

## Disruptive Technology: A Challenge to Global Stability

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### Introduction

In the grand theater of human progress, disruptive technology emerges as both the protagonist and antagonist, having immense power to shape the narrative of our future. It is the double-edged sword that brings unprecedented advancements while casting shadows of uncertainty over the landscape of global stability. Imagine a world where the boundaries between science fiction and reality get blurred with each passing innovation, where the very essence of what it means to be human is challenged by the persistent march of technological development. At present, disruptive technologies have become like the architects of our destiny, reshaping economies, societies, and the very foundations of governance.



Source: Marketing91

Yet, as we stand on the peak of this brave new world, we are confronted with a stark truth which is that the rapid pace of technological evolution has outpaced our ability to comprehend its

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implications fully. It is a ‘Pandora's box’<sup>2</sup> of unprecedented complexity, where each breakthrough carries with it the seeds of both promise and peril. From the corridors of power in Washington to the bustling streets of emerging economies, no corner of the world is untouched by the rapid shifts brought by these technological titans.

## **Defining Disruptive Technology**

Disruptive technology refers to innovations that fundamentally alter traditional industries, practices and societal norms, often leading to significant shifts in economic, political and social landscapes. These technologies challenge existing paradigms by introducing new ways of thinking, doing business and interacting with the world. They typically offer transformative benefits, such as increased efficiency, enhanced convenience, and improved quality of life, but they also pose challenges and uncertainties, particularly in terms of their impact on established systems and institutions. Examples of disruptive technologies include blockchain, artificial intelligence, the Internet of Things, autonomous weapon systems, cloud computing, super-powered soldiers, invincible vehicles, etc.<sup>3</sup>

## **Blockchain & Cryptocurrency**

In recent years, cryptocurrencies, powered by blockchain technology, have become a popular means of conducting financial transactions globally. These digital currencies operate independently of traditional banking systems and are not subject to the same regulatory controls. The rise of cryptocurrencies has impacted international relations, particularly the sanctioned states such as North Korea and Iran. Wide-ranging international sanctions have been imposed on North Korea and Iran with the intention of stopping their nuclear programs and limiting their access to the world financial system. Their ability to access foreign markets and engage in economic activity has been severely hampered by these sanctions. However, the emergence of cryptocurrencies has given these regimes new ways to get around these limitations.

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<sup>2</sup> N.S. Gill, “Understanding the Significance of Pandora's Box”, June 27, 2019, <https://www.thoughtco.com/what-was-pandoras-box-118577>

<sup>3</sup> “Top Disruptive Technologies to Watch Out for in 2024”, February 8, 2024, <https://www.simplilearn.com/top-disruptive-technologies-article>



*Source: Financial Times*

North Korea has reportedly used cryptocurrencies to evade international sanctions. The regime has been implicated in numerous cyber-attacks, targeting cryptocurrency exchanges and siphoning off millions of dollars worth of digital assets. These funds are believed to support their nuclear weapons program, undermining global non-proliferation efforts. Hackers from North Korea attacked a record-breaking amount of Bitcoin systems in 2023. North Korea penetrated 20 cryptocurrency systems last year, the most in that time period, according to data from 2016 to 2023, according to a blockchain analytics business.<sup>4</sup> The amount of cryptocurrency assets expropriated by these North Korean-affiliated hackers in 2023 was a little over \$1 billion, a drop from the record \$1.7 billion in 2022.<sup>5</sup> Furthermore, according to a report by blockchain intelligence company TRM Labs, hackers with ties to North Korea stole at least \$600 million in cryptocurrency in 2023.<sup>6</sup>

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<sup>4</sup> Matt Bevan, “North Korea was floundering under sanctions. Now it's making billions from stolen cryptocurrency”, November 18, 2023, <https://www.abc.net.au/news/2023-11-18/how-north-korea-makes-a-fortune-stealing-crypto/103107824>.

<sup>5</sup> Matt Bevan, “North Korea was floundering under sanctions. Now it's making billions from stolen cryptocurrency”

<sup>6</sup> “North Korean Hackers Stole \$600 Million in Crypto in 2023”, January 5, 2024, <https://www.trmlabs.com/post/north-korean-hackers-stole-600-million-in-crypto-in-2023>.



*Source: Arab News*

On the other hand, Iran has resorted to mining cryptocurrencies in order to make money in the face of severe economic restrictions. The nation mines cryptocurrency like Bitcoin using its plentiful energy resources. After that, these virtual currencies are utilized to transact internationally while getting around banking regulations. According to a Reuters report from 2021, 4.5 percent of the world's bitcoin mining was reportedly occurring in Iran, in part because of the nation's heavily subsidized, low-cost electricity.<sup>7</sup> According to some other reports, U.S. sanctions that prevent Iran from participating in the global financial system have exacerbated the rise in mining activity and cryptocurrency usage.

### **Impacts:**

- The efficacy of international sanctions is undermined by sanctioned states' utilization of blockchain technology to circumvent financial constraints, so diminishing their potential as a diplomatic instrument for upholding global security norms.
- The revenue generated from cryptocurrency mining and other blockchain-based activities can be funneled into illicit activities, including terrorism financing and illegal arms purchases, destabilizing regional and global security.

### **Artificial Intelligence (AI)**

In international relations, AI is a disruptive technology that is changing how countries engage and compete. AI gives nations a strategic edge by improving military prowess, cyber security and

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<sup>7</sup>“Iranian Police Seize Over 9,000 Cryptocurrency Mining Devices”, August 8, 2022, <https://www.iranintl.com/en/202208225681>

intelligence collection. Through decision-making tools and predictive analytics, it also affects diplomatic strategies. Geopolitical tensions and the competition for technological supremacy are heightened by the rapid advancement of AI, which also raises worries about global security, including the possibility of autonomous weapons, cyber warfare and ethical problems with surveillance and privacy.



*Source: Telecom Review Africa*

A major risk that artificial intelligence poses to international relations is the creation of a "global digital divide," in which certain countries gain from advances in AI while others lag behind. According to projections, China and North America would probably benefit economically from AI the most in 2030, while underdeveloped countries, whose adoption of AI is expected to be delayed, are predicted to witness only moderate economic development.<sup>8</sup> Furthermore, there are concerns that AI will tip the scales in favor of a new arms race for AI supremacy, especially between China and the United States. China and the US have made significant investments in AI research and development in an effort to gain technical superiority. This rivalry involves not just economic supremacy but also military might and geopolitical domination. In addition to this, AI-driven surveillance technology's usage, especially in China, is adding more to the existing tensions.

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<sup>8</sup>Mehdi Salami, "Artificial intelligence and the future of international relations", Institute for Political and International Studies, June 19, 2023, <https://www.ipis.ir/en/subjectview/722508/artificial-intelligence-and-the-future-of-international-relations#:~:text=International%20relations%20have%20always%20been,decision%20makers%20in%20this%20regard>.

## **Impacts:**

- As both nations compete to deploy cutting-edge AI-driven weapons first, the AI arms race has the potential to worsen military tensions and undermine international peace.
- The global expansion of authoritarian behaviors is facilitated by AI-driven surveillance technologies, which threatens democratic institutions and human rights. Geopolitical tension has resulted from this as the Western nations resist the adoption of these systems.

## **Autonomous Weapon Systems (AWS)**

A major development in military technology, Autonomous Weapon Systems (AWS) can recognize, track, and engage enemy soldiers without the need for human interaction. But significant ethical, legal, and strategic questions are brought up by these systems.

For example, the resurgence of the Nagorno-Karabakh conflict in 2020 between Azerbaijan and Armenia brought to light the important role that contemporary military technologies such as AWS play in warfare. Drones and other autonomous systems were used extensively throughout this battle, especially by Azerbaijan, who had made significant investments in this technology. Azerbaijan used a variety of cutting-edge drones during the six-week combat in late 2020, including Israeli Harop "loitering munitions" (also known as "kamikaze drones") and Turkish Bayraktar TB2 drones.<sup>9</sup> With the use of autonomous drones, Azerbaijan was able to carry out ongoing operations and hit Armenian targets with extreme efficiency and precision.

During the battle, autonomous drones like the Harop loitering munition were in charge of locating and demolishing important military facilities. There have been instances of these systems harming non-military infrastructure and killing civilians.

## **Impacts:**

- By lowering the risk to human soldiers and enabling extended military operations, the deployment of AWS can remove obstacles to expanding wars. This may cause conflicts to worsen and last longer, destabilizing areas and making peace attempts more difficult.

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<sup>9</sup> Shaan Shaikh, "The Air and Missile War in Nagorno-Karabakh: Lessons for the Future of Strike and Defense", Center for Strategic and International Studies, December 8, 2020, <https://www.csis.org/analysis/air-and-missile-war-nagorno-karabakh-lessons-future-strike-and-defense>

- Humanitarian situations may worsen if Amazon is used since it may result in unintentional civilian deaths and the destruction of civilian infrastructure. This may lead to diplomatic tensions, international censure, and demands for stricter laws governing the use of these technologies.

## Robotics

Robotics is a disruptive technology that is revolutionizing combat, diplomacy, and surveillance in the global stage. Robotics is reshaping traditional power dynamics and ethical considerations in international affairs, from autonomous systems affecting strategic decision-making to armed drones changing the dynamics of combat.

Unmanned aerial vehicles (UAVs) have been widely used for surveillance, reconnaissance, and targeted attacks by the Saudi-led coalition and the Houthi rebels during the Yemen Civil War, which started in 2015.<sup>10</sup> This robotics technology has been utilized to strike civilian areas, military objectives, and infrastructure, causing extensive harm and casualties among civilians. It caused a substantial number of casualties among civilians. These robotics systems frequently lack the accuracy needed to distinguish between military objectives and civilian populations, which results in strikes that are targeted randomly and the death of innocent people. It also destroyed critical infrastructure, including hospitals, schools, and residential areas, exacerbating food insecurity, displacement and access to essential services.



*Source: Shutterstock*

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<sup>10</sup> Dhia Muhsin, “Houthi use of drones delivers potent message in Yemen War”, International Institute for Strategic Studies, August 27, 2019, <https://www.iiss.org/en/online-analysis/online-analysis/2019/08/houthi-uav-strategy-in-yemen/>

## **Impacts:**

- The application of robotics technologies makes diplomatic conflict resolution more difficult. Negotiating ceasefires and peace deals is difficult since drone warfare is asymmetrical, and robotics assaults are not held accountable.
- The usage of robotics in warfare introduces new variables and uncertainties into strategic calculations, making outcomes more unpredictable.

## **The Complexities of Global Technological Governance**



*Source: CEPR*

Despite the growing recognition of the challenges associated with the advancement of disruptive technologies, governance mechanisms struggle to keep pace with the rapid pace of technological change. Traditional regulatory frameworks are often ill-equipped to address the multifaceted risks posed by some technologies, which transcend national boundaries and jurisdictional boundaries. Moreover, the decentralized nature of technological innovation, driven by a diverse array of actors, including governments, corporations, research institutions, and individual entrepreneurs, complicates efforts to coordinate effective responses. Many of these actors prioritize profit-making and innovation over broader societal considerations, leading to a lack of accountability and responsibility for the potential negative consequences of their actions.



In this complex scenario, existing legal and normative frameworks governing technology are subject to increasing scrutiny and contestation. While cyberspace, for example, is governed by a patchwork of international agreements, technical standards and national regulations, critical gaps remain in addressing emerging threats. Efforts to enhance security and resilience through confidence-building measures and capacity-building initiatives are underway, but face challenges in keeping pace with evolving technologies and threats. As such, there is an urgent need for innovative approaches to multilateral governance that engage a diverse range of stakeholders and prioritize the protection of fundamental rights, values and principles in this age.

## **Conclusion**

Disruptive technologies provide previously unheard-of opportunities as well as existential risks to international security as they redraw the boundaries of global power and influence. These technologies have a ripple effect on the global scene, from the covert use of blockchain-enabled crypto-currencies to circumvent international sanctions to the spread of autonomous weapon systems that exacerbate conflict dynamics. A call to action for creative and cooperative alternatives to global governance, however, exists despite the confusion and uncertainty. We can only successfully navigate the dangerous waters of technological progression with a shared set of values and a collective will, leading mankind toward a future where innovation is a source of progress rather than a threat to it. The world's fate is in jeopardy in this epic tale of human history, ready to be decided upon by individuals who have the courage to take on the task of determining our course in the face of disruptive technologies' unrelenting advance. Now is the moment to take action. There is nothing more at risk. It is up to us to decide.