



HUMAN RIGHTS IN THE AGE OF TECHNOLOGICAL TRANSFORMATION: A CRITICAL EXAMINATION

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Abstract

Nearly every aspect of human life has been altered by the rapidly advancing tide of technological change, which has both created previously unheard-of opportunities and presented significant obstacles to the defence, advancement, and realisation of human rights. This paper conducted a critical analysis of the changing relationship between technology and human rights, examining the ways in which new digital systems, from data analytics and artificial intelligence to social media platforms, automated decision-making tools, and surveillance technologies, interact with long-standing human rights principles. Using a doctrinal and analytical approach, the paper places current technological advancements in the context of international legal norms, human rights frameworks, and developing jurisprudence. The study revealed that technology has impacted human rights practice and activities in modern times. While technology has improved access to information, increased the number of places where people can express themselves, strengthened accountability systems, and encouraged socioeconomic inclusion, it has also raised complicated issues about algorithmic bias, digital exclusion, misinformation, mass data collection, privacy violations, and corporate and governmental overreach, which research must properly consider to chart a way forward.

Keywords: Artificial intelligence, Technology, Human rights, Privacy, Digital.

1.1 Introduction

Human rights are rights that belong to an individual or group of individuals simply for being human, or as a consequence of inherent human vulnerability, or because they are requisite to the possibility of a just society.¹ The intersection of technology and human rights is a complex issue which also presents significant opportunities in modern society. As technological

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¹ Burns H Weston, 'Human Rights', Encyclopædia Britannica (2019) <<https://www.britannica.com/topic/human-rights>> accessed 25 December 2025.

innovations rapidly increase, it transforms the political, social and economic environment in a manner that has a direct impact on the enjoyment of human rights. On the one hand, technology tools have turned out to be potent platforms of transparency, accountability and citizen engagement. On the other hand, the same tools can jeopardize fundamental liberties by spying, discriminating and providing unequal access. This duality necessitates a nuanced understanding of how technology impacts human rights, which can be explored through various dimensions and how its effects can be best regulated.

2.1 Human Rights Activism Pre-Technology

Before the invention of digital technology, the human rights activism depended greatly on the traditional and commonly labour-based means of communication and mobilization. These strategies, grassroots organizing, dissemination of print media, and demonstrations among people, formed the foundation of early human rights activism in all parts of the world. Though less speedy and geographically restricted compared to the modern day digital means, these methods were crucial in influencing the consciousness of the people, confronting systems of oppression and paved the way to the contemporary human rights movements. They demonstrate how activism in the past relied on personal connections, physical presence, and strategic application of print communication to gain support and pressure on the authorities.

Organizing and Mobilization on the grassroots

Grassroots organizing became one of the most effective tools that could be used by early human rights activists. Activists formed local organizations, committees, and associations to address certain human rights concerns that apply to their societies. The first example is the National Council of Civil Liberties (NCCL) of the 1930s, which worked with human rights issues in a politically charged environment of the period.² The activities of these organizations focused on solidarity and civic responsibility and were carried out by means of in-person meetings, outreach in communities, and joint decision-making.

Equally, the civil rights movement of the mid-20th Century has been the best example of the power of grassroots organizing. The Student Nonviolent Coordinating Committee (SNCC) and the Southern Christian Leadership Conference (SCLC), among others, used community organizing, door-to-door advocacy and local campaigns to challenge structural injustices like

² Tom Buchanan, *'Dawn: 1934–1950', Amnesty International and Human Rights Activism in Postwar Britain, 1945–1977* (Cambridge University Press 2020).

segregation, racial discrimination, and voter suppression.³ Activists established a trust by personal contact, which in many cases also led to life endangering when they needed to reach out to the marginalized groups. This method created a strong sense of community accountability and collective intervention, proving the great strength of localized and people-focused activism way before the development of digital platforms.

Use of Print Media

The print media played the key role in the communication of messages of the activists to a wider audience. Newspapers, pamphlets, posters and bulletins were used to reveal human rights violations, to criticize government activities and mobilize the people to reform. Anti-racist campaigns, such as those, used columns in newspapers, newsletters and pamphlets to record injustices, sensitize and create momentum among societies.⁴ These print materials gave elaborate descriptions of discrimination, state violence, and social imbalances when the mainstream media tended to ignore or falsely report on such events.

The significance of written advocacy is further emphasized by the formation of human rights leagues including the Ligue des droits de l'homme (LDH) in France. To promote the ideas of human rights and impact the debate within the country, these organizations released reports, open letters, and commentaries.⁵ Activists informed society, influenced political discourse and kept historical records concerning state atrocities through carefully published materials. Despite its limited speed and reach, print media was crucial in keeping the human rights advocacy alive and allowing the development of the ideologies on a long-term basis.

Public Demonstrations

Another primary pillar of pre-digital human rights activism was represented by public protests. Marches, sit-ins, rallies, and protests provided visibility to social grievances and gave the activists an opportunity to challenge the oppressive systems in a massively symbolic way. These incidents often became the focus of national and international media coverage forcing governments and other institutions to face the problems that they would rather avoid. Probably the most famous examples of such strategy are the civil rights movement, as some

³ Nyiramukama Diana Kashaka, 'The Evolution of Activism: From Civil Rights to Digital Advocacy' (2024) 5 Newport International Journal of Current Issues in Arts and Management 18.

⁴ Frank Njubi, 'New Media, Old Struggles' (2001) 15 Critical Arts 117.

⁵ Wolfgang Schmale and Christopher Treiblmayr (eds), *Human Rights Leagues in Europe (1898-2016)* (Franz Steiner Verlag 2017).

of the most famous events like the March on Washington attracted the attention of the world to the problem of racial injustice, and even made a change in the legislation.⁶

Demonstrations not only served as an avenue of publicity but also acted as a tactical tool of creating political pressure. The gathering of crowds in the street created irrefutable images of massive discontent, and in many cases, the government took action. These events were costly, highly coordinated and risked by individuals, though they were effective. Organizers were limited to reach vast masses of people quickly, organize supporters in far-flung areas and have a lasting presence. However, the legacy of these protests can still be felt today in the sphere of activism and that is the persistence of the power of mass physical presence.

On the whole, although the conventional approaches to human rights activism were not as rapid and geographically expansive as the current digital approaches, they laid the grounds of the international activism. These initial strategies developed solidarity, collective action, and public awareness, which remain the principles of the contemporary human rights movements. These historical practices are important in the understanding of the way human rights advocacy has been developed according to the technological, political, and social changes.

3.1 Trans-border Resolution of Human Rights Disputes

Human rights conflicts between countries with the use of technology present a set of issues and constraints, most of which is due to the complexity of interactions between legal, cultural, and technological backgrounds. Although digital tools and AI-based tools hold the promise of greater access to justice, their implementation in various jurisdictions creates major challenges that require a concerted international effort. These obstacles include jurisdictional uncertainties, adjudicative results enforceability, data confidentiality, and possibly increased bias and discrimination. Their defeat requires a complex approach that will be based on the integration of technological progress with strong legal, ethical, and institutional frameworks.

Jurisdiction and Enforcement

One of the main obstacles to cross-border resolution of human rights disputes is the authority to take action and the authority to penalize offenders because the legal systems of different countries differ significantly regarding procedural standards, substantive laws, and institutional ability. Although designed to eliminate geographical boundaries, Online Dispute

⁶ Kashaka (n 3)

Resolution (ODR) websites often have the difficulty of deciding which state law is to apply when the parties reside in various nations. This uncertainty does not only affect the decision-making process, but the enforceability of results as well.

Lack of a global legal framework of ODR implies that even in those cases when a decision is made, it may be hard to enforce it in a different jurisdiction. States might be unwilling to accept or implement decisions made by foreign or private digital tribunals, especially when they do not concur with the domestic law or political interests. A good example is the European Union: although there are major harmonisation efforts, they are not fully implemented by all member states as voluntary (which limits complete homogeneity in deploying e-justice mechanisms).⁷ The predictability and effectiveness of cross-border digital dispute mechanisms is compromised by such fragmentation.

Also, there are differences in culture and varying human rights standards which make interpreting disputes harder, particularly in cases where rights are given priority in different regions. As a result, the technologically advanced systems need well-established jurisdictional regulations, enforceable international agreements, or mutual recognition systems to make the decisions effective across the national boundaries.⁸

Data Privacy and Security

The digitization of the dispute resolution procedures makes deep concerns about the safety, storage, and transfer of personal information, especially when the case is related to vulnerable groups of people, migrants, refugees, or political dissidents. The technologies that are used in the context of human rights-related ODR, such as biometric identification, electronic case files, and AI-based decision-making technology, require the gathering and access to sensitive data. This makes it vulnerable to attacks, unlawful monitoring, and abuse by the state or non-state agencies.

Biometric databases and AI-based migration control systems, e.g. can put people at greater risk in case of hacking or by repressive governments.⁹ The latter risks are compounded when dealing with cross-border conflicts in which the information flows across several jurisdictions

⁷ Xandra E Kramer, 'A European Perspective on E-Justice and New Procedural Models: Transforming the Face of Cross-Border Civil Litigation and Adjudication in the EU' [2015] *SSRN Electronic Journal*.

⁸ Kumar Bal Govind Singh, 'Online Dispute Resolution in Cross-Border Disputes: A Comprehensive Analysis' [2023] *SSRN Electronic Journal*.

⁹ Laila Manan, Sajjad and Dr Muhammad Zakir, 'Digital Surveillance, Migration Control, and Human Rights: Ethical Dilemmas in the Use of Technology to Govern Human Mobility' (2025) 4 *Inverge Journal of Social Sciences* 319.

with different data protection regulations. The privacy laws of a nation can be lost when the information is transferred to another nation that does not have similar laws.

To reduce these risks, it is necessary to have strong encryption policies, standardised data governance policies, and interoperable privacy frameworks. Clear governance measures, including independent oversight, audit trails, and compulsory impact assessment procedures, can also be used to protect individual rights.¹⁰ Such safeguards however require technological capability as well as political goodwill, harmonised laws and international agreements.

Bias and Discrimination

The algorithmic decision-making process has gained more relevance in solving human rights conflicts, especially in areas like migration management, screening of refugees, and the evaluation of security of the population. However, such systems are likely to recreate or increase biases within their training data, algorithms, or environments of application. The discriminatory consequences of the use of AI tools based on patterns of race, nationality, gender, or socio-economic status.

Examples are algorithmic profiling at the border, where people of particular nationalities or ethnicities are disproportionately profiled as high-risk, and thus subjected to unwarranted scrutiny or refusal of entry.¹¹ This kind of discrimination goes against the core values of equality and due process.

Additionally, obscure black-box algorithms make the impacted people reluctant to contest unfavourable results, particularly across the borders where they might not have access to counsel or understanding of the system implementation. The lack of transparency is also a barrier to accountability, since the responsibility might not be clear, whether it is the software developer, deploying agency or state authority. To solve these issues, clear and explainable AI systems and obligatory human control should be applied, especially to the most risky spheres of work, such as border control and asylum. To make sure that the digital tools can help but

¹⁰ Noopur Agarwal and others, 'Digital Justice: The Future of Cyber Law and Human Rights' (2025) 5 Journal of Informatics Education and Research <<https://jier.org/index.php/journal/article/view/3496>> accessed 6 December 2025.

¹¹ Kristina JÄRV, 'Digital Borders and Migrant Rights: The Clash between Technology, International Law, and Humanitarian Values' [2025] International Symposium On Law, Justice, And Emerging Global Challenges 269 <https://www.researchgate.net/publication/395638679_Digital_Borders_And_Migrant_Rights_The_Clash_Between_Technology_International_Law_And_Humanitarian_Values> accessed 25 December 2025.

not harm justice, independent audits, open-source algorithms, and complete adherence to international human rights standards can assist.¹²

Although technology has considerable promise of streamlining and improving the process of settling cross-border human rights disputes, numerous risks that cannot be addressed without careful management are posed by technology. The pace of technological change is often too fast to keep pace with the legislative and regulatory reaction, leaving both protection and enforcement gaps. Such loopholes subject people, especially migrants, refugees, minorities, and marginalised people to discrimination, breach of privacy, and violation of rights.

Finally, cooperation at the international level is necessary. Unified legal frameworks, harmonised data protection systems, inclusive governance systems, and cross-border institutional arrangements can make sure that technological innovations do not contradict the essential human rights. Technology should be designed and implemented in a way that it is not only efficient, but with a sense of transparency, equity, responsibility, and the respect of all human beings.¹³

4.1 Technological Opportunities for Human Rights Enhancement

The potential of technological advancement in the strengthening of human rights protection is significant and in particular, the ability to be used in advocacy and the provision of more access to information.¹⁴ New digital instruments have been developed, including social media platforms, mobile applications and advanced data analytics, which represent the key resources in the promotion of human rights.¹⁵ These technologies allow activists to record incidents of abuse in real-time, share information with a large number of people and attract the attention of the global community to burning social justice problems.¹⁶ The fact that people can preserve and distribute evidence easily has changed the human rights environment and it is becoming more challenging to hide the offenses.

¹² *ibid.*

¹³ Agarwal and Kumari (n 10)

¹⁴ Law Librarianship Editorial, 'The Intersection of Human Rights and Technology in Today's World - Law Librarianship' (*The Insurance Universe*, 9 August 2024) <<https://lawlibrarianship.com/human-rights-and-technology/>> accessed 22 November 2025.

¹⁵ International Commission of Jurists, 'Digital Technologies and Human Rights: A Legal Framework' (International Commission of Jurists 2022) <<https://www.icj.org/wp-content/uploads/2022/05/Digital-Technologies-and-Human-Rights-Briefing-Paper-FINAL-VERSION-May-2022.pdf>> accessed 22 November 2025.

¹⁶ Molly K Land and Jay D Aronson, 'The Promise and Peril of Human Rights Technology' in Molly K Land and Jay D Aronson (eds), *New Technologies for Human Rights Law and Practice* (Cambridge University Press 2018) <<https://www.cambridge.org/core/books/new-technologies-for-human-rights-law-and-practice/promise-and-peril-of-human-rights-technology/17A00746377B91341F684D4F28D48221>> accessed 19 November 2025.

Information and Communication Technologies (ICTs) have been one of the greatest developments as they have radically changed the way people and organizations react to the violation of human rights. ICTs, such as mobile phones, social media platforms, encrypted messaging services and online reporting tools, allow the information to be shared by activists and the affected communities and distributed broadly and rapidly.¹⁷ These technologies enable people to report on abuse with the help of smartphones, post videos on the violation and get the world to pay attention within minutes. ICTs can be used to communicate in real time, documenting abuses in quick time and mobilizing the world against oppressive regimes.¹⁸ In most parts of the world, activists are using mobile phones to record misconducts and send it immediately across borders and attract international attention to a situation that would have remained unknown.¹⁹ This has enabled the information to be democratized through such tools and ordinary citizens can be enabled to engage actively in the global human rights discourse.

The presence of information and communication technologies has increased enormously the scope and influence of human rights advocacy. ICTs are very effective in revealing injustice and mobilizing against it in autocratic regimes where the traditional media is often censored or state owned. They support oppressed groups and communities, organize campaigns, virtual protests and global solidarity movements that make authorities adhere to the standards of human rights. As a result, the pace and the scope of ICTs make them irreplaceable in the modern advocacy.

Moreover, the increased availability of information via digital platforms also gives people more opportunities to exercise their rights.²⁰ Online resources can be used to educate, engage in politics and participate in civic life, eliminating traditional obstacles that once restricted access to important knowledge.²¹ This digital technology in most developing countries has increased the accessibility of basic services including electronic voting systems, e-learning sites and public health information portals and as such, this has improved the participation of

¹⁷ Gajendra Sharma, 'Implementation of Information and Communication Technology for Human Rights Awareness and Promotion' (2020) 1 High Tech and Innovation Journal 33.

¹⁸ Gajendra Sharma, 'Implementation of Information and Communication Technology for Human Rights Awareness and Promotion' (2020) 1 HighTech and Innovation Journal 33.

¹⁹ Katrin Verclas, 'Mobile Phones and Social Activism - an Ethan Zuckerman White Paper | MobileActive.org' (Mobileactive.org 9 May 2007) <<https://www.mobileactive.org/mobile-phones-and-social-activism-ethan-zuckerman-white-paper/>> accessed 22 November 2025.

²⁰ Nada Al-Nashif, 'Digital, Media and Information Literacy Are Key to Freedoms' (53rd session of the Human Rights Council 3 July 2023) <<https://www.ohchr.org/en/statements-and-speeches/2023/07/digital-media-and-information-literacy-are-key-freedoms>> accessed 22 November 2025.

²¹ Nasiriddinov Yigitali Boratalievich, 'Human Rights and Modern Technologies: Ethical Aspects' (2024) 4 International Journal of Pedagogics 112.

citizens in the development of the society.²² Therefore, technology when fairly applied and through innovative tools and access to information can go a long way in enhancing societal ability to defend the basic rights.

Improved advocacy via social media tools has also played a major role in increasing the coverage of human rights campaigns. Through social media, human rights defenders are able to spread information rapidly, organize protests and raise the voice of the discriminated groups.²³ It could be hashtags, digital petitions, or virtual campaigns; online platforms offer a platform where the solidarity of the world can be established within minutes and allow the pressure of the masses that can potentially affect the policy-making process or can cause humanitarian actions.

Also, the use of data is becoming an effective tool of surveillance and enforcement of human rights. The technologies that are able to collect, store and analyse the mass amounts of data simplify the process of discovering the trends of abuse, monitoring the activities of state and non-state actors as well as offering reliable evidence in the courtroom.²⁴ As an example, conflict zones can be monitored with satellite imagery, whereas hate speech or discriminatory trends on the Internet can be detected using AI-based analytics. These are tools that increase transparency and improve accountability mechanisms.²⁵

Technology has been integrated as an essential aid in the surveillance, prevention and reporting of human rights abuses, especially in areas where traditional surveillance systems are either inadequate or unavailable. Physical surveillance on the ground is impossible or too risky in most of the conflict-related or politically oppressive settings.²⁶ These gaps are addressed using technological innovations, such as AI, remote sensing and information and communication technologies ICTs, which offer new ways to identify abuses, gather credible evidence and create awareness among the population. In turn, these means significantly

²² Fernando HF Botelho, 'Accessibility to Digital Technology: Virtual Barriers, Real Opportunities' (2021) 33 *Assistive Technology* 27.

²³ Molly K Land and Jay D Aronson, 'The Promise and Peril of Human Rights Technology' in Molly K Land and Jay D Aronson (eds), *New Technologies for Human Rights Law and Practice* (Cambridge University Press 2018) <<https://www.cambridge.org/core/books/new-technologies-for-human-rights-law-and-practice/promise-and-peril-of-human-rights-technology/17A00746377B91341F684D4F28D48221>> accessed 19 November 2025.

²⁴ Molly K Land and Jay D Aronson, 'The Promise and Peril of Human Rights Technology' in Molly K Land and Jay D Aronson (eds), *New Technologies for Human Rights Law and Practice* (Cambridge University Press 2018) <<https://www.cambridge.org/core/books/new-technologies-for-human-rights-law-and-practice/promise-and-peril-of-human-rights-technology/17A00746377B91341F684D4F28D48221>> accessed 19 November 2025.

²⁵ Chris Lavers, 'Pace-Based Monitoring of Armed Conflict and Its Impact on Civilians' (*Ox.ac.uk*, 2020) <<https://conflictplatform.ox.ac.uk/cccp/research/space-based-monitoring-of-armed-conflict-and-its-impact-on-civilians>> accessed 22 November 2025.

²⁶ *ibid.*

increase the ability of civil society organizations, international institutions and human rights defenders to promote justice and responsibility.²⁷

Artificial intelligence has become a revolutionary element on human rights oversight. Facial recognition, natural language processing and machine learning algorithms, which are AI-powered, can be used to identify violations in distant or dangerous locations where human surveillance is impossible.²⁸ The technologies have the ability to extract patterns in vast amounts of digital data, whether in the form of videos and satellite imagery or social media posts, which enables the investigators to spot an act of violence, repression, or discrimination much faster and more precisely than through manual means.²⁹ The capability of AI to provide insights in large and complicated datasets can be not immediately obvious to a human observer. As an example, machine learning algorithms can analyse thousands of images to identify mass graves, damaged infrastructure or troop movements and can analyse online messages to identify hate speech or calls to violence.³⁰ However, such developments are problematic. The argument of algorithmic bias, potentially resulting in untrue or discriminative conclusions, is a major threat when using AI in an evidentiary context.³¹ Furthermore, there are still concerns about the legality of AI-generated evidence in a court of law and whether there is any ethical obligation on the part of the people using the technologies to gather evidence in sensitive situations.

Satellite imagery and other remote sensing technologies have transformed the reporting of human rights abuses. Satellite surveillance helps observers to identify violations of the conflict zones, closed-border states, or areas that have a strong level of surveillance and physical access is highly limited.³² Such devices are able to take pictures of ravaged villages, military concentrations, the mass displacement paths, or ecological destruction associated with the human rights abuses. The most prominent one is the application of satellite images to

²⁷ David Mansfield, 'Understanding Conflict through Satellite Imagery' (*Lawfare*, 12 June 2025) <<https://www.lawfaremedia.org/article/understanding-conflict-through-satellite-imagery>> accessed 22 November 2025.

²⁸ Isabel Fernández, 'Legal Challenges In Detecting Human Rights Violations through Artificial Intelligence' [2024] Congress Proceedings 32.

²⁹ Sam Bowman, 'The Role of Artificial Intelligence in Predicting Human Rights Violations' (OpenGlobalRights2023) <<https://www.openglobalrights.org/the-role-of-ai-in-predicting-human-rights-violations/>> accessed 19 November 2025.

³⁰ David Mansfield, 'Understanding Conflict through Satellite Imagery' (*Lawfare*, 12 June 2025) <<https://www.lawfaremedia.org/article/understanding-conflict-through-satellite-imagery>> accessed 22 November 2025.

³¹ Isabel Fernández, 'Legal Challenges In Detecting Human Rights Violations through Artificial Intelligence' [2024] Congress Proceedings 32.

³² Andrew Marx and Samuel Goward, 'Remote Sensing in Human Rights and International Humanitarian Law Monitoring: Concepts and Methods' (2013) 103 *Geographical Review* 100.

evaluate the destruction in war-torn areas by Amnesty International.³³ In a case, the satellite imagery showed that a lot of houses and civilian infrastructure were destroyed, which supported eyewitness accounts and gave objective evidence that enhanced activism and legal arguments.³⁴ Remote sensing is therefore a very important tool in refuting government denials, confirming claims and ensuring that even where it is not achievable to access the site directly, the violations are documented.

5.1 Risks Technology Poses to Human Rights

With the innovation of surveillance technology, technology is posing serious threats to human rights, especially in the aspect of privacy, security and equality in society.³⁵ The high-tech surveillance systems like facial recognition, biometric positioning and sophisticated data analytics allow monitoring the activity of individuals in a way never before seen.³⁶ The proliferation of surveillance measures, like facial-recognition, biometric identification and widespread data-collection patterns, has escalated the fear of government and corporate encroachment on the personal life.³⁷ Although such systems may be explained by the need to ensure safety, they may be abused to silence protests, spy on political opponents, or discriminate against vulnerable groups, which undermines civil liberties and freedom of expression.³⁸

³³ Scott Edwards and Christoph Koettl, 'Looking to the Sky: Monitoring Human Rights through Remote Sensing.' (2011) 32 Harvard International Review 66 <<https://www.proquest.com/scholarly-journals/looking-sky-monitoring-human-rights-through/docview/869737898/se-2>> accessed 19 November 2025.

³⁴ Scott Edwards and Christoph Koettl, 'Looking to the Sky: Monitoring Human Rights through Remote Sensing.' (2011) 32 Harvard International Review 66 <<https://www.proquest.com/scholarly-journals/looking-sky-monitoring-human-rights-through/docview/869737898/se-2>> accessed 19 November 2025.

³⁵ Ben Wagner and others, 'Introduction to the Research Handbook on Human Rights and Digital Technology' [2025] Research Handbook on Human Rights and Digital Technology 1.

³⁶ Md Fahim Ahammed and Md Wasim Ahmed, 'Human Rights and Technology: Exploring How Technological Advancements Impact Human Rights, Particularly in Surveillance and Data Collection' *International Journal of Arts and Humanities Studies* (2024) (4) 19 <https://www.researchgate.net/publication/386251330_Human_Rights_and_Technology_Exploring_How_Technological_Advancements_Impact_Human_Rights_Particularly_in_Surveillance_and_Data_Collection> accessed 19 November 2025.

³⁷ Md Fahim Ahammed and Md Wasim Ahmed, 'Human Rights and Technology: Exploring How Technological Advancements Impact Human Rights, Particularly in Surveillance and Data Collection' *International Journal of Arts and Humanities Studies* (2024) (4) 19 <https://www.researchgate.net/publication/386251330_Human_Rights_and_Technology_Exploring_How_Technological_Advancements_Impact_Human_Rights_Particularly_in_Surveillance_and_Data_Collection> accessed 19 November 2025.

³⁸ Nasiriddinov Yigitali Boratalievich, 'Human Rights and Modern Technologies: Ethical Aspects' *International Journal of Pedagogics* (2024) (4) 112.

Technology also poses a threat of strengthening the existing inequalities.³⁹ Digital tools have the potential to cause disparities in access to technological resources due to their privatization and commercialization that creates digital divides between the technological resources accessible to individuals who are able to afford high-quality technological tools and those who cannot.⁴⁰ Although various populations experience the benefits of extensive technological coverage, marginalised groups, such as rural population, low-income groups or those in conflict zones, frequently do not have the necessary infrastructure, literacy, or money to effectively use the digital tools.⁴¹ According to Land and Aronson, socio-economic inequality may be aggravated by the unequal access to technology, which restricts how much technology can be used in the interest of the people.⁴²

Another critical challenge relates to accountability due to the growing contribution of the private corporations to the creation and regulation of technological systems. With big private companies dominating the key digital infrastructures and information, accountability will become even harder to achieve and marginalized communities will become even more marginalized.⁴³ As businesses tend to be cross-border and beyond national human rights laws, it becomes challenging to achieve transparency.⁴⁴ Human rights can be severely affected by corporate decisions in terms of content moderation, the design of algorithms and data management, especially when the mechanisms to hold such entities accountable are still weak.⁴⁵ This presents ethics and legal issues of control, accountability and the ability to handle new technologies by the conventional human rights systems. Technological advancements pose challenges to human rights protection, complicating enforcement and monitoring. This highlights the dual nature of technology, which can both facilitate human

³⁹ Paweł Rydzewski, 'Digital Inequality and Sustainable Development' (2025) 20 *Problemy Ekorozwoju* 96 <https://www.researchgate.net/publication/387902089_Digital_Inequality_and_Sustainable_Development> accessed 22 November 2025.

⁴⁰ *ibid.*

⁴¹ Luc Marie Quoniam, Antônio Hilário Aguilera Urquiza and Nilza Emy Yamasaki, 'A Globalização E a Proteção Dos Direitos Humanos No Mundo Digital' *Revista Videre* (2020) (12) 372 <<https://ojs.ufgd.edu.br/index.php/videre/article/download/12729/6777/43448>> accessed 19 November 2025.

⁴² Molly K Land and Jay D Aronson, 'The Promise and Peril of Human Rights Technology' in Molly K Land and Jay D Aronson (eds), *New Technologies for Human Rights Law and Practice* (Cambridge University Press 2018) <<https://www.cambridge.org/core/books/new-technologies-for-human-rights-law-and-practice/promise-and-peril-of-human-rights-technology/17A00746377B91341F684D4F28D48221>> accessed 19 November 2025.

⁴³ ICAEW Tech Faculty, 'New Technologies, Ethics and Accountability' (2019) <<https://www.icaew.com/-/media/corporate/files/technical/technology/thought-leadership/new-technologies-ethics-and-accountability.ashx>> accessed 22 November 2025.

⁴⁴ Molly K Land and Jay D Aronson, 'The Promise and Peril of Human Rights Technology' in Molly K Land and Jay D Aronson (eds), *New Technologies for Human Rights Law and Practice* (Cambridge University Press 2018) <<https://www.cambridge.org/core/books/new-technologies-for-human-rights-law-and-practice/promise-and-peril-of-human-rights-technology/17A00746377B91341F684D4F28D48221>> accessed 19 November 2025.

⁴⁵ Thiago Dias Oliva, 'Content Moderation Technologies: Applying Human Rights Standards to Protect Freedom of Expression' (2020) 20 *Human Rights Law Review* 607.

rights promotion and create new threats, particularly in the context of globalization.⁴⁶ Some risks of human right violations which are made possible by the presence of technology are clearly delineated below.

Privacy Violations

The training and use of AI systems often demand huge datasets in order to be trained and functional, which are achieved through the constant gathering, storage and analysis of personal data.⁴⁷ This high-intensity data-collection is often done without any substantial consent or disclosure, putting people at risk of privacy invasion and covert monitoring. Jesslyn and Ritonga note that most AI models are opaque and thus, individuals cannot tell how their data is utilized, which leaves the possibility of abuse by the state and other actors.⁴⁸ In case of improper handling of sensitive personal data, the right to privacy is compromised and may support identity theft, profiling, or other types of exploitation.

Discrimination and Bias

The issue of algorithmic bias is also a significant issue in the application of AI technologies. Due to the fact that AI systems are trained on data sets that can be representative of the existing social bias, they tend to reproduce or even increase the patterns of discrimination.⁴⁹ It may cause negative consequences in high stakes situations like law enforcement, border control, employment screening and social welfare distribution. Research has indicated that the minority or marginalized groups are often unfairly targeted by automated decision-making systems.⁵⁰ These biases not only break the principles of equality and non-discrimination but also allow new outlines of digital oppression.

⁴⁶ Navjeet Sidhu Kundal, 'The Evolution and Impact of Human Rights: From Ancient Origins to Modern Challenges' *International Journal of Science and Research (IJSR)*[2023]<<https://consensus.app/papers/evolution-impact-human-rights-from-ancient-origins-modern-kundal/91a2a825f4ed5ea3a8c1d832a0baba63> > accessed 19 November 2025.

⁴⁷ Kenneth L Williams, 'The Role of Data in Artificial Intelligence: Informing, Training, and Enhancing AI Systems', *Advances in Intelligent Systems and Computing* (Springer Nature Switzerland 2025).

⁴⁸ Jesslyn Jesslyn and Raja Ritonga, 'PENGARUH ARTIFICIAL INTELLIGENCE (AI) TERHADAP HAK ASASI MANUSIA' *Jurnal Res Justitia: Jurnal Ilmu Hukum*(2025) (5)35.

⁴⁹ Laila Manan, Sajjad and Dr Muhammad Zakir, 'Digital Surveillance, Migration Control, and Human Rights: Ethical Dilemmas in the Use of Technology to Govern Human Mobility' *Inverge Journal of Social Sciences*(2025) (4)319.

⁵⁰ Ozana Olariu and John Zeleznikow, 'Human Rights-Compliant Artificial Intelligence' in Fernando Esteban de la Rosa, Pablo Cortés and Nuria Marchal Escalona (eds), *Digitalization and Artificial Intelligence in Courts: Opportunities and Challenges* (Oxford Academic 2025).

Surveillance and Autonomy

The high-tech surveillance devices such as biometric surveillance, facial recognition and predictive analytics become a great danger to individual privacy. According to Nagy, twenty-four-hour surveillance may also lead to the atmosphere of fear and self-censorship, which may deter free speech and political engagement.⁵¹ These tools are usually used to spy on dissidents, mute activists and repress civil liberties in authoritarian surroundings. In democratic environments, despite the lack of control over the spread of surveillance infrastructure, there is a danger of the normalization of intrusive surveillance practices that will slowly destroy individual autonomy and transform the behaviour of society.⁵²

6.1 Mitigation Strategies

Regulatory Frameworks

It is important to strengthen legal and regulatory systems to make sure that new technologies meet human rights requirements. Regulatory frameworks, such as the AI Act of the European Union officially known as Regulation (EU) 2024/1689, are helpful sources as models, as they offer risk-based categories of technologies, compulsory disclosures and responsibility procedures of very risky technologies.⁵³ Strong regulations can ensure that technology is not used in an arbitrary or harmful manner since there are very strict rules as to when it can and cannot be used. In the case of countries that do not have extensive frameworks, similar legislation will be useful in protecting the rights of individuals whilst at the same time promoting responsible innovation.

Ethical Guidelines

Ethics have continued to play a key role as a supplement to legislation and developers, institutions and governments have continued to be steered in a more responsible direction in

⁵¹ Noémi Nagy, “‘Humanity’s New Frontier’: Human Rights Implications of Artificial Intelligence and New Technologies” *Hungarian Journal of Legal Studies* <<https://akjournals.com/downloadpdf/journals/2052/aop/article-10.1556-2052.2023.00481/article-10.1556-2052.2023.00481.pdf>> accessed 19 November 2025.

⁵² *ibid.*

⁵³ Ozana Olariu and John Zeleznikow, ‘Human Rights-Compliant Artificial Intelligence’ in Fernando Esteban de la Rosa, Pablo Cortés and Nuria Marchal Escalona (eds), *Digitalization and Artificial Intelligence in Courts: Opportunities and Challenges* (Oxford Academic 2025).

their technology.⁵⁴ Ethical principles facilitate equity, inclusiveness, transparency and accountability during the AI development process. Jesslyn and Ritonga remark that ethical standards should be systematically introduced at all levels, through data collection and model training, deployment and evaluation, to reduce the effects of bias and increase trust.⁵⁵ These principles can be used to make sure that technology can be used to benefit the population instead of strengthening destructive power dynamics.

Community Education and Participation

An effective way of influencing rights-based technological governance requires the inclusion of the citizens.⁵⁶ Creating awareness regarding the consequences of AI and surveillance systems will inform people about the knowledge to demand more effective protection, challenge unethical behaviour and engage in policy discussions. It has been emphasised that an informed citizen will be better placed to demand transparency in any institution and hold governments and corporations to account in cases of violation.⁵⁷ Public participation and the instillation of a culture of digital rights awareness can be enhanced through educational campaigns, civil society initiatives and community discussions.

7.1 Conclusion

Technology has immense potential of promoting human rights however, there are also serious dangers that technology has created, which require careful management. To maximize its advantages and reduce these harms requires a middle ground based on ethical contemplation, all-encompassing policies that would make technology accessible to everyone and strong legal protections. Societies can embrace the transformative potential of technology by encouraging responsible innovation and providing equal access to technological resources to encourage justice, equality and the respect of human dignity in the digital era.

⁵⁴ Vinden Wylde and others, 'Ethical Challenges in the Use of Digital Technologies: AI and Big Data' in Reza Montasari, Victoria Carpenter and Anthony J Masys (eds), *Advanced sciences and technologies for security applications* (Springer, Cham 2023).

⁵⁵ Jesslyn Jesslyn and Raja Ritonga, 'PENGARUH ARTIFICIAL INTELIGENCE (AI) TERHADAP HAK ASASI MANUSIA' (2025) 5 *Jurnal Res Justitia: Jurnal Ilmu Hukum* 35.

⁵⁶ Antonia Stanojević, Jurgen Goossens and Esther Keymolen, 'Governance by Technology, Governance of Technology: The Quest for Public Values, Trust, and Regulatory Compliance' in Jurgen Goossens, Esther Keymolen and Antonia Stanojević (eds), *Public Governance and Emerging Technologies* (Springer Nature Switzerland 2025).

⁵⁷ Sudhir Kumar Dwivedi and others, 'Leveraging AI for Human Rights in Digital Security' in Moatsum Alawida, Ammar Almomani and Mohammad Alauthman (eds), *Cross-Sector Cyber Insurance for the Intelligent Society* (IGI Global Scientific Publishing 2025).

Technology presents unprecedented monitoring, documentation and response opportunities to human rights abuse, but it also has its own dangers. Dictatorial regimes can abuse surveillance to monitor activists, repress dissent or abuse online facts. These risks highlight the need for protection, a code of ethics, the empowerment of the population and sound regulatory guidelines.

Technological revolution is still transforming the human rights situation in the world, both in terms of safeguarding and empowering basic freedoms. The internet and artificial intelligence are just some technological advances that have yielded potent tools to aid in awareness, advocacy and accountability. Concurrently, these technologies present other risks, especially related to privacy, surveillance and inequality. Such a combination of advantages and dangers makes it crucial to take a subtle stance on the topic of understanding the connection between technology and human rights, so that the former could be used to the advantage of justice, whereas the potential negative impacts are adequately addressed. Even though AI and surveillance technologies have significant advantages, including increased efficiency, better security systems and new tools of public services, their misuse may lead to significant violations of human rights. The privacy, equality and personal autonomy of users are at stake when these technologies are used without stringent protection.

Human rights protection in the context of the rapid technological development requires the concerted, well-organized and practical efforts of the governments, non-governmental actors, civil society and the general population. By putting in place strong regulatory systems, ethical development practices, empowering the people and joint supervision, the societies can ensure that technological advancements advance human dignity and not their degradation. Finally, there is a need to balance the positive aspects of technological innovation with the negatives of misuse in order to make sure that technology enhances, instead of compromising, global human rights protection.

The following recommendations are made to bridge the gaps created by technological inequalities as well as mitigate risks of human rights infringements which may be occasioned by the inordinate use of technology.

1. Enhancing Regulatory and Legal Systems

One of the most important conditions of the protection of human rights in the digital age is the creation of strong and enforceable regulatory frameworks, which would control the design and implementation of technologies, such as artificial intelligence and surveillance

systems. The national governments as the duty-bearers of international human rights law should be at the forefront in this endeavour by passing binding laws that specify the acceptable applications of technology, banning dangerous practices and establishing strict accountability measures. They can also use the existing tools like the European Union AI Act⁵⁸ as a model, although they need to make changes to incorporate the local contextual realities.

In addition, where such agencies do not already exist, governments need to create independent regulatory institutions such as data protection agencies or digital rights commission to control compliance, perform systematic audits of high-risk technologies and impose penalties on offenders. The successful execution and enforcement requires the cooperation with civil society organisations, human rights groups and academic institutions that can provide the expertise evaluation, reveal the gaps in enforcement and monitor the state adherence, this is applicable to agencies that already exist such as the Nigerian Data Protection Commission. This multi-layered approach of regulation enables the law to be both enforceable and responsive to new technological risks.

2. Encouraging Morality in Technology Development

Ethical principles are imperative supplements to formal regulation and serve to make sure that developers incorporate human rights based considerations at the very outset of the design phase. Technological companies, AI creators and research facilities have to take the responsibility of incorporating fairness, transparency and accountability into their systems. This goal can be achieved by conducting an impact assessment of human rights involving human rights audits of the deployment process, independent audits of the algorithmic processes and transparent data governance processes. Ethicists, social scientists and communities that may be affected should work hand in hand with the developers to understand how some bias, discrimination, or privacy invasion may occur. An internal organisational culture that values human dignity is also created through mandatory training programmes in digital ethics among the engineers and technology personnel. These practices help avoid the situation whereby innovation will evolve without considering ethical responsibilities and where the developers of technology do not forget the overall societal effects of their activity.

⁵⁸ Officially known as Regulation (EU) 2024/1689,

3. Improving Community Education and Outreach

Educated and informed citizens are in a better position to protect their digital rights. To this end, civil society organisations, learning institutions and the state authorities must work together to advance the level of awareness of the population about the effects of AI, surveillance technologies and data systems on human rights. Education campaigns should be provided to people through the use of social media, television, community forums and school curricula, which can provide people with information on topics including data privacy, algorithmic bias and online surveillance. These efforts should be all-inclusive and open to everyone, whereby the marginalised populations such as rural people, women and low-income population should not be left behind. Also, governments ought to put in place systems of public consultation that allow effective citizen involvement in the development of digital policies. These mechanisms may include town-hall meetings, open web based feedback sites and community forums whereby people can express their issues and suggest ways to solve them. Citizen involvement is thus a reinforcement of democratic responsibility and ensures technological governance is more based on societal demands and not just institutional or company interest.

4. Accountability of the Technology Actors in the Private Sector

Due to the growing influence on digital governance by privately run companies, the companies must be held accountable for their actions which impact or interact with human rights. Any company, especially the ones that deal with data processing, AI creation and surveillance technologies, should be required to meet transparent reporting standards. These companies must be required to publish information about training data, system functionalities and safeguards that are implemented to ensure that they are not misused. The governments and the civil society groups are encouraged to support the enactment of mandatory human rights due diligence procedures that demand companies to recognize, reduce and disclose risks. Independent third-party audits can assist in assessing the degree to which private actors respect the privacy rights of citizens, minimize discrimination and authoritarian surveillance practices are not enabled or contributed to. In addition, associations in the industry should be urged to implement industry wide codes of conduct that set minimum ethical and technical standards. By these means the private sector is made the active collaborator in the safeguarding of the human right, instead of the uncontrolled danger.

5. Enhancing Human Rights Surveillance Technological Means

Artificial intelligence analytics, satellite images and ICT platforms are examples of useful tools in human rights reporting, particularly in the conflict regions or limited settings. International organisations, human rights non-governmental organisations(NGOs) and research institutions ought to invest in the refinement of the accuracy, reliability and accessibility of such tools to maximise their utility. Capacity building programmes may also educate civil society actors to use satellite imagery to document abuses or to use AI in a responsible manner when analysing big datasets. The collaboration of technology developers with human rights organizations can also help in making sure that tools are sensitive to ethical risks, including the risk of algorithmic bias or the possibility of using collected information improperly. Moreover, donor agencies and international organisations, such as the United Nations, are to provide financial and technical assistance to local organisations in the high-risk areas to be able to use technological tools in a safe and efficient manner. Technology can be deployed as an asset instead of a liability to achieve accountability through co-ordinated efforts.

6. Reducing Inequality and Crossing the Digital Divide

Technological inequality is still a serious challenge to human rights protection. Governments, NGOs and international development partners should act in order to overcome this challenge by working together to increase digital infrastructure and provide equal access to technology. Some of the practical solutions include expanding broadband in rural communities, subsidising digital devices to the poor communities and providing digital literacy programmes that can help communities to understand and manoeuvre the new technologies. The policies must focus on underserved populations including women, refugees and young people in rural areas so that they are not left behind in the benefits of digital transformation. The role of private companies cannot be ignored either as they can provide lowcost digital services or collaborate with governments to develop inclusive programs. By bridging the digital divide societies can ensure that everyone and not only those who are privileged, can use technology to defend, exercise and advocate for their rights.