

# THE PACT FOR FUTURE GENERATIONS AND THE GLOBAL DIGITAL COMPACT – FUTURE GENERATIONS IN A SAFE DIGITAL SPACE, THE ROLE OF DIGITAL TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE IN ACHIEVING THE GOALS OF THE UN PACT FOR FUTURE GENERATIONS AND THE GLOBAL DIGITAL PACT

*Mihaela APOSTOL\**

## **Abstract**

*This article examines the evolving role of digital technologies and artificial intelligence (AI) in supporting the objectives of the United Nations' Pact for Future Generations and the proposed Global Digital Compact. It explores how digital transformation intersects with sustainable development, intergenerational equity, and international governance frameworks. The analysis highlights the opportunities and risks that AI presents in shaping inclusive, rights-based digital environments, especially with respect to safeguarding the interests of future generations. Through a multidisciplinary lens combining legal, technological, and normative analysis, the paper evaluates global digital governance mechanisms, ethical standards, and international policy commitments. The article argues for a values-based digital architecture that embeds long-term sustainability, equity, and accountability into global digital systems.*

**Keywords:** *Pact for Future Generations; Global Digital Compact; Digital & AI Governance; Intergenerational Equity; Sustainable Development; Human-Centred Technology*

**JEL Classification:** *[Q01, O33, D63, F53, H83]*

## **1. Introduction**

In an era marked by accelerated digital transformations, digital technologies and artificial intelligence (AI) have become foundational elements in shaping global society and economy. These technologies open new horizons for social, educational, and economic progress, but also bring significant challenges regarding security, safety, and privacy in the digital space. This context makes the assurance of a safe digital environment for future generations a global priority, supported through international initiatives such as the *Pact for Future Generations* and the *Global Digital Compact*, both of which strongly emphasize sustainable development and the protection of fundamental rights in digital spaces. (United Nations, 2023a; United Nations, 2023b)

The *Pact for Future Generations*, an initiative of the United Nations, primarily aims to guarantee a sustainable and equitable future for the coming generations, acknowledging the challenges and risks currently facing the planet—including those

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\* PhD candidate in Public Administration, The National University of Political Studies and Public Administration, Romania.

from rapid digital and technological transformations. A core objective of the Pact is to address the technological transformation of society and the economy, underlining the need for ethical and regulatory frameworks for emerging technologies such as AI, blockchain, and the Internet of Things (UN Secretary-General's Panel, 2019).

In parallel, the *Global Digital Compact*, proposed by the UN General Assembly, defines the principles, objectives, and actions for promoting a digital future that is open, free, safe, and human-centred—anchored in universal human rights and aligned with sustainable development goals (United Nations, 2023b). It promotes a global framework for developing a secure, inclusive, and sustainable digital ecosystem and emphasizes common regulations to ensure responsible use of digital technologies, while protecting users from emerging threats such as disinformation, cybercrime, and irresponsible use of AI (UNESCO, 2021; World Economic Forum, 2023).

This article highlights the evolving role of digital technologies and AI in supporting the goals of the *Pact for Future Generations* and the *Global Digital Compact*. It explores how digital transformation intersects sustainable development, intergenerational equity, and international governance frameworks. The analysis addresses the opportunities and risks posed by AI in shaping inclusive, rights-based digital environments, especially regarding the protection of future generations. Through a multidisciplinary approach combining legal, technological, and normative analysis, the article evaluates global digital governance mechanisms, ethical standards, and international policy commitments (Floridi, 2020; Cath, 2018). It advocates for a values-based digital architecture that integrates long-term sustainability, equity, and accountability into global digital systems.

## **2. Digital Technologies and Artificial Intelligence in the Context of the Pact for Future Generations**

The *Global Digital Compact* (GDC) and the *Pact for Future Generations* are essential international initiatives aimed at constructing a global framework that ensures the responsible use of digital technologies. These documents highlight the importance of cooperation among states, international organizations, and the private sector in ensuring a fair and sustainable future, while also upholding human rights and protecting the environment (United Nations, 2023a; United Nations, 2023b).

The GDC focuses on shared global principles for a safe, secure, and inclusive digital future. It emphasizes the necessity of international cooperation in shaping the development of digital technologies with broad ethical, economic, and social implications. In parallel, the *Pact for Future Generations* stresses the importance of policies and practices that promote the well-being of future generations—including environmental sustainability, social justice, and technological responsibility (UNESCO, 2021; Floridi, 2020).

Together, these frameworks may provide a foundation for the development of ethical guidelines and governance structures for emerging technologies such as AI

and digital infrastructure. As digital ecosystems expand, there is a growing need for mechanisms that can manage risks, promote inclusion, and ensure equitable access across all regions of the world (World Economic Forum, 2023).

Both the GDC and the *Pact for Future Generations* promote shared responsibility for digital development, requiring the alignment of national strategies with international norms. This includes prioritizing human rights in digital spaces, advancing environmental sustainability through green technologies, and ensuring the ethical use of AI (European Commission, 2021; Cath, 2018).

By situating emerging technologies within these normative and legal frameworks, the global community has the opportunity to direct innovation toward long-term objectives such as intergenerational equity and planetary health. This demands proactive governance, regulatory clarity, and ethical foresight, particularly as technologies such as generative AI, autonomous systems, and global digital platforms reshape the world for generations to come (Future of Life Institute, 2023).

### **3. Future Generations in a Safe Digital Space: Cybersecurity and Digital Terrorism**

In an increasingly digitized world, future generations will inhabit a global, interconnected digital space, where emerging technologies such as the Internet of Things (IoT), artificial intelligence (AI), and 5G networks will become integral to everyday life. While these innovations offer significant benefits including improved access to education, healthcare, and economic opportunities they also introduce new risks, including cyber threats and digital terrorism. Ensuring a secure digital environment for future generations has therefore become a fundamental goal of the *Pact for Future Generations* and a core pillar of global digital governance (United Nations, 2023a; UN Secretary-General's Panel, 2019).

#### **3.1 Cyber Threats and Risks to Future Generations**

As the world becomes increasingly reliant on digital technologies, cyber threats are a growing concern. Hackers, terrorist groups, and even state actors can exploit vulnerabilities in digital systems to compromise personal data, disrupt critical infrastructure, or sow social chaos. These risks are difficult to anticipate and control in an increasingly complex digital landscape (Binns, 2018).

*Hacking and Ransomware Attacks:* One of the most common threats is ransomware, where attackers encrypt data and demand payment for its release. These attacks can affect not only companies and government agencies but also individual users, including children and young people who are increasingly active online.

*Exploitation of Personal Data:* Identity theft, data harvesting, and the sale of sensitive personal information pose significant risks to both individual and national security. Future generations will be especially vulnerable as data becomes more valuable and widely used for marketing, political manipulation, and economic exploitation.

*Attacks on Critical Infrastructure:* With essential systems like electricity, transportation, and emergency services increasingly connected to the internet, cyberattacks could cause severe economic and social disruption. Attacks on energy grids, transportation systems, or communication networks could have long-term consequences on national security and everyday life (Cath, 2018).

### 3.2 Digital Counterterrorism in the AI Era

Cyberterrorism is an escalating global security challenge. Terrorist groups around the world now use the internet to coordinate attacks, recruit members, and disseminate propaganda. In addition, digital technologies may be weaponized to destabilize governments or communities.

*Online Recruitment and Radicalization:* The internet has become fertile ground for extremist groups promoting their ideologies through social media and encrypted websites. Youth are especially at risk of exposure to radical content, highlighting the need for early intervention and digital literacy education (UNESCO, 2021).

*State-Sponsored Cyberattacks:* Some cyberattacks are carried out by national governments, targeting critical infrastructure or manipulating the internal political processes of other states. These are difficult to attribute and may escalate international tensions.

*Autonomous Systems and Drones:* Future conflicts may involve autonomous drones and cyberweapons used for terrorism. International regulation of these technologies is essential to prevent their use by malicious actors (Future of Life Institute, 2023).

### 3.3 Cybersecurity and Data Protection

In a highly interconnected digital era, cybersecurity is critical for protecting future generations from digital threats. Governments, organizations, and citizens must adopt comprehensive protection strategies to create a secure online environment.

*Strict Data Protection Regulations:* Implementing a global legal framework to protect personal data is vital to ensure responsible data management. Regulations like the EU's General Data Protection Regulation (GDPR) serve as models, but similar frameworks must be adopted globally and adapted to emerging technologies (European Commission, 2021).

*Encryption and Communication Security:* Encryption will be essential to ensure data confidentiality, alongside advanced security protocols and multi-factor authentication to prevent unauthorized access to personal or organizational data.

*Cybersecurity Education and Training:* As youth become more digitally active, cybersecurity education must become a priority. Promoting responsible digital behaviour—including strong password use, recognizing phishing attempts, and protecting personal data—is key to resilience.

In a digitalized future, cybersecurity and counterterrorism efforts will be essential to ensure that future generations live in a safe digital environment.

Although technological progress offers tremendous opportunities, it also introduces major risks. Through global collaboration, strict regulations, and comprehensive digital education, a protected and sustainable digital environment can be built where individuals - especially young people - can benefit from technology without being exposed to cyber threats and digital terrorism.

#### 4. Environmental Impact and Sustainability

When it comes to the environment, digital technologies and AI have both positive and negative effects. On one hand, they can support sustainable development goals by optimizing resource use and promoting clean energy. On the other, the massive production and consumption of electronic devices contribute to global pollution and increasing carbon emissions (Floridi, 2020; World Economic Forum, 2023).

Within the framework of the *Pact for Future Generations* and the *Global Digital Compact*, one of the key goals is to ensure a sustainable and ecologically responsible future for the next generations. As such, the environmental footprint of digital technologies and the use of artificial intelligence (AI) becomes a critical concern. While technology can contribute significantly to economic and social development, it must be managed responsibly to avoid ecological risks and ensure long-term sustainability (UNESCO, 2021; United Nations, 2023a).

##### 4.1 Digital Technologies and Natural Resource Consumption

Digital technologies—including cloud computing, the Internet of Things (IoT), and AI—significantly impact the environment, especially through energy consumption and the use of natural resources. Data centers, which store and process massive volumes of information, consume vast amounts of electricity and materials to maintain the global digital infrastructure.

*Data Centers and Energy Use:* These facilities are essential to the internet, cloud storage, and AI applications, but they consume large quantities of electricity—often derived from non-renewable sources such as coal or gas—and produce substantial greenhouse gas emissions. The *Pact for Future Generations* highlights the need for "green" data centers powered by renewable energy and enhanced by efficient technologies (Floridi, 2020).

*Rare Materials and E-Waste:* Digital devices require rare minerals (e.g., for semiconductors), whose extraction can lead to environmental degradation and geopolitical tensions. Furthermore, discarded electronics (e-waste) pose major environmental hazards if not properly recycled. Promoting sustainable technologies and improving recycling systems is essential for reducing negative environmental impacts (European Commission, 2021).

## 4.2 Digital Solutions for Environmental Protection

Despite their environmental toll, digital technologies can play a vital role in environmental protection and sustainable development. Advanced technologies can help lower emissions and preserve natural resources.

*Monitoring and Managing Natural Resources:* Digital tools can support real-time environmental monitoring through IoT sensors and big data analytics, enabling better tracking of pollution, deforestation, water usage, and more. AI-powered satellite data analysis can also help detect illegal logging and monitor climate change (UN Secretary-General's Panel, 2019).

*Energy Efficiency Technologies:* Digital systems can reduce energy use through industrial process optimization and smart energy management. Smart grids, for example, allow real-time control over electricity usage, reducing carbon footprints across sectors (World Economic Forum, 2023).

*Smart and Sustainable Agriculture:* Digital technologies, including AI and IoT, support sustainable agriculture by optimizing the use of water, fertilizers, and land, thereby reducing the environmental footprint of food production.

## 4.3 Sustainability in Emerging Technology Development

As digital and AI technologies evolve, it is vital to ensure their development aligns with environmental goals and the long-term needs of future generations.

*Low-Impact Technologies:* Research and development must focus on energy-efficient and environmentally friendly solutions. For example, quantum computing and other advanced technologies could help reduce large-scale computing demands. Investment in green innovation and sustainable materials is essential (Future of Life Institute, 2023).

*Circular Economy in Technology:* Circular economy models, based on reuse and recycling, can reduce e-waste and reliance on rare resources. Global policies that support repairability, recycling, and sustainable design are needed to make digital ecosystems more environmentally sustainable.

## 4.4 Challenges and Opportunities for Future Generations

To ensure a sustainable future for coming generations, the digital transition must be carefully managed, balancing technological progress with environmental protection.

*Challenges:* The rise of energy demand, e-waste generation, and raw material extraction all present serious risks. Mismanagement of these elements could lead to long-term ecological damage and exacerbate climate change.

*Opportunities:* Digital innovation can drive circular economic models, enhance resource efficiency, and reduce carbon footprints. Moreover, environmental data analytics can improve policymaking and help conserve biodiversity.

The environmental impact of digital technologies is significant, but with sustainable practices and effective international regulation, these technologies can be aligned with climate goals. Under the mandates of the *Pact for Future*

*Generations* and the *Global Digital Compact*, there is a pressing need to design and implement digital systems that support both environmental protection and human development.

## **5. Interdisciplinary Approaches and Global Cooperation: Strategic Scenarios**

To effectively address the challenges and threats posed by the digital era, both international and national strategies must be implemented. These strategies should encompass not only preventive measures but also rapid response mechanisms to counteract cyber threats and technological disruptions (UN Secretary-General's Panel, 2019; Future of Life Institute, 2023).

### **5.1 International Cooperation**

In a globalized digital space, international cooperation is vital to combat cyberterrorism and transnational digital crime. Organizations such as INTERPOL and the European Union must collaborate to share intelligence and coordinate swift responses to cyberattacks. Furthermore, the development of international treaties and protocols is essential to counter global cybersecurity threats and ensure a rules-based digital order (United Nations, 2023b).

### **5.2 Investing in Cybersecurity Infrastructure**

Governments and the private sector must heavily invest in cybersecurity infrastructure to protect critical systems from cyber threats. Establishing specialized teams to prevent cyberterrorism and secure essential digital infrastructure is fundamental for maintaining global stability (European Commission, 2021).

In a digitalized future, cybersecurity and digital counterterrorism are crucial to guaranteeing that future generations can thrive in a safe digital environment. While technological advancement offers vast benefits, it also brings serious risks. Global collaboration, strong regulatory frameworks, and digital literacy are key to building a protected and sustainable digital future (World Economic Forum, 2023).

### **5.3 Anticipatory Governance**

There is an urgent need to develop governance models capable of anticipating the long-term implications of digital and AI technologies. This includes addressing future challenges related to technology, the environment, and security before they become systemic threats. Anticipatory governance requires flexible and forward-thinking institutions capable of integrating insights from science, ethics, and policy (Floridi, 2020).

### **5.4 Inclusive Global Regulation**

It is essential to examine how governments and international organizations can work together to regulate digital technologies in ways that promote digital inclusion

and safeguard the interests of future generations. The *Global Digital Compact* can serve as a necessary framework for developing global policies that balance innovation, ethics, and human rights (UNESCO, 2021).

This represents an opportunity to explore how the global community can responsibly manage the deep effects of digital and AI technologies—ensuring they serve the well-being of future generations. Focusing on interdisciplinary research and multilateral cooperation can contribute to building international frameworks that balance technological innovation with ecological sustainability and fundamental human rights.

## 6. Conclusions

### 6.1 The Importance of a Fair and Sustainable Global Digital Framework

For digital technologies to provide real and lasting benefits to future generations, a collaborative global framework is essential—one that guarantees equity, accessibility, and sustainability. The *Pact for Future Generations* and the *Global Digital Compact* call for inclusive policies and international cooperation to shape a digital ecosystem that respects human dignity, protects the environment, and fosters long-term resilience (United Nations, 2023a; United Nations, 2023b).

### 6.2 Synthesis: The Role of Digital Technologies and AI in Protecting Future Generations

Emerging technologies, particularly AI and digital platforms, offer significant potential for building a better future. However, their use must be regulated and guided by ethical principles to ensure they do not exacerbate inequality, harm the environment, or endanger fundamental rights. Legal frameworks, accountability mechanisms, and a global culture of digital responsibility are all essential to achieving this balance (Floridi, 2020; Binns, 2018).

### 6.3 Recommendations for Implementation

To support the effective implementation of the *Pact for Future Generations* and the *Global Digital Compact*, the following actions are recommended:

*For Governments:* Develop and enforce national strategies aligned with international norms on digital sustainability and human rights protection.

*For International Organizations:* Promote binding agreements on cybersecurity, AI ethics, and equitable digital access.

*For Civil Society and Academia:* Encourage public participation, transparency, and interdisciplinary research to inform responsible digital policy.

*For the Private Sector:* Ensure that innovation respects ethical and environmental standards, particularly in areas like AI deployment and data governance.

Through collective commitment and strategic foresight, we can build a digital future that is safe, inclusive, and empowering for generations to come.

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