

# Addressing the Challenge of the Digital Divide in the AI Era through the Idea of *Antyodaya*

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## Abstract

The fast spread of digital technologies and artificial intelligence (AI) has transformed societies across the world. From education and healthcare to banking and governance, digital systems now shape how people access opportunities and resources. However, this empowerment has not benefited everyone equally. Large sections of society continue to face exclusion due to lack of access, limited digital skills, and inability to use technology meaningfully. This problem, commonly described as the digital divide, has become one of the most pressing challenges in the present time.

In the Indian context, the philosophy of *Antyodaya*, proposed by Deendayal Upadhyaya, offers a powerful framework to understand and address this issue. *Antyodaya* emphasizes that true progress lies in the upliftment of the last person—the poorest, weakest, and most marginalized individual in society. This paper argues that digital and AI-driven development must be guided by this principle if it is to be genuinely inclusive and beneficial for the society.

The paper examines the nature of the digital divide, its multiple dimensions, and its deep connection with existing social inequalities in Bharat. It also explores how technology, which has historically acted as equalizer, has a challenge to address the issue of exclusion as a result of the digital divide. Finally, the paper proposes policy-oriented solutions inspired by the spirit of *Antyodaya* to ensure that digital transformation becomes a tool of empowerment rather than a mechanism of further marginalization.

**Keywords:** Digital Divide, *Antyodaya*, Artificial Intelligence, Social Inclusion, Digital Literacy, India

## 1. Introduction

The world today is experiencing a technological empowerment unlike ever before. Digital tools, internet-based platforms, and artificial intelligence (AI) systems are now deeply embedded in everyday life. People use smartphones for communication, online platforms for education, digital wallets for payments, and automated systems for decision-making. Governments are increasingly relying on digital platforms for welfare delivery, identity verification, and public service provision. These

developments promise efficiency, transparency, and wider reach as compared to earlier traditional approaches.

However, alongside these promises lies a troubling reality. A large section of the global population, especially in developing countries like Bharat, remains either disconnected from the digital world or is only weakly connected. This gap between those who can access, understand, and use digital technologies and those who cannot is known as the digital divide in any society.

The digital divide that began with merely being a technological issue has now swelled to become a serious social and moral one also. It reflects inequalities that are often based on income, education, gender, geography, language, and physical ability but are now increasingly difficult to overcome. If left unaddressed, the digital transformation can create hierarchies in which the section at the bottom will never be able to move up the ladder. The primary issue with the policymakers today is to design a method to identify the section at the bottom of the society and then help them in getting empowered.

In this context, the Indian philosophical concept of *Antyodaya* becomes highly relevant. Coined by Deendayal Upadhyaya, *Antyodaya* means the upliftment of the last person. It suggests that the true measure of national progress lies not in economic growth alone but in how the most disadvantaged members of society live. Applying this idea to the digital era requires us to ask: Are digital and AI-driven systems designed to serve the weakest first? Or do they mainly benefit the already privileged? The idea of *Antyodaya* promises to address the issue of upliftment of the weakest section of the society instead of trying to reduce the difference between the benefits available to the highest and lowest section of the society.

This paper explores the digital divide through the lens of *Antyodaya*. It argues that inclusive digital development is not just a technical challenge but a moral responsibility. This strategy aims to prioritise the issue of digitally empowerment of the most discriminated section instead of focusing on merely reducing the difference between the benefits and privileges of the most influential section of the society and the most discriminated one. According to the *Antyodaya* model of development, only when digital transformation reaches the last person can it be considered true progress.

## 2. The Idea of Antyodaya and Inclusive Development

*Antyodaya* is a central idea in Deendayal Upadhyaya's philosophy of Integral Humanism, presented in 1962. According to this philosophy, development should be holistic, addressing not only material needs but also social, cultural, and spiritual dimensions of human life. Upadhyaya rejected the notion that economic growth alone defines progress. Instead, he emphasized that the purpose of development is

to improve the quality of life of every individual – and especially the most vulnerable.

*Antyodaya* literally means “the rise of the last person.” It urges policymakers to design policies by imagining the needs of the poorest, weakest, and most marginalized individual. If a policy works for them, it will naturally work for everyone else. This approach is fundamentally ethical, as it places human dignity at the centre of governance.

Interestingly, similar ideas exist in Western political philosophy. John Rawls, in his theory of justice, proposed the “Difference Principle,” which states that social and economic inequalities are justified only if they benefit the least advantaged members of society. Both *Antyodaya* and Rawls’s principle challenge the general idea that growth at the top automatically percolates the benefits downwards and that helps in improving conditions at the bottom.

In the digital age, these ideas acquire new relevance. Technologies like AI, big data, and automation can create enormous wealth and convenience. But they can also exclude those who lack access, skills, or confidence. If digital development ignores *Antyodaya*, it risks creating an inequality that the society will find very difficult to remove.

### 3. Technology as an Equalizer: A Historical Perspective

Historically, technology has often played the role of an equalizer. In societies prior to the digital era, power was concentrated among landowners and rulers. Before this, physical strength largely determined the power structure within society. Those who possessed greater physical strength were able to secure larger benefits. The Industrial Revolution altered this dynamic by introducing machines that reduced dependence on physical strength and manual labour. This transformation was initiated by scientific innovations that employed large factories and heavy machinery to enable efficient production while easing the lives of labourers. This era also witnessed the development of numerous scientific instruments that significantly improved individual lives by providing greater comfort and convenience. Access to electricity, fans, water pumps, cars, bicycles, and many other electrical innovations accelerated this transformation.

Within society, apart from differences in physical strength, another significant divide has been cognitive rather than physical. Human beings naturally differ in their abilities. Some people find mathematics intuitive, while others struggle with numbers and abstract reasoning. This difference has shaped educational outcomes, career paths, and self-esteem. Fortunately, digital innovations have emerged as a means to address this disparity.

Before the advent of digital tools, individuals with weak mathematical skills were often excluded from tasks involving accounting, navigation, or technical analysis.

However, calculators, spreadsheets, GPS systems, and software tools have made many of these tasks accessible to a wider population. Technology has thus reduced dependence on innate cognitive strengths.

Similarly, assistive technologies have empowered people with disabilities by providing voice-based systems, text-to-speech tools, and automated interfaces. These innovations have helped many overcome physical limitations.

In these ways, technology has historically reduced several forms of inequality. Today, society is rapidly moving toward becoming a knowledge-based society, where knowledge and wisdom are likely to determine future inequalities. The ability to use digital tools has itself become a form of privilege, one that threatens to divide humanity into two non-overlapping categories with rigid boundaries.

#### 4. Understanding the Digital Divide

The digital divide is often misunderstood as simply the gap between those who have internet access and those who do not. However, scholars now agree that this definition is too narrow. The digital divide has multiple layers.

First, there is the **access divide**. This refers to unequal availability of devices, internet connections, electricity, and infrastructure. Many rural and remote regions still lack reliable connectivity.

Second, there is the **skills divide**. Having a smartphone does not automatically mean that a person can use it effectively. Digital literacy involves understanding interfaces, navigating platforms, protecting privacy, and solving problems.

Third, there is the **usage divide**. Even among those who have access and basic skills, there are differences in how meaningfully technology is used. Some people use digital tools for education, employment, and civic participation, while others use them mainly for entertainment.

In India, these three divides exist simultaneously and reinforce one another.

#### 5. Infrastructure Barriers in India

India has made impressive progress in digital infrastructure. Affordable mobile data, large-scale connectivity programs, and digital identity systems have expanded access. However, these achievements hide deep inequalities.

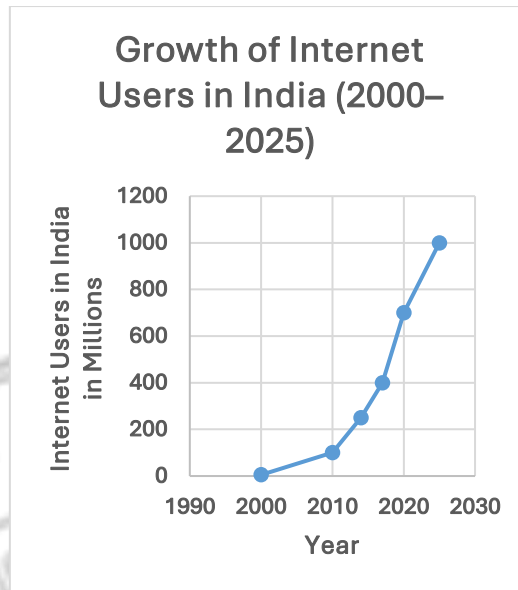
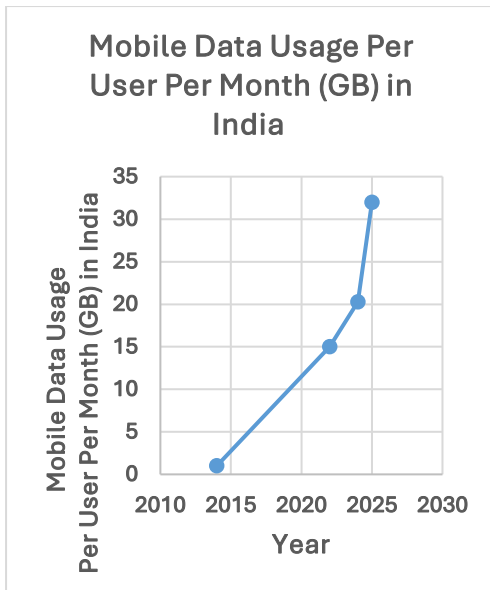


Fig 1a

Fig 1b

(Fig 1a: Mobile Data Usage per user per month in GB in India, Fig 1b: Growth of Internet users in India from 2000 to 2025)

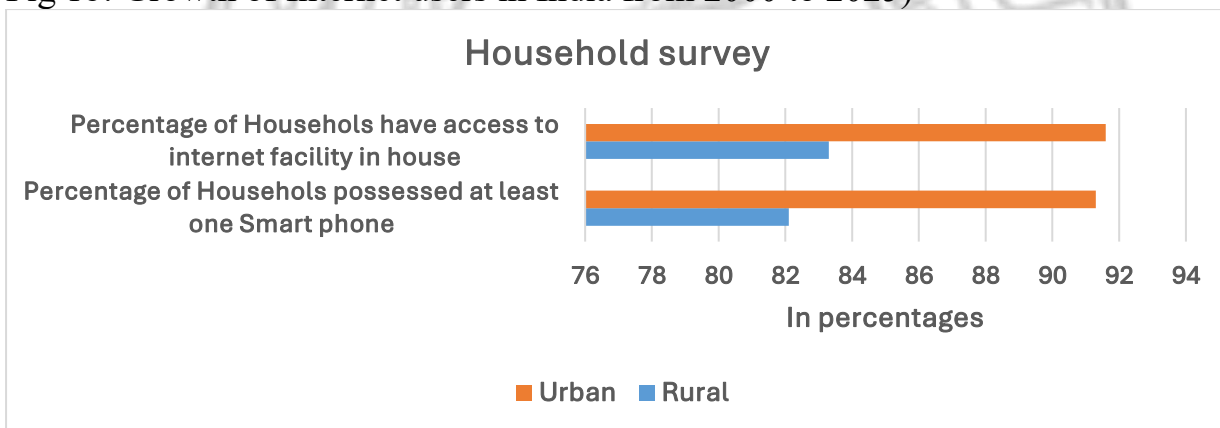


Fig 2: Household survey report

While Fig 1a and Fig 1b display an explosive growth in mobile users and internet users in India, Fig 2, Fig 3a, Fig 3b and Fig 4 expose the rural urban divide. Urban areas enjoy faster internet, stable electricity, and multiple service providers. Rural areas often struggle with weak signals, power cuts, and lack of repair facilities. Many families cannot afford personal devices for every member.

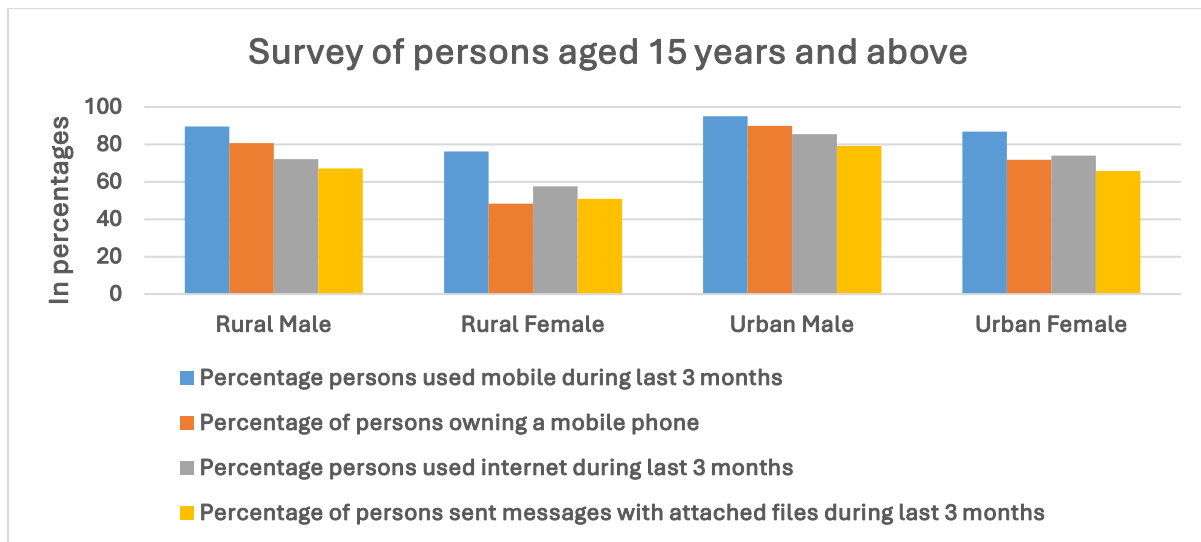


Fig 3a: Survey of persons aged 15 years and above

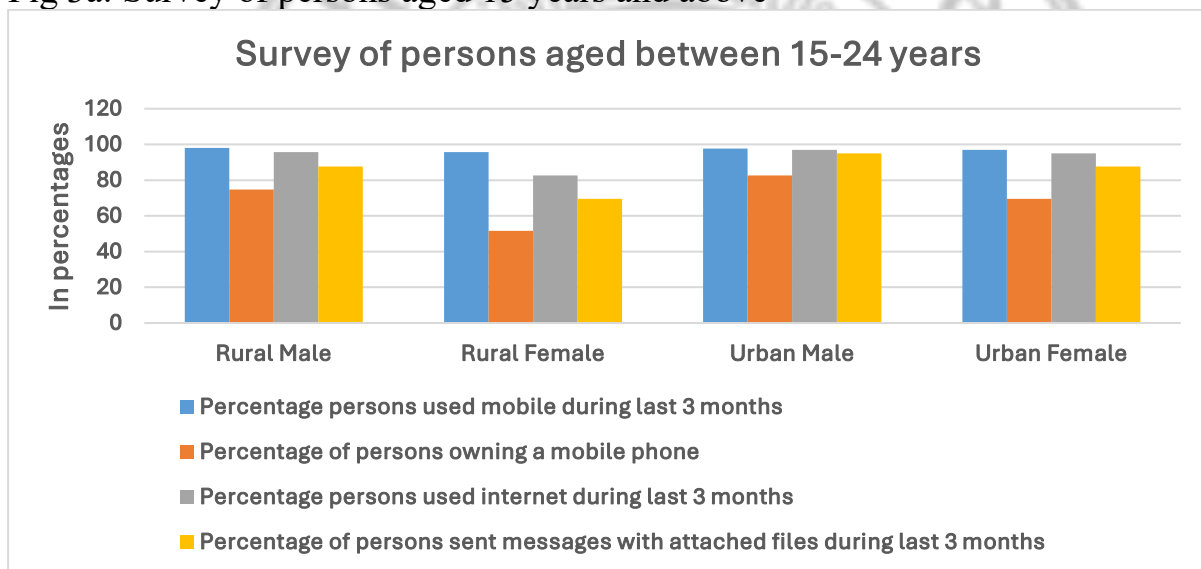


Fig 3b: Survey of persons aged between 15 to 24 years

omen face additional barriers. In many households, men control device ownership. Language is another issue. A large share of digital content is still in English, which excludes non-English speakers.

Without proper infrastructure, people cannot benefit from online education, telemedicine, or e-governance. Infrastructure is the foundation of digital inclusion.

## 6. The Digital Skills and Comfort Divide

Access alone does not ensure inclusion. Many people feel uncomfortable using digital tools. This discomfort is psychological, cultural, and emotional. Older adults often find digital interfaces confusing. Fear of making mistakes or being cheated discourages them from trying. Those who were not exposed to technology in their formative years face steeper learning curves. Language barriers make interfaces

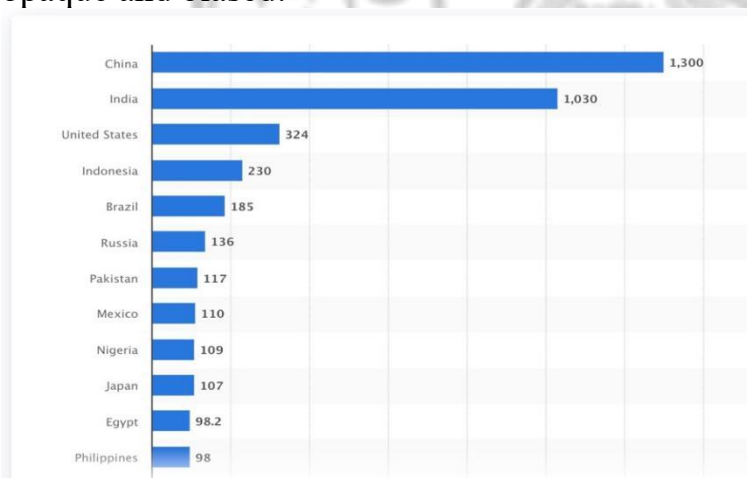
harder to understand. Concerns about privacy and fraud further reduce trust. This discomfort is similar to how people with low confidence in mathematics avoid numerical tasks. It is not only a lack of knowledge but a lack of confidence.

### 7. Social and Economic Consequences of the Digital Divide

The digital divide affects almost every sphere of life. In education, students without devices or internet fall behind. During the COVID-19 pandemic, this gap became painfully visible. In employment, digital skills are now basic requirements. Recruitment, training, and networking happen online. Those without these skills face exclusion. Women face greater barriers due to social norms, safety concerns, and limited access. In finance, digital payments have become common. Those who cannot use them depend on others, increasing the risk of exploitation. In governance, online portals require digital literacy. Without it, citizens lose autonomy.

### 8. AI and the Next Stage of Inequality

AI has the potential to reduce skill-based barriers. Voice assistants, translation tools, and automated services can help people perform complex tasks. However, AI can also create new divides. Those who understand how AI works will have more control, while others may become passive users. Algorithmic decisions can be opaque and biased.



(Fig 4: Number of users in Millions in several countries, graph is taken from Statista.com)

Fig 4 display the number of mobile (smartphone) users in millions in different countries and highlights that much is still required to be done to ensure access of internets to all citizens without exclusion. Any lapse in this will create a section who will remain discriminated. Without ethical design and honest intentions, AI can deepen inequality.

Infrastructure must be expanded. Digital literacy must be treated as a basic skill. Platforms should be multilingual and accessible. Women should receive targeted support. Trust and safety education is essential.

## 9. Conclusion

The digital divide is not just about technology; it is about justice. *Antyodaya* reminds us that progress must be judged by how it treats the weakest. Digital transformation must serve the last person first; only then can it become a true tool of empowerment rather than exclusion. To achieve this, policies must focus on providing universal access to the internet without fail. Policymakers may need to introduce subsidies to make smartphones accessible even to the weakest sections of society. Unless the principles of *Antyodaya* are honestly adopted as a national policy, the aims and objectives of establishing a truly just and equitable society will remain unrealized.

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