting-Edge Research Team: FAIR boasts a large team of researchers and engineers dedicated to pioneering advancements in artificial intelligence. • Extensive Data Access: The organization benefits from access to vast amounts of data, which is crucial for training robust machine learning models. • Notable Contributions: FAIR is renowned for significant contributions to computer vision, natural language processing, and reinforcement learning, enhancing its prestige in the AI community. (https://bstrategyhub.com/facebook-swot-analysis/)
	Weaknesses	•Narrow Research Focus: FAIR's research primarily targets enhancements within Facebook's ecosystem, potentially limiting its scope of innovation. •Transparency Issues: The organization faces criticism for not being fully transparent in its research practices, raising questions about accountability and ethics. •Limited Applicability: There are concerns that FAIR's research, tailored to social media applications, may not translate effectively across all industries or domains. (https://bstrategyhub.com/facebook-swot-analysis/)
	Opportunities	•Product Improvement: New AI technologies spearheaded by FAIR have the potential to significantly enhance Facebook's user experience, from refining recommendation systems to advancing chatbot interactions. •Collaborative Growth: FAIR can leverage collaborations with academic institutions and other research bodies to push the boundaries of AI further. •Market Demand: The surging demand for AI technologies presents a golden opportunity for FAIR to diversify and expand its research scope. (https://bstrategyhub.com/facebook-swot-analysis/)
	Threats	•Societal Impact: The rise of AI, while beneficial, also sparks concerns over job displacement and societal disruption, necessitating careful navigation from entities like FAIR. •Regulatory Scrutiny: Increasing global focus on the ethical implications of AI puts FAIR under the microscope, potentially leading to stricter regulations. •Competitive Landscape: The AI research arena is fiercely competitive, with numerous entities vying for top talent and breakthroughs, posing a challenge to FAIR's dominance. (https://bstrategyhub.com/facebook-swot-analysis/)
	Strengths	• Robust Cloud Infrastructure: Azure's extensive global footprint, advanced data centers, and network capabilities ensure high availability, low latency, and reliable performance, as highlighted in the papers discussing its architecture and data services (Morar et al., 2017) • Innovative Analytics and Computing Services: Azure Data Lake Analytics and other Azure services provide powerful, scalable tools for processing and analyzing big data, leveraging cloud-native capabilities (Chawla & Khattar, 2020). • Advanced Security Measures: Azure employs sophisticated, AI-driven

Company	SWOT Categories	Description
		security measures, as seen with Azure Sentinel. This proactive security stance helps in identifying and mitigating threats in real-time, ensuring the protection of hosted applications and data (Copeland & Jacobs, 2021). • Commitment to Sustainability: Azure's focus on sustainability through renewable energy initiatives and efficient data centers underscores its commitment to environmental responsibility, which is increasingly important to customers (Mufti et al., 2022).
	Weaknesses	•Performance Variability: While Azure generally provides robust performance, there can be variability, especially when dealing with high-demand enterprise workloads, potentially impacting the consistency of performance (Baresi et al., 2023). •Complexity and Usability: The breadth and depth of Azure's services can introduce complexity, potentially posing challenges for users in navigating and optimally utilizing the platform (Sabir & Shahid, 2023). •Worker Failures in data centers: Instances of worker failures in cloud data centers indicate areas where Azure can improve in terms of system reliability and fault tolerance (Buchanan et al., 2020).
	Opportunities	•Expansion of AI and Machine Learning Services: Given the growing demand for AI-powered solutions, Azure has the opportunity to expand its AI and machine learning offerings, providing more advanced tools and services (Soh et al., 2020). •Partnerships and Collaborations: By fostering more partnerships with various industry players, Azure can enhance its service offerings, expand its ecosystem, and provide more integrated solutions to customers (Belo & Alves,2021) •Targeting Emerging Markets: With its sophisticated cloud infrastructure, Azure is well-positioned to target emerging markets and industries, offering localized solutions and tapping into new customer bases (Omotosho et al., 2019)
	Threats	•Cybersecurity Challenges: Despite advanced security measures, the evolving nature of cyber threats continues to be a significant concern, requiring ongoing investment and innovation in security protocols (Kudrati et al., 2022). •Intense Competition: The cloud market is highly competitive, with several major players vying for market share. Continued innovation and value-added services are crucial for Azure to maintain and enhance its market position (Li, 2022). •Regulatory and Compliance Pressures: As data protection and digital service regulations continue to evolve worldwide, Azure must navigate these complex legal landscapes, which can impose constraints and operational challenges (Montagna et al., 2023).

The above SWOT analysis of leaders in AI like DeepMind, NVIDIA, FAIR, and Microsoft Azure has shown exactly how much influence these companies have on modern life. Their techno-prowess doesn't just reshape industries but fundamentally alters society. As time goes on, international relations start to rely more on them. For example, the ability to analyze data across borders helps tackle problems like climate change and pandemics head-on together with other nations, solving them faster than ever before. However, some issues powered by AI are autonomy, privacy, and employment, which is why any push toward progress needs serious thought.

5. Discussion and Conclusion

From these results, human civilization development can be seen through AI technology's trend and global application, AI company advantages and challenges, and AI era theory and practice. In the past decades, rule-based systems and basic machine learning algorithms have been highlighted. For example, IoT-based wireless sensors got really popular because they keep tabs on fields (temperature/moisture), climate (rainfall/humidity),

and crops from a distance (Qazi et al., 2022). With technological advancements, it was used in nuclear medicine and molecular imaging, air traffic management (Augustin et al., 2022), and dermatological image analysis (Li et al., 2022). As all of the social aspects are required for proper operation (Qazi et al., 2022), more growth with AI applications in dermatology image analysis — especially diagnosis treatment- is expected (Zhou et al., 2022).

Discussion

In the context of artificial intelligence being a pivotal force in the new epoch of human civilization, it's imperative to recognize its profound implications beyond mere technological advancements. AI signifies a paradigm shift in human intellect, cultural norms, and the foundational pillars of societal constructs. This transformative era necessitates a deep understanding of the cyclical nature of civilizations and the strategic positioning of AI within this continuum.

Technological and Ideological Revolutions. The concept of 'AIsmosis,' as introduced by Ayse Asli Bozdag (2023), encapsulates the gradual yet pervasive integration of AI into societal frameworks, marking a significant ideological revolution. This infusion is not passive; rather, it's a complex interplay between societal acceptance and AI's adaptive evolution, shaping the contours of future civilizations. AI entities must navigate this landscape with a nuanced understanding of diverse cultural responses and strategic adaptability, ensuring ethically conscious development and inclusive communication paradigms.

Redefining Human-Machine Dynamics. The human-machine paradigm is undergoing a fundamental transformation that necessitates a reevaluation of traditional roles and interactions. Leventi-Peetz's (2023) discourse underscores the disruptive nature of AI across various life sectors, highlighting the need for a symbiotic existence where both humans and AI contribute to mutual progress. This new dynamic presents ethical dilemmas and social responsibilities that demand a holistic approach to maintaining the delicate balance between technological empowerment and humanistic values.

Globalization and Cultural Synthesis. AI's trajectory is contributing to an accelerated form of globalization that dissolves traditional barriers, fostering interconnectedness throughout our world. As AI blurs geographical and cultural lines, there are imperative calls for it to be culturally sensitive/ The demand for global inclusion makes it so that organizations enhance their competitiveness through strategic innovation processes that emphasize continuous learning/ (Kalandarovna & Qizi, 2023).

Evolution Knowledge Inheritance. The digital revolution spearheaded by AI has been altering how knowledge transfer works in society. In the context of cultural exchange, AI is pivotal in promoting and preserving intangible cultural heritage (Zhang & Jing, 2022). This shift from the traditional knowledge systems signifies a need for AI entities to facilitate this change with an emphasis on ethical consideration and cultural reverence. For example, the dynamic role architectural representation plays within AI processes will update and work on projects such as cultural heritage valorization (Vitali et al., 2021).

Innovative Collaborations and Partnerships. In AI-driven civilization, competitive dynamics are evolving towards more collaborative and data-driven models. The geopolitics of AI is causing existing power structures to shift, creating new collaboration frameworks that rely on shared data innovative algorithms which necessitate that companies explore these new bounds (Mikhaylov et al., 2018)

The rise of AI has been great for society and technology. However, this powerful hammer can't hit a nail without precision, or else things fall apart. It is necessary for people to be cautious with how people approach this future that's not too far off. The more humans advance technologically, the more human values and culture might fade away. And once they are gone, AI will have an imprint on humans — for better or for worse.

Conclusion

Looking into the future, AI will advance to a point that symbolizes a fundamental change in how people view human thinking and culture, as well as the societal structure. There's a lot more than technical advancements at play here, too; it could change everything and our digital surroundings, along with other topics relating to that. Since this all seems so far-fetched, researching AI's evolution from the start-up until now will help people understand how important it really is to integrate into the legal system and also prompt questions about the future of technology in law (Gul et al., 2021). The main problem is figuring out how people can have computers on one side and "real" humans on the other when they're both in one spot (there is only one physical space). It's hard to tell if this hurts human dignity and authenticity (Donati, 2021). Putting AI into archival practice affects what sort of things digital archives can remember. People need to find a balance between implementing AI and digitalization as a disruptive innovation because archivists need new definitions for their scope of expertise. The good news is that old ways are getting better with new IT skills (Amber & Giulia, 2022). In an international sense, technological change always comes with some transformation of power. A great example of this is the ongoing technology race between China and America (Gaspari & Joaquim, 2021). After societies become industrialized, they always push for infinite thinking ability, which leads to enhanced freedom

and social justice through science (Kuznetsova, 2023). There are limitations to this paper since it relies on current literature or specific case studies, which won't capture everything about AI globally or underrepresented communities or cultures with AI. Inclusive research and dialogue about AI are invited because of this.

Conflict of Interest Statement

The authors declare that no known competing financial interests or personal relationships could have appeared to influence the work reported in this paper. All authors confirm that there are no conflicts of interest, including any financial, personal, or other relationships with other people or organizations, that could inappropriately influence (bias) their work.

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