

ARTIFICIAL INTELLIGENCE IN NIGERIAN EDUCATION: A RESCUE MISSION OR A CAPITALIST VENTURE

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Abstract

The advent of Artificial Intelligence (AI) marks one of the most transformative technological advancements of the 21st century. Globally, AI is revolutionizing industries, from healthcare to transportation, and education is no exception. This paper critically examines the integration of Artificial Intelligence (AI) into Nigerian education, exploring its dual role as both a potential solution and a capitalist venture. On one hand, artificial intelligence offers transformative opportunities to tackle major Nigerian educational challenges, such as poor infrastructure, teacher shortages, and unequal access to learning. AI-driven technologies like adaptive learning systems, virtual tutors, and administrative automation could democratize education, improve learning outcomes, and reduce socio-economic inequalities. On the other hand, the commercialization of Artificial Intelligence raises concerns about equity, privacy, and the commodification of education. Wealthier institutions might benefit disproportionately, while marginalized communities risk being excluded, which could deepen existing inequalities. Additionally, ethical issues related to data privacy, algorithmic biases, and teacher-student interactions pose challenges to effective AI integration. This study advocates for a balanced, ethically guided approach to AI implementation that emphasizes inclusive access and protects educational values, ensuring AI fulfills its potential as a force for equity and innovation in Nigerian education.

Keywords: Artificial Intelligence (AI), Education System, Rescue Mission, Capitalist Venture, Ethical Artificial Intelligence (EAI).

Introduction

There is no doubt that the role of Artificial Intelligence (AI) in education is one of the most debated issues in contemporary discourse globally, especially in developing nations. The adoption of AI-driven educational technologies has been increasing globally. But, questions have arisen regarding whether AI serves as a rescue mission, aimed at addressing critical educational deficiencies, or merely as a capitalist venture, designed to maximize profits for corporate entities at the expense of educational equity.

This debate is particularly relevant in developing Nations like Nigeria, where systemic educational challenges—such as teacher shortages, inadequate infrastructure, and unequal access to quality learning—coexist with rising private sector investments in AI-powered education. Selwyn (2019), Artificial intelligence (AI) in education cuts across a wide array of technologies, including automated grading systems, personalized learning platforms, virtual tutors, intelligent assessment tools, and administrative automation. These technologies can revolutionize education by enhancing learning outcomes, improving efficiency, and democratizing access to quality education.

According to UNESCO (2023), "Artificial intelligence (AI)-powered platforms like uLesson, Google's AI Tutor, and IBM's Watson Education have been heralded as transformative tools that can bridge the digital divide and address long-standing educational inequities ". However, AI in Nigerian education, as in many other Nations, especially developing ones, is not without controversy. Critics argue that private corporations and multinational tech firms dominate AI-driven education, prioritizing financial gains over the needs of marginalized students (Zuboff, 2019). The high costs associated with AI-powered learning tools raise concerns about the commercialization and privatization of education, potentially deepening socio-economic disparities. Brookings Institution (2022) posits that " issues of data privacy, job displacement, algorithmic bias, and dependence on foreign AI technologies highlight the risks of unregulated AI adoption in Nigeria's education system.

Is Artificial Intelligence (AI) a tool for democratizing education and closing learning gaps, or is it a new form of capitalist dominance that prioritizes profit over educational equity? This article critically examines AI's role in Nigerian education, exploring its potential as a rescue mission and its risks as a capitalist venture. The discussion, amongst other things, will also analyze policy interventions and philosophical reflections that can help ensure AI serves as an enabler of inclusive and transformative education rather than a commercialized commodity.

The Nigerian Educational Landscape: Challenges and Opportunities

Besides being the most populous Nation in sub-Saharan Africa, Nigeria's educational system is the largest too, serving millions of learners across its vast population. However, despite this scale, the sector is plagued by significant challenges that seriously affect its effectiveness and equity. These challenges stem from systemic inefficiencies, socio-economic disparities, corruption, and infrastructural deficits. Nonetheless, the educational landscape also presents unique opportunities that, if harnessed effectively, could transform the sector. Some key challenges and opportunities shaping the Nigerian educational landscape are explored below.

Challenges in Nigerian Education

1. Access to Education

Out-of-School Children: UNESCO (2023) stated that "India, Nigeria, and Pakistan have the highest number of Out of out-of-school children globally. And out of the 244 million children between the ages of 6 and 18, Nigeria has over 20 million children". This issue is more pronounced in rural areas and conflict-affected regions, particularly in the northern states, where insurgencies such as Boko Haram have disrupted educational activities. Currently, in the South-East region where activities of the indigenous people of Biafra and their associated sub-groups have greatly affected the growth of education in the region.

Gender Disparities: Girls, especially in northern Nigeria, face significant barriers to education, including early marriage, poverty, and cultural norms that prioritize male education. According to Chidi (2021), "The girl child (Northern girls) is far behind in formal education due to religious, socioeconomic, and cultural reasons—trends of insurgency and killings by Boko Haram (BH), a militant Islamic extremists sect that has as its agenda the abolition of democracy, Western education, and Islamization of Nigeria despite the nation's secularity".

2. Inadequate Infrastructure

There is no doubt that many Nigerian schools lack basic infrastructure, including classrooms, furniture, electricity, and sanitation facilities. Rural areas face more of the infrastructural problem as most schools often operate in dilapidated buildings or under open skies, with most public schools overcrowded and having a student-teacher ratio exceeding 100:1, far above the recommended ratio of 25:1 by UNESCO.

3. Shortage of Qualified Teachers

Nigeria faces a severe shortage of trained and qualified teachers. Many teachers in both private and public schools lack formal training or are underpaid, resulting in low motivation and poor teaching quality. Lack of conscious, continuous professional development programs for teachers, especially in this digital Age which results are leaving educators ill-equipped to adopt modern teaching methodologies or integrate technology into their classrooms.

4. Poor teachers' welfare

According to Birabil and Ogeh (2020), "Nigerian teachers are not motivated to produce their maximum productivity. They are not only poorly paid but also can not measure up to their counterpart in other areas. Perhaps, they are waiting for their reward in heaven, as society may say. Sometimes, the teacher do not receive their regular promotions in addition to the poor salary they receive".

4. Poor Resource Distribution and Corruption

Besides the poor allocation of funds to the educational sector, it's observed that allocation of the available resources is often skewed towards urban areas, leaving rural schools underfunded and ill-equipped. For instance, internet connectivity and digital tools are far more accessible in cities than in remote areas, creating a digital divide that exacerbates existing inequalities. Bureaucratic inefficiencies and corruption in the education sector divert resources away from critical areas such as infrastructure development and teacher training. Funds meant for education are often mismanaged, leading to persistent gaps in service delivery.

5. Conflict and Insecurity

Insecurity, particularly in northern and southeastern Nigeria, has severely disrupted education. Insurgency, banditry, kidnappings, stay-at-home orders, and communal clashes have led to the closure of schools, the displacement of students, and fear among parents and teachers.

Opportunities in Nigerian Education

Despite these identified challenges, the Nigerian educational landscape presents several opportunities that can be leveraged to improve the sector and, by extension, the entire country.

1. Youthful Population

Nigeria's large and youthful population is a significant asset. With over 60% of the population under the age of 25, this implies that the country has a vast reservoir of potential learners and future workforce participants. Harnessing this demographic dividend through quality education could drive economic growth and development.

2. Technological Advancements

According to Vanguard (2023), "The Nigerian Communications Commission (NCC) says Nigeria has ranked as the 7th country in the global usage of mobile phones and 11th in terms of internet penetration." The increasing penetration of mobile phones and internet connectivity in Nigeria presents an opportunity to integrate technology into education. E-learning platforms, virtual classrooms, and AI-powered tools can extend educational access to underserved regions and enhance learning experiences. Local edtech startups, such as uLesson and Edves, are already making strides in delivering digital education solutions tailored to Nigeria's context.

3. Government Initiatives and Policies

The Nigerian government has introduced policies aimed at improving education, amongst which are the Universal Basic Education (UBE) program. According to Yusuf and Jere (2000), "Universal Basic Education (UBE) was formally launched by President Olusegun Obasanjo on 30th September 1999. The UBE programme is intended to be free and compulsory. According to the implementation guidelines for the Universal Basic Education program published by the Federal Ministry of Education, Abuja, in February, 2000, due attention would be given to public enlightenment and social mobilization". The UBE program seeks to provide free and compulsory education for children up to junior secondary

school. The introduction of the Nigerian Education Cloud by the Federal Ministry of Education aims to digitize learning and administrative processes across the country. The Nigerian educational system always has the potential for policy reform to meet up with the global best practices as it concerns Education

4. Global Support and Partnerships.

In many developing Nations like Nigeria, there is no doubt that international organizations such as UNICEF, UNESCO, and the World Bank have been instrumental in funding educational projects in Nigeria. For instance, the Global Partnership for Education (GPE) has supported initiatives to increase access to education and improve teaching quality. Some collaborative efforts between Nigerian institutions and international tech companies, such as Google and Microsoft, offer opportunities to integrate cutting-edge technologies into education.

5. Rise of Private Sector Involvement

The private schools and Universities play a growing role in Nigeria's education system as a complement to public institutions. While this raises concerns about affordability, it also creates opportunities for innovation and the adoption of global best practices.

6. Emphasis on STEM Education

There is a growing recognition of the importance of Science, Technology, Engineering, and Mathematics (STEM) education in preparing students for the demands of the 21st-century economy. Initiatives such as the "Girls in STEM" program aim to encourage more participation in these fields, particularly among underrepresented groups.

7. Cultural and Linguistic Diversity

Nigeria's cultural and linguistic diversity, if leveraged effectively, can enrich education by promoting local knowledge, history, and languages. AI technologies, for example, can be used to create educational content in indigenous languages, fostering inclusivity.

Artificial Intelligence: A Rescue Mission?

Amid the deep-seated challenges of access, quality, and equity, Artificial intelligence (AI) presents innovative solutions to bridge gaps, enhance learning experiences, and streamline education. According to Okorosaye-Orubite (2022): "The end product of education is the educated man, who in Africa shows evidence of a well-integrated personality... He is economically efficient, socially and politically competent, morally acceptable, and culturally sophisticated". By harnessing AI technologies, Nigeria can address systemic inefficiencies and redefine its educational trajectory. Some key ways AI serves as a rescue mission for Nigerian education are:

1. Teacher Empowerment

Artificial intelligence (AI) tools can empower teachers to focus on impactful teaching rather than administrative tasks. Automated Grading: AI-powered systems such as Grade Scope can assess assignments and exams efficiently, reducing the workload on teachers. This frees up time for educators to engage more meaningfully with their students (World Economic Forum, 2022). Artificial intelligence (AI) can assist in creating lesson plans and recommending teaching resources based on curriculum requirements and classroom dynamics. Because teacher shortages are a critical issue in the Nigerian educational system.

2. Personalized Learning

A key contribution of AI in education is its ability to tailor learning experiences to individual students' needs. Unlike traditional classroom settings, AI-powered platforms use machine learning algorithms to analyze students' learning patterns, strengths, and weaknesses. McKinsey (2021) posits that "Adaptive learning systems like Coursera or Khan Academy utilize AI to deliver customized content, ensuring students progress at their own pace". AI tools like uLesson, a Nigerian edtech platform, offer personalized tutorials and assessments tailored to students' needs, making quality education accessible to learners across the country.

3. Inclusivity and Accessibility

AI technologies have the potential to democratize access to quality education, especially in regions and rural areas with limited infrastructure and resources. AI-powered e-learning platforms can deliver content to students in remote areas, overcoming barriers of distance and inadequate infrastructure. Platforms like Edmodo and Moodle, already operational globally, could be tailored to Nigeria's unique educational challenges. Also, AI-powered language tools, such as Google Translate and Natural Language Processing (NLP) systems, can deliver educational content in indigenous languages. This is critical for Nigeria, which has over 500 languages and dialects, as it ensures inclusivity and cultural preservation (UNESCO, 2023). Some AI tools, such as speech-to-text software and assistive technologies, enable students with disabilities to access education. This aligns with Nigeria's goal of promoting inclusive education for all learners.

4. Data-Driven Analysis and Decision-Making

Artificial intelligence (AI) can enhance education planning and policymaking by analyzing large datasets to identify trends and inform decisions. AI systems can predict student dropout rates, identify learning gaps, and monitor teacher performance. For example, the use of AI in early warning systems could help policymakers intervene in schools with declining performance metrics (Brookings Institution, 2022).

5. Proper Resource Allocation: AI-driven insights can guide the allocation of resources to underserved areas, ensuring equitable distribution of educational funding and infrastructure. This is critical for Nigeria, where rural schools often lag behind their urban counterparts.

6. Addressing Equity Gaps

Artificial intelligence (AI) delivers high-quality educational content, like Zoom and Microsoft Teams, enabling virtual classrooms, connecting students and teachers across geographical barriers. And Massive Open Online Courses (MOOCs): Platforms such as Coursera and EdX provide Nigerian students with access to global knowledge resources, reducing the knowledge gap between local and international learners.

7. Enhancing STEM Education

Artificial intelligence (AI) offers Interactive tools such as virtual labs and simulations that enhance students' understanding of complex concepts, playing a vital role in supporting Science, Technology, Engineering, and Mathematics (STEM) learning, especially in Nigeria, which is imperative to development in this contemporary technology-driven global development world. AI-driven platforms like Tynker and Scratch, which teach coding and computational thinking, also encourage problem-solving and a critical thinking attitude in individuals (Students)

8. Supporting Lifelong Learning

In Nigeria, where unemployment and underemployment are significant issues, AI facilitates lifelong learning opportunities, ensuring that education is not confined to traditional schooling. Platforms like LinkedIn Learning and AI-powered learning management systems provide courses that allow individuals to upskill and reskill throughout their stay on earth. According to the World Bank (2023), lifelong learning through AI can equip individuals with the skills needed to compete in the global job market.

9. Crisis Management

The COVID-19 pandemic exposed the Vulnerabilities of the education system but also highlighted the potential of Artificial Intelligence (AI) as it provides Virtual learning platforms as uLesson gained prominence, providing students with alternative learning pathways during school closures (UNICEF, 2021). AI tools can also support education during conflicts and natural disasters, ensuring that learning continues even in the most challenging circumstances.

Artificial Intelligence: A Capitalist Venture?

While Artificial Intelligence (AI) holds significant potential to transform Nigeria's education system, its adoption is often motivated by economic interests, raising concerns about its role as a capitalist venture. Critics argue that deploying AI technologies is primarily profit-driven, benefitting corporations and private investors at the expense of equity. According to Jiaying Du (2024), "In 2012, total VC funding in AI was approximately \$3 billion. By 2020, that figure skyrocketed to around \$75 billion, reflecting the increasing confidence in AI's transformative potential." This viewpoint emphasizes how education is becoming commercialized, with AI used as a tool for market exploitation rather than addressing systemic educational challenges, especially in developing nations like Nigeria. Some in-depth examinations of how AI in education might function as a capitalist venture include:

1. Privatization of Education through AI

The integration of AI technologies into education has spurred the growth of private edtech companies, many of which prioritize profit over educational outcomes. In Nigeria, companies such as uLesson, Tuteria, and Edukoya offer AI-driven learning platforms. While these platforms provide valuable services, they often operate on subscription-based models, limiting access to students from low-income families (World Economic Forum, 2022). Many public schools, which serve the majority of Nigerian students, lack the infrastructure and funding to adopt AI technologies. This creates a two-tiered education system where only students in private or elite schools benefit from AI integration.

2. High Costs of AI Solutions

Many Nigerian schools, especially in rural areas, cannot afford AI tools due to limited budgets. According to the Brookings Institution (2022), "This deepens the digital divide between well-funded urban schools and under-resourced rural schools. Companies developing AI tools prioritize markets that can afford their products, leaving underserved communities behind. For instance, global edtech companies like Coursera and EdX require payments for advanced features and certifications, making them inaccessible to the majority of Nigerian students.

3. Data Exploitation and Monetization

Artificial intelligence (AI) relies heavily on data collection, which raises ethical concerns about data exploitation and privacy breaches. In the education sector, this creates opportunities for commercial exploitation. For example, AI platforms collect vast amounts of data on students' learning habits,

performance, and preferences. Companies may monetize this data by selling it to third parties, including advertisers and marketers (UNESCO, 2023). In many developing Nations like Nigeria, weak data protection laws make it easier for corporations to exploit students' data without accountability. The Nigerian Data Protection Regulation (NDPR) is still in its infancy and lacks the robustness to address AI-related privacy concerns comprehensively.

4. Creation of an AI-Driven Educational Elite

The integration of Artificial Intelligence (AI) in education risks creating a knowledge and skills gap, reinforcing existing socio-economic inequalities. World Bank (2023) posits that AI-powered personalized learning platforms are often only accessible to students who can afford them. This creates an educational elite, further entrenching socio-economic disparities in Nigeria.

5. Corporate Dominance in Curriculum Design

AI technologies in education are often designed by corporations with minimal input from educators, governments, or local communities. According to Jiaying Du (2024), "Given the fast-paced development of the AI field, experienced investors with a background in both AI and venture capital are in a stronger position to make informed investment decisions." This goes to show that AI inventors are not educators but are profit-oriented Digital business tycoons. Therefore, AI systems are often standardized for global markets, ignoring the unique cultural and contextual needs of Nigerian education. This undermines local curricula and indigenous knowledge systems (McKinsey & Company, 2021).

6. Dependency on Foreign Technology

Jiaying Du (2024) points out that "the United States (U.S.) and China are currently the top players in venture capital investment within the AI sector. They've also been the main beneficiaries of this investment, with U.S. investors raking in about \$40 billion and Chinese investors around \$19 billion from 2012 to 2020. On the other hand, Nigeria's heavy reliance on imported AI technologies underscores the neo-colonial aspects of the AI revolution. The solutions from companies like Google, Microsoft, and IBM, which are primarily used in Nigeria, are all developed abroad. This dependence hampers Nigeria's ability to innovate and shape its own educational future. As UNICEF (2021) highlights, payments for foreign AI services and technologies lead to capital flight, draining important economic resources from the country instead of these funds being reinvested into local education."

7. Commodification of Education

The adoption of AI technologies often aligns with the commodification of education, where learning is treated as a product rather than a public good. AI-powered platforms frequently require users to pay for access to premium features, creating a market-oriented education system. According to the Brookings Institution (2022), "This commercialization undermines the principle of free and equitable education for all". Corporations may prioritize revenue generation over educational quality, designing systems that maximize user engagement rather than meaningful learning outcomes.

8. Ethical Concerns and Exploitation

Like in many developing nations, Artificial intelligence (AI)-driven education in Nigeria raises ethical questions about the role of profit-making entities in shaping the future of learning. AI tools that automate teaching tasks may lead to job insecurity among educators. For example, automated grading and AI tutors could replace human teachers, particularly in low-income schools. By prioritizing profit, AI companies may exacerbate inequities, leaving marginalized communities without access to critical educational tools.

Striking a Balance: Policies and Philosophical Reflections

The rapid integration of Artificial Intelligence (AI) into Nigerian education presents a dual-edged sword, requiring a delicate balance between leveraging AI's transformative potential and safeguarding against its exploitative tendencies. Achieving this balance demands the formulation of robust policies and philosophical frameworks that prioritize education as a public good, while also recognizing the role of private sector innovation. Some key policy considerations and philosophical reflections that can guide this balance are explored below:

1. Policy Framework for Equitable Access

A significant challenge in the adoption of AI in Nigerian education is ensuring that it benefits all learners, irrespective of their socio-economic background. Government funding should be allocated to subsidize the deployment of AI technologies in public schools, particularly in underserved rural areas. This ensures that AI does not remain a privilege of elite institutions (UNESCO, 2023). The government can collaborate with private tech companies to deploy affordable AI solutions. For instance, partnerships could involve companies like uLesson and Tuteria offering subsidized or free access to their platforms in exchange for tax incentives.

Government Policies should also focus on expanding the internet and electricity infrastructure in rural areas to enable the effective deployment of AI-powered tools. Philosophically, these efforts align with John Rawls' Theory of Justice, which advocates for fairness and equity in the distribution of societal resources, ensuring the least advantaged are prioritized.

2. Ethical Regulations for AI in Nigerian Education

Nigeria must strengthen the Nigeria Data Protection Regulation (NDPR) to include specific provisions for AI in education. This includes mandates on how student data is collected, stored, and used (Brookings Institution, 2022).

Artificial intelligence (AI) systems deployed in schools should be audited regularly to ensure their algorithms are not biased or exploitative. Philosophically, this aligns with Immanuel Kant's emphasis on transparency and accountability in moral decision-making. Educators, philosophers, technologists, and Artificial Intelligence corporations should establish independent ethics committees to oversee the use of AI in education, which will help prevent misuse.

3. Balancing Public Good and Private Interest

While the private sector plays a vital role in driving AI innovation, the commodification of education must be resisted. The government of Nigeria can cap the cost of AI tools and platforms to ensure affordability for all students. This avoids the creation of a digital divide. Policies should incentivize the development of open-source AI tools that can be freely accessed and adapted for educational purposes. Philosophically, this reflects Aristotle's concept of the common good, which argues that societal resources should be utilized for the benefit of the community rather than individual profit.

4. Building Local Capacity for AI Innovation

Dependency on foreign AI technologies raises concerns about neo-colonialism and capital flight. To mitigate this, Nigeria must invest in building local AI capacity. The government should establish research grants and innovation hubs to support local AI developers. According to the World Bank (2023), "This promotes culturally relevant AI solutions tailored to Nigeria's educational needs."

Teaching AI and coding in schools can nurture a generation of local innovators who can create homegrown solutions. This aligns with Dewey's pragmatism, which emphasizes experiential learning and preparing students to solve real-world problems.

5. Rethinking Teacher Roles in the Age of Artificial Intelligence (AI)

AI technologies should complement, not replace, human teachers. According to UNICEF (2021), "Teachers should be trained to use AI tools effectively, transforming them into facilitators of learning rather than mere deliverers of content". The government must implement policies to prevent AI-driven automation from replacing teaching jobs, especially in public schools. Philosophically, this aligns with Martin Buber's concept of the "I-Thou" relationship, emphasizing the human connection between teacher and student, which AI cannot replicate.

6. Contextualizing AI Through Nigerian Philosophical Values

AI policies should be informed by Nigeria's unique socio-cultural and philosophical context, incorporating values that resonate with local communities. AI tools should incorporate local knowledge, languages, and cultural practices, ensuring they do not erode Nigeria's rich cultural heritage (UNESCO, 2023).

7. Funding and Sustainability

Sustainable funding mechanisms are essential for the widespread and long-term adoption of AI in education. Establishing AI-focused education trust funds can provide consistent resources for AI adoption. International organizations such as UNESCO and the World Bank can be engaged to fund AI initiatives in Nigerian education. Philosophically, these efforts align with John Stuart Mill's utilitarianism, which advocates for policies that maximize happiness and well-being for the greatest number of people.

8. Philosophical Reflections on AI's Role

The deployment of AI in Nigerian education also raises broader philosophical questions about the purpose of education and the role of technology. Questions like: Should education focus solely on skill acquisition and economic productivity, or should it also nurture critical thinking, creativity, and moral values? Philosophers like Plato argue that education should aim to develop virtuous citizens, a perspective that cautions against over-reliance on AI for purely technical purposes. Also, Philosophers like Heidegger warn against technological determinism, where society becomes overly dependent on technology at the expense of human agency. Nigeria must ensure that AI serves as a tool, not a replacement for holistic education.

Conclusion

The integration of Artificial Intelligence (AI) into Nigerian education stands in the gap, oscillating between being a rescue mission and a capitalist venture. While AI holds immense potential to address critical challenges such as teacher shortages, low student engagement, and inefficient administrative systems, its implementation is often driven by profit motives that risk exacerbating educational inequalities. The question, therefore, is not merely whether AI should be adopted but how it should be implemented to serve the greater good, including the corporate interests.

Finding the right balance between these two extremes calls for proactive policies and thoughtful guidance. The Nigerian government needs to set up a solid regulatory framework to ensure that AI serves the public good. It's essential to subsidize AI tools for public schools, enforce strict data protection laws, encourage local AI innovation, and promote partnerships between public and private

sectors with an emphasis on social impact rather than just profit. AI should enhance, not replace, the role of teachers. We should also work towards aligning AI-driven education with Nigeria's cultural and philosophical values, making sure it acts as a tool for knowledge rather than a means for corporate exploitation.

The future of Nigerian education lies not in the technology itself but in the ethical, political, and philosophical choices that determine its application. AI must be harnessed as a tool for collective progress, innovation, and empowerment—an enabler of knowledge, not a barrier to access. Only then can Nigeria fully realize the transformative potential of AI in education while safeguarding its core values and ensuring that no student is left behind.

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