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ECOSOC 4: Commission on Science and Technology for Development (CSTD)

Research Report

Topic 2: Recognising the rapid development of AI as a threat to the quaternary sector.

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Introduction

The fast growing development of artificial intelligence has contributed to major shifts and changes within the quaternary sector, which is a section of the economy that is focused on education, intelligence, and the ability to work with advanced technology. While AI has assisted the efficiency and innovation processes within the industry overall, it has also become somewhat of a risk to the economic, social and environmental state of the world. This research paper will focus on how AI threatens the quaternary sector, by aiding in job displacement, and rising consumption of energy and water resources. This paper will eventually suggest potential resolutions and solutions for the delegates to consider in the conference.

Definition of Key Terms

Artificial Intelligence (AI): Machines or computer systems programmed to perform tasks that usually require human intelligence, (incl. learning, reasoning, problem-solving, and decision-making).

Quaternary Sector: A section of the economy that is focused on education, intelligence, and the ability to work with advanced technology.

Data Centres: A physical location that stores computing machines and their related hardware equipment. It contains the computing infrastructure that IT systems require, such as servers, data storage drives, and network equipment.

Automation: The use of technology to perform tasks usually performed by humans, which usually reduces, or fully replaces the need for human labour. Typically utilised in factory settings, where tasks tend to be repetitive, rule-based, high-volume, or require extreme accuracy.

Energy-Water Nexus: The interdependent relationship between and water usage and energy production, which is especially relevant for data centres that require both water-intensive and electricity based cooling systems.

Background Information

The quaternary sector initially became a thing in the late 20th century, as economies moved further away from industrial manufacturing, and towards knowledge-based services. This transition was mainly driven by the growing developments with computing, telecommunications, and higher education levels, which therefore created demands for more refined and skilled intellectual labour.

While early automation began by affecting the primary (exploiting natural resources), secondary (transforming raw goods into finished products), and tertiary (services) sectors, which targeted manual and routine jobs, the newfound development of artificial intelligence in the 21st century marked a significant turning point for the economy as a whole. Breakthroughs in machine learning around the 2010s, and natural language processing enabled AI systems to conduct complex analytical and creative tasks, which were usually reserved for highly trained and skilled professionals. As a result to those developments, the quaternary sector, once deemed immune to technological displacement, now faces risks towards employment stability, sustainability and further development[1].

Major Countries and Organisations Involved

United States: Origins of one of the largest AI developers and data centres. The US aims to maintain innovation driven leadership, and somewhat resolve the issues surrounding energy grids, water usage, and job displacement.

China: A major investor in AI development and research. China focuses on balancing environmental sustainability and energy security with heightened levels of innovation and economic competitiveness.

[1] https://www.climatechangenews.com/2025/12/12/un-adopts-first-ever-resolution-artificial-intelligence-ai-environment-lifecycle-unea/

European Union: The European Union prioritises ethical AI development, maintains sustainability standards, and essentially regulates everything to align with climate and social goals.

Developing Countries: Many developing countries view AI as a means for economic growth but they face challenges due to their limited development and infrastructure limited energy access and regulatory capacity, which increases the risk of inequality.

United Nations (ECOSOC): The United Nations play a central role in addressing the social, developmental and economic impact of artificial intelligence, especially in relation to the sustainable development goals and overall global equity.

International Energy Agency (IEA): Provides official data on global energy demand, especially the growing electricity consumption used by data centres.

United Nations Environment Programme (UNEP): This program specifically addresses the environmental implications of developing technologies including artificial intelligence energy and water footprint on the climate.

Relevant UN Resolutions

UN General Assembly Resolution A/RES/78/265 (2024):

https://digitallibrary.un.org/record/4043244?ln=en&v=pdf

This resolution addresses the risks and opportunities given by AI for sustainable development, emphasizing safety, inclusivity, and urges for international cooperation

UN General Assembly Resolution A/RES/79/194 (2024):

https://docs.un.org/en/A/RES/79/194

Focuses mainly on addressing communication and information-based technologies for sustainable development, relevant to data centre infrastructures.

UNEP/UNEA Resolution on Environmental Sustainability of AI Systems (2025):

https://docs.un.org/en/UNEP/EA.7/L.14

Recognises the detrimental environmental impact of artificial intelligence and calls for responsible development.

Previous Attempts to Address the Issue

Previous attempts made to address the issue of AI potentially threatening the quaternary sector have mainly focused on ethics, encouraging transparency between nations, and promoting efficiency rather than systemic economic disruption. International organizations such as UNESCO have issued ethical guidelines for AI development, while UNEP has highlighted environmental sustainability concerns shared by many.

Technical bodies including the ITU, have long promoted energy efficient data center standards, and some governments have encouraged voluntary reporting of energy and water usage. major technology companies have even introduced internal sustainability targets and renewable energy commitments. Despite all of that, these approaches remain fragmented, and still largely voluntary. They often fail to address the main point employment displacement unequal global impacts and the major strain that artificial intelligence usage has had on energy and water resources worldwide limiting their overall effectiveness.

Proposed Solutions

When approaching this resolution delegates may consider a plethora of approaches to address the imminent threat posed by AI to the quaternary sector. One perspective could emphasize regulation, advocating for international standards on AI usage and enforce international standards and sustainability reporting for data centres and labour protections for the respective affected workers.

Another perspective supports adaptive integration, which focuses on simply reforming education systems and, and further encouraging human-AI collaboration, to ensure that AI augments rather than replaces intellectual labour.[2] Other solutions could include placing emphasis on renewable energy power data centres encouraging water efficient cooling technologies, and focusing on technology transfer in order to develop countries further.[3] ECOSOC 4 could also facilitate international dialogue in order to balance innovation with economic stability making it applicable for most countries.

[2] https://press.un.org/en/2024/ga12588.doc.htm
[3] https://unesdoc.unesco.org/ark:/48223/pf0000385082

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