

Technology Ethics, Need, Principles, Issues, AI, Measures, Significance

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Technology ethics refers to the basic ideas of **right and wrong** in how we **create, use, and manage technology** in our daily lives. As technology becomes a part of everything from **communication, education, business, and healthcare**, it is important to think about how it affects **people and society**. Technology ethics helps us understand questions like whether something is **fair, safe, and respectful of privacy**. It encourages **individuals, companies, and governments** to use technology in a **responsible way** so that it **benefits everyone** without causing harm.

About Technology Ethics

- **Technology ethics** refers to applying ideas of **right and wrong** to the way we **develop, use, and control technology** in society. It is about making responsible choices so that technology benefits people without causing harm.
- As technology becomes more powerful, it gives humans the ability to do things that were not possible earlier. Because of this, we are no longer limited by our physical abilities. Instead, we must now **limit ourselves through ethical thinking and judgment**.

Also Read : **Media Ethics**

Growing Importance of Technology Ethics

- In earlier times, many ethical questions did not arise because technology was not advanced enough to create such situations.
- Today, new technologies in areas like **medicine, communication and defence** have created **completely new moral challenges** that society must deal with.
- For example:
 - In **medical science**, machines can now keep a person alive artificially, raising difficult questions like *when does life actually end?*
 - In **social media**, people have access to large audiences and information, which has led to issues like **fake news, misinformation and misuse of data**
 - In **military technology**, the invention of nuclear weapons has made it possible to destroy entire civilizations, something that was unimaginable earlier
- These examples show that technological growth brings both **opportunities and serious ethical risks**.

Also Read : **Business Ethics**

Need for Ethical Control Over Technology

- **Human Responsibility:** Since technology is created by humans, we have the **responsibility to decide what to develop and how to use it**, ensuring it serves society in a positive way.
- **Right Choices in Development:** Ethical control helps in choosing **useful and beneficial technologies**, instead of those that may cause harm or serve only limited interests.
- **Guided Use of Technology:** Technology should be used in a **responsible and controlled manner**, avoiding misuse like privacy invasion, misinformation or harmful activities.
- **Need for Regulations:** Proper **laws and rules** are necessary to control technology, prevent misuse and ensure accountability of individuals and companies.
- **Role of Ethical Values:** Values like **fairness, dignity and responsibility** guide technology in the right direction and prevent unethical practices.
- **Global Cooperation:** Since technology crosses borders, **international agreements** are important to manage global risks like cybercrime and data misuse.
- **Prevention of Inequality:** Without control, technology can **increase inequality and harm weaker sections**, so regulation is essential.
- **Avoiding Major Risks:** Uncontrolled technology can lead to **serious dangers and large-scale harm**, making ethical control very important.

Also Read : **Professional Ethics**

Key Ethical Principles in Technology

- **Beneficence and Non-maleficence:** Technology should be created and used in a way that **improves human life and promotes well-being**, such as solving problems in healthcare, education and daily living, while at the same time ensuring that it **does not cause harm or negative consequences**, including unintended effects like job loss, misuse or social damage.
- **Transparency and Honesty:** There must be **clarity and openness** about how technology works, what kind of data is being collected and for what purpose it is used, so that users are not misled and can **make informed decisions**, which also helps in building trust between technology creators and users.
- **Fairness and Justice:** Technology should ensure **equal treatment and opportunities for all people**, avoiding any form of bias or discrimination in systems like algorithms and AI, so that no group is unfairly treated and the technology supports **social equality and protection of human rights**.
- **Privacy and Autonomy:** Individuals should have control over their **personal data and choices**, meaning technology must protect sensitive information, prevent unauthorized access or surveillance and allow people to **make decisions freely without manipulation or pressure from digital systems**.
- **Accountability and Responsibility:** Developers, companies, and governments must take **responsibility for the outcomes of the technologies they create and use**, ensuring that if something goes wrong, there are clear systems for **answerability, correction, and justice**.
- **Security and Safety:** Technology should be designed to **protect users from risks such as cyberattacks, data breaches, and system failures**, ensuring a safe environment where people can rely on digital systems without fear of harm.
- **Human Control and Oversight:** Even with advanced automation and AI, **humans should remain in control of important decisions**, especially in sensitive areas like healthcare, law, and defense, to ensure ethical judgment is always applied.
- **Sustainability and Social Good:** Technology should be developed in a way that **supports long-term environmental sustainability and overall societal welfare**, rather than focusing only on short-term profits or benefits for a limited group.

Key Technological Ethical Issues

- **Privacy and Data Misuse:** One of the biggest issues today is the **collection and misuse of personal data**, where companies or platforms gather large amounts of user information, sometimes without proper consent, leading to risks like surveillance, identity theft, and loss of individual privacy.
- **Bias and Discrimination in Technology:** Many technologies, especially AI and algorithms, can show **bias based on data they are trained on**, which may lead to unfair treatment of certain groups in areas like hiring, lending, or law enforcement.
- **Misinformation and Fake News:** With the rise of social media and digital platforms, technology has made it easy to **spread false information quickly**, which can mislead people, influence opinions, and even harm democracy and social harmony.
- **Cybersecurity Threats:** Increasing dependence on technology has also increased risks of **cyberattacks, hacking, and data breaches**, which can harm individuals, businesses, and even national security.
- **Automation and Job Loss:** The use of advanced machines and AI can lead to **replacement of human jobs**, creating unemployment and economic inequality if not managed properly.

- **Digital Divide:** Not everyone has equal access to technology, leading to a **gap between those who benefit from technology and those who do not**, which can increase social and economic inequalities.
- **Misuse of Advanced Technologies:** Powerful technologies like AI, biotechnology, and weapons can be **used for harmful purposes**, such as surveillance, manipulation, or large-scale destruction, if not properly controlled.
- **Lack of Accountability:** When technology causes harm, it is often unclear **who is responsible** – the developer, company, or user, making it difficult to ensure justice and proper action.
- **Addiction and Overdependence:** Excessive use of technology, especially social media and digital devices, can lead to **addiction, reduced productivity, and negative effects on mental health**.
- **Environmental Impact:** The production and use of technology can cause **environmental harm**, such as e-waste, energy consumption, and pollution, raising concerns about sustainability.

Ethical Issues in Artificial Intelligence (AI)

- **Artificial Intelligence (AI)** is developed to improve understanding and decision-making, which makes it closely connected to ethics.
- However, an important point to remember is:
 - **Efficiency does not mean morality**
 - Just because something works faster or better does not mean it is ethically right
- For example:
 - Technology can create **highly efficient weapons**, but that does not make them morally acceptable
 - Even creating such weapons can harm society because resources could have been used for better purposes like education or healthcare

Human Enhancement and Ethical Risks

- Modern technologies like **genetic engineering and biomedical devices** have made it possible to:
 - Modify human genes
 - Improve or alter human physical and mental abilities
- Currently, these technologies are mainly used for **treatment**, but in the future, they may be used for **enhancement**, which raises serious ethical concerns.
- There is even a possibility that humans could **change their own nature**, which creates deep moral questions about identity, equality, and fairness.

Measures to Ensure Ethics in Technology

- **Strong laws and regulations:** Governments should create clear and updated **rules for the development and use of technology**, especially in areas like AI, data protection, and biotechnology, so that misuse can be prevented and companies remain accountable.
- **Ethical guidelines and standards:** Organizations should follow **proper ethical frameworks and codes of conduct** while designing technology, ensuring that values like fairness, privacy, and safety are considered from the beginning itself.

- **Transparency in systems:** Companies must make their technologies more **open and understandable**, especially algorithms and AI systems, so that users know how decisions are being made and can trust the system.
- **Data protection and privacy safeguards:** Strong systems should be in place to **protect personal data**, including secure storage, limited data collection, and strict rules against misuse or unauthorized access.
- **Regular audits and monitoring:** Technology systems should be **continuously checked and evaluated** to identify biases, errors, or risks, and improvements should be made whenever problems are found.
- **Public awareness and digital literacy:** People should be educated about **how technology works and their rights as users**, so they can make informed choices and avoid being misled or exploited.
- **Inclusive and fair design:** Developers should ensure that technology is **designed for all sections of society**, taking into account different social, economic, and cultural backgrounds to avoid discrimination.
- **Human oversight and control:** Even in automated systems, there should always be **human supervision**, especially in critical areas, so that ethical judgment can be applied when needed.
- **Corporate responsibility:** Companies should go beyond profit and focus on **social responsibility**, ensuring that their technologies contribute positively to society.
- **International cooperation:** Since technology crosses borders, countries should work together to create **global standards and agreements** to handle issues like cybercrime, AI risks, and data security.

Significance of Ethical Values in Technology

- **Respect for Human Dignity:** As technology becomes more powerful, it is important to ensure that it always **respects the value and dignity of every human being**, meaning people should never be treated merely as data, numbers, or tools, but as individuals with rights, emotions, and freedom.
- **Fairness and Equality:** Ethical values help ensure that technology is used in a way that **treats everyone equally**, without discrimination or bias, so that no group is unfairly advantaged or disadvantaged, especially in areas like hiring, education, or access to digital services.
- **Promotion of the Common Good:** Technology should not be developed only for profit or personal gain, but should aim to **benefit society as a whole**, improving overall well-being, solving social problems, and contributing to a better future for all.
- **Prevention of Harmful Use:** Without ethical thinking, technology can easily be **misused in harmful ways**, such as spreading misinformation, invading privacy, or creating dangerous weapons, which can negatively impact individuals as well as society.
- **Risk of Destructive Outcomes:** Unethical use of technology can lead to **serious and sometimes irreversible consequences**, including social division, economic inequality, or environmental damage, making it essential to guide technology with strong moral values.
- **Threat to Human Survival:** In extreme cases, misuse of powerful technologies like **nuclear weapons or advanced AI** can pose a **serious threat to human existence**, which is why ethical responsibility becomes even more important as technological power increases.
- **Need for Responsible Decision-Making:** Ethical values guide individuals, companies, and governments to make **careful and responsible choices**, ensuring that technological progress leads to positive outcomes rather than harm.

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