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ORIGINAL PAPER

The Digital India Initiative: A Realisation of Babasaheb's and Mahatma's Vision

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Abstract

The fourth industrial revolution, commonly referred to as the digital revolution, is now the happening in the world economy. India is taking giant strides in leading the world in this domain. The "Digital India" initiative was launched by the government of India in 2015 to uplift the usage of digital technology in India. The initiative aims to connect India with high-speed broadband internet and promulgate the country's online infrastructure so that citizens could conveniently and seamlessly access all government services online. In the last eight years, this Digital India movement connected many inter-disciplinary fields that resulted in a rapid increase in digital services encompassing all areas of life including financial transactions, health, education, governance and taxation cutting across all sections of people in the country. The major outcome of this initiative that has gone unnoticed, however, is the eradication of the social and economic discrimination that has been prevalent in the country since ages. The Father of the Indian Constitution, Babasaheb Dr. B.R. Ambedkar, worked tirelessly to eradicate social evils like caste system and gender inequality that majorly contributed to the discrimination. The Father of the Nation, Mahatma Mohandas Karamchand Gandhi too worked relentless to realise a nation where people were born equal and lived equal. However both Babasaheb's and Mahatma's vision had been a distant reality until the Digital Indian initiative. This paper collates the digital initiatives of the Government of India in the last decade with Babasaheb's and Mahatma's ideologies and outlines how the initiative is realising their vision of India as a land of equality, liberty and equal opportunity. This paper is the first to propose this collation and brings to light how engineering marvels like digitalisation can propel India from being a socio-economic disparity towards becoming a land of equal opportunities. Moreover the challenges posed by digitalisation and how they could be overcome by Babasaheb's and Mahatma's approach towards public policy and public engagement is presented in this paper.

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1 Introduction

The founding principle of democracy is equality of life and opportunity. This ideology was deeply embedded in the Greek democracy, the first form of ancient democracy, and was proposed and advocated by the world's greatest thinkers and philosophers, but initially by the Greek philosopher Pythagoras (Fleck & Andrew Hanssen, 2006). The Indian constitution is founded on the firm principles of democracy (Sen & Scanlon, 2004). The Father of the Indian constitution, Babasaheb Dr B.R. Ambedkar (henceforth referred as Babasaheb or Ambedkar), emphasised that equality is the essential element for democracy to thrive successfully (Moon, 1979). There should not be an oppressed or a suppressed class. He envisioned an ideal society based on liberty, equality and fraternity. The Father of the Indian Nation, Mahatma Mohandas Karamchand Gandhi (henceforth referred as Mahatma or Mahatma Gandhi), advocated and worked for equality or gender, caste and creed (Chakrabarty, 2006). Having said that, the history of India since independence has been characterised by numerous socio-economic and governmental reforms that have in many ways aimed to reduce the social evil of discrimination. These reforms, however drastic they may have been, have not been able to eradicate the deep rooted evils of economic and social divide that permeates every nook and corner of the country (Waughray, 2010). Thus it goes to say that the India that Babasaheb and Mahatma envisioned had not been realised.

The paradigm shift from manual to digital technology is the one that is permeating the world today out of all the societal upheavals that have in many ways altered the face of humanity. The Government of India initiated the Digital India campaign in 2015 to create a digitally empowered nation where services and governance can reach every nook and corner of the country even to the last citizen with no respect to social or economic discrimination (Agrawal et al., 2022; Singh & Maurya, 2017). The promulgation of smartphones and internet usage for daily services and a vociferous government led digital movement has seen a surge in the number of citizens who reap the benefits of digitalisation (*India's Trillion Dollor digital economy*, 2018; Manikanta, 2017). As in 2023, there are around 692 million internet users in India and the internet internet penetration stood at 48.7%. There are more than 1.1 billion active mobile connections which is 77% of the total population (Kemp, 2023). It is estimated that the number of smartphone users in Indian will reach 1.5 billion by 2040, as projected in Fig. 1 (Sun, 2022). Along with the government, the private players like VIVO, Tata, Airtel, Jio and others are investing millions into the digitalisation initiative.

Nearly all functions that were formerly performed manually by humans are now carried out by digital technology, eliminating the digital gap between the populace and government. The biggest impact of zeroing the digital divide, that this paper brings to light, is the zeroing of the social and economic divide.

Fig. 1 The digitalisation in India is seeing unprecedented promulgation even to the most remote places, with a projected 140% growth in smartphone usage by 2026. *Courtesy* trak.in

> Digitalisation has nearly eradicated discrimination. The rich and the poor, the outcasts and the upper castes all have now nearly equal access to all services.

The architect of Digital India, Prime Minister Modi, while addressing the Digital India Week 2022 at Mahatma Mandir in Gandhinagar, proclaimed that India has set an example of how revolutionary the use of technology is for the entire humanity in the form of Digital India campaign (*Digital India empowered people by making technology more accessible, says PM Modi; launches 'Digital India Bhashini' to provide easy access to internet & digital services in Indian languages*, 2022). It is needless to say that this has not only created a provision for India's economic advancement and quality of life but also eradicated the social evil of discrimination and corruption coming in the way of equality, liberty and freedom and access for all provisions of the government to all sections of people. This provision is inline with realising the vision of Ambedkar and Gandhi (Palshikar, 1996). What both the giants could not achieve in their lifetime through people movement and policy reform and what their successors could not achieve in the more than seven decades of India's independence, is now being accomplished by the present government of India through the digital revolution in less than a decade.

This paper collates the ideology of Ambedkar and Gandhi to the provisions of human advancement via digitalisation in India and describes how the consequent advancement realises their ideology. This paper is the first to propose such a collation to bring to light how the technological marvel of digitisation (making all information accessible over the internet) and digitalisation (making all services accessible over the internet) can realise Ambedkar-Gandhi's India with equality and liberty. For long people have thought that the ideologies of Ambedkar and Gandhi can be achieved by social means such as policy making, legal formulation and education, but this paper manifests the tremendous power of engineering and technology to realise the same.

The rest of the article is organised as follows: Sect. 2 describes Babasaheb's and Mahatma's vision for India. The next two Sects. 3 and 4 present Digital India initiative of the Government of India and its impact in the eight years of its existence. Section 5 and collates the impact to the vision of Babasaheb and Mahatma. The adverse impact of the promulgation of digital media is discussed and the key findings and propositions of this paper are summarised in Sect. 6. The concluding remarks are presented in Sect. 7.

2 Vision of Babasaheb and Mahatma

This section presents, in brief, the key vision and efforts of Babasaheb and Mahatma in realising India as a land of equal opportunities.

2.1 Babasaheb Dr. B.R. Ambedkar

Babasaheb Dr. B.R. Ambedkar, see Fig. 2, was born on 14th April, 1891 at Mhow, near Indore to Ramji Maloji Sakpal and Bhimabai. His life was marked by struggles of caste based discrimination (Keer, 1995; Ram, 2009). Since his parents were Dalits[1], he was not given equal opportunity in his social (food, education, housing, respect, etc.) or economic (working opportunity, salary, etc.) life. During his growing years, he encountered many challenges and social discrimination. Teachers and peers treated him with inferiority. Nevertheless he overcame all discrimination with his talent and firm determination and achieved laurels people from upper caste never achieved. He undid all his hurdles into opportunities and became a prolific student, a reputed scholar, economist, lawyer, professor, politician, social activist, author, and a barrister. Though he hailed from a economically and socially backward caste, he rose to unparalleled height and framed the constitution of India. He is termed as the father of the Constitution of India. He lent his voice to the suppressed and backward community. He made a determined and relentless fight against the social evil practices like the caste system, and promoted education to all and upliftment to the untouchables.

2.2 Mahatma Mohandas Karamchand Gandhi

Mr. M.K. Gandhi (Nair, 1994), see Fig. 3, was born on 2nd October 1869 as the youngest child of Karamchand Gandhi and Putlibai. His father was the dewan (chief minister) of Porbandar, the capital of a small principality in the now Gujarat state. Gandhi trained in the law at the Inner Temple, London, and registered in the bar at age 22 in June 1891. He then moved to South Africa in 1893 to represent an Indian merchant in a lawsuit. He went on to live in South Africa for 21 years. There he faced paramount discrimination for his skin color and nationality here. He was not allowed to sit with European passengers in the railcoach and was ordered to sit on the floor

Fig. 2 Babasaheb Dr. B.R. Ambedkar—the Father of the Indian Constitution

[1] Dalits as a sect of people people treated as untouchables and downtrodden since ages and who according to 2021 census comprise of 16.7% of India's population.

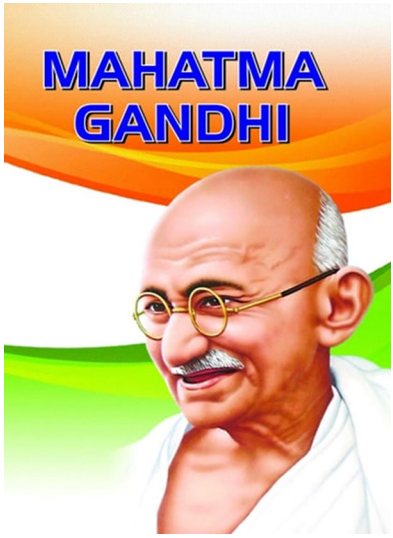


Fig. 3 Mahatma Mohandas Karamchand Gandhi—the Father of the Indian Nation

near the driver, then beaten when he refused. He was once kicked into a gutter for walking near a house, and in another instance thrown off a train at Pietermaritzburg after refusing to leave the first-class. He sat there in the cold, shivering, and pondered between returning to India and protesting for his rights. He chose the latter and consequently was allowed to board the train the next day. Once Gandhi was kicked by a police officer out of the footpath onto the street without warning. Gandhi found it humiliating how white people feel superior to others and derive pleasure in discriminating practices. In 1915, aged 45, he returned to India and soon set about organising peasants, farmers and urban labourers to protest against excessive land-tax and discrimination. He founded the Indian National Congress in 1921 and led nationwide campaigns for easing poverty, improving women's rights, ending untouchability, eradicating discrimination and supremely winning independence of governance.

3 The Digital India Initiative

The sections provides a brief description of the Digital Indian initiative of the government of India. India is going through a significant transformation in the last eight years in terms of economic reforms, urbanisation and increase in percapita income. However the one most critical component of development is the digital technological advancement that affects all sections of people. This technical development facilitates the smooth flow of information, money, and services through all social and financial tiers of society, improving the general quality of life. Therefore, it goes without saying that a nation's advancement, national security, and economic and social development revolve around its mastery of digital technology in today's world. Digital India is a campaign launched on 1st August 2015 by the Government of India in order to ensure the Government's services are made available to citizens electronically. The mechanism, in short, is termed e-governance. This initiative required

improved online infrastructure and increased internet connectivity thus making the country digitally empowered in the field of computers/smartphones and technology.

The program is designed to transform India into a knowledge-based economy and a digitally empowered society by ensuring digital services, digital access, digital inclusion and digital empowerment to all sections of the nation irrespective of their caste, creed, language and gender (Dubey, 2021). Such an objective is sought to be achieved by technology that is affordable, developmental and inclusive. This initiative has seen the proliferation of more than 1230 million aadhar card validations, nearly 1150 million (more than 80% proliferation) smartphones connections and 312 thousand common service centres (CScs), etc (*ICEA report, 83 crore smartphone users by 2022*, 2020). Public sector digital platforms like the aadhar, BHIM-UPI, GSTN and GeM coupled with private sector innovation have accelerated digital adoption in India.

During the past eight years, the initiative has transformed into a nation wide mass movement. The IT sector does not function alone anymore. It now encompasses every domain of life including financial transactions, infrastructure, education, agriculture, health and so on. What is more worthwhile is that becoming digitally empowered has made governance of governments seamless, transparent and far reaching to every nook and corner of the country (*7 years of Seva—Transforming India*, 2022). The deployment of digital technologies for everyday governance has boosted the Digital India's vision "minimum government and maximum governance," and "governance to e-governance" as it ensures that government welfare schemes and development measures impact the last person in the country (*PM Modi explains minimum government and maximum governance*, 2019).

The adoption of digital technology is not new in India. The National Informatics Centre (NIC) was established by the Government of India in 1976 and it operated during 1976–1996 to provide effective and long-lasting processing of files (or data) in the departments of finance, commercial taxation, excise, public distributes, etc. However this early initiative focused on digitisation of documents rather than e-governance. E-governance is the digitisation of government services to the people. Although e-governance was initiated in the late 1990s, it's potential was never tapped until recently. Presently, the Government of India, under the Digital India initiative, is focusing on providing government services to all people via the internet under the umbrella of Ministry of Electronics and Information Technology (MeITY) (*Annual report*, 2022). The initiative has three key visions, (a) digital infrastructure as a utility to every citizen, (b) governance and services on demand, and (c) digital empowerment of citizens. The mission to achieve the above vision is nine-fold and includes activities including developing broadband highways, giving universal access to mobile connectivity and public internet, emphasising e-governance and electronic delivery of services in almost all sectors, improving the IT and the electronics manufacturing industries by attracting investments and providing jobs and above all proving all "information for all." people in a transparent governance setting. The aim of the initiative is to transform India into a knowledge based economy and digitally empowered society.

4 The Impact of the Digital India Initiative

This section gives a description of four key areas of influence out of many wherein the ideology of Babasaheb and Mahatma is on the course of fulfilment by the Digital India initiative.

4.1 Digital Transactions

As a main mission approach of making the country a digitally empowered nation, the government of India, on November 8, 2016, announced the demonetisation of 500 and 1000 rupee currency notes in India. That historic decision had many reasons. One of the reasons was laying the stepping stone towards the dream of digital India. Until that time, 90% of all India's transactions were made traditionally in cash. The traditional form of monetary transactions happens with the exchange of physical hard cash between people. Cashless India has now made it nearly redundant. A cashless economy is one in which the liquid transactions through the system happen with the exchange of plastic currency or through digital payments. The prolific advent of ATM, debit and credit cards are plastic currency and online payments come under digital currency. The advent of blockchain technology has also redefined the nuances of a cashless economy (Angamuthu, 2020; Bijapurkar et al., 2020; Gupta et al., 2020). The main merits of going digital in all financial transactions are transparency in the flow of money and and reduction of unaccounted money.

The COVID-19 has imposed significant limitations on people's mobility. This, across the spectrum of all government services, has led to people finding ways to live, work, and transact using means of digital transactions in order to maintain social and physical distance (Gupta & Singhal, 2021). The Government of India's programs such as Digital India, Jan Dhan Yojna, PM SVANidhi scheme for street vendors, DBT release, FASTag for tolling, etc. brought forth a sweeping reform in how transactions were done by people at the grass roots. UPI payments, RuPay cards, e-com card payments boomed and AePS, Aadhaar enabled cash flows started springing.

The smartphone is a critical electronic tool used to make digital payments. The government has taken steps to ensure that owning a smartphone is no longer a barrier to the adoption of digital payments. In rural India, the number of smartphone users has risen from 9% in 2015 to 25% in 2018. Also 97% of all internet users in India access it via their smartphones. Today, India boasts of nearly 1.18 billion mobile connections, 70 million internet users and 60 million smartphones (*97% per cent of users access Internet through mobiles*, 2019). According to a survey by People Research on India's Consumer Economy & Citizen Environment with a sample size of 35,000 shown in Table 1, the percentage of people in India who use UPI based payments is

Table 1 The percentage of users in different income brackets using digital payments and transactions by 2021

% of households who do digital payments	<40% income group	>40% income group	>20% income group	% Total
Paytm, Phonepe apps	80%	79%	78%	79%
UPI	56%	45%	56%	52%
Debit/credit cards	27%	42%	43%	34%

Courtesy price260.in

nearly 79% and the number of people who use smartphones for digital transactions are increasing by the day.

There is a very strong consumer momentum in favour of digital payments and online banking driven by a very well-developed ecosystem. According to an ACI Worldwide report for 2020, India was at pole position with 20 billion real-time online transactions ahead of China at 15 billion and the US at 1.2 billion (*India surges ahead as the world's leader in real-time payments—Boosting economic growth*, 2022). Addressing the Indian community in Berlin in May 2022, the Indian Prime Minister Narendra Modi said that of the total real-time digital payments that took place throughout the world in 2021, 40 per cent took place in India. As per the National Payments Corporation of India (NPCI) and People Research on India's Consumer Economy, one third of India's population are using digital payments in 2021 and it is expected that more than 50% of the population shall use digital technology for almost all financial transactions by 2026. Table 2 shows the increase in digital payments in India since 2020 and the table which reflects the digital literacy and technological empowerment of the Indian population. India is all poised to become a digital superpower in the near future.

4.2 Digital Education

Digital education, simply put, is the innovative incorporation of modern information communication technologies by digital means, to assist the progress of teaching and learning. The concept is not new and has existed in various forms for many years now, but when the COVID-19 pandemic suspended face-to-face teaching its significance increased manifold. Most educational institutions have adopted digital education as a solution while traditional classroom setup has taken a back seat for some time due to Covid-19 pandemic.

The Government of India is strongly promoting digitalisation of education across all sectors of students. The promulgation of smartphones and free/cheap access to the internet has allowed students to attend college virtually, learn from video lectures and notes from universities across the world. It has given scope to create a online classroom environment, debates, discussions, etc. The Indian Union Budget in 2022 has witnessed the importance laid towards digital education. The budget focused on the skill development and provision of world-class education to students across the country for the education sector (*Summary of the Union Budget 2022-23*, 2022; Rastogi, 2019). The Government announced the launch of a digital ecosystem termed DESH-Stack e-portal promote online training to people in life skills. The proliferation of digitalisation is so immense that the government of India announced the formation of a "Digital University" to establish a world-class digital education

Table 2 The percentage increase in digital transactions in India. Countesy: Ministry of Finance, Government of India (Release ID: 1944425)

Financial Year	Volume of cheques	% growth over the previous year	Volume of digital payments	% growth over the previous year
2020–2021	6570.84	–	437,068.47	–
2021–2022	6599.19	0.4	719,768.30	64.7
2022–2023	7109.27	7.7	1,139,394.20	58.3

ecosystem (Nandi, 2022). The digital university will impart teaching in both regional languages and ICT formats. Moreover various television and YouTube channels have been defined by the Government of India for a widespread of the sources and means to provide education to different corners of the country. The One Class One TV channel programme will soon be to 200 TV channels under the PM e-vidya scheme to provide supplementary education to the rural students. A comprehensive initiative called PM eVidya was announced in 2020, which aims to unify all efforts related to digital/online/on-air education to enable equitable multi-mode access to education. It is envisaged that it will benefit nearly 265 million (A.Y. 2021–2022) school going children across the country. One of the most important initiatives of MHRD is DIKSHA (Digital Infrastructure for Knowledge Sharing). It will provide courses for teachers, quizzes and others. VidyaDaan was launched in April, 2020. It is a content contribution program at national level, that makes use of the DIKSHA platform and tools, it allows donation or contribution of e-learning resources for school education by experts, private bodies, and educational bodies. The Swayam portal contain video lectures from reputed professors. e-Pathshala mobile app and web portal can be used to access e-textbooks. 3500 pieces of audio and video content of NCERT are available. For hearing impaired students, one DTH channel is available with sign languages and study material has been developed in Digitally Accessible Information System (DAISY), for hearing and visually impaired. Online learning platform Coursera reported 49% growth of students from India in 2021 (Baruah, 2022). The number of Indian students following UK HE programmes through distance learning has increased by 56 per cent compared to five years earlier. This shows the country's booming demand for online higher education. Table 3 shows the total volume of students from India availing digital education platforms for online learning. The table shows a humongous 338% increase and 626.7% in registered users and enrollments respectively on online education platforms.

4.3 Digital Health Services

The Covid-19 outbreak has made every country painfully aware of the limits of its own healthcare systems. The digital revolution and tele-health solutions became imperative during the height of the pandemic. The number of patients taking online consultation increased to about 4 billion in 2021 (*E-Governance & Telemedicine*, 2019; *Report on evolution of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana*, 2022). The nation's numbers in placing prescription orders on e-commerce portals, for example, is expected to nearly double by 2025. The government of India has given impetus to digital medicare. The Ayushman Bharat Mission aims to provide health coverage for 550 million Indians and also insurance of five lakhs per year for

Table 3 The volume (in millions) of student enrollment and registered learners from India on digital education platforms like Coursera, Udemy, etc

Year	2016	2017	2018	2019	2020	2021
Registered learners	21M	28M	35M	44M	71M	92M
Enrollments	26M	43M	59M	76M	143M	189M

Countesy World Economic Forum

medical treatment in both public and private hospitals. The mission has cashless payment and paperless record-keeping through the hospital or doctor's office. There is no restriction on family size, age or gender. The scheme provides access to free COVID-19 testing. The introduction of National Identification Number (NIN) to health facilities in India was key in achieving inter-operability within all health facilities (both public & private) to facilitate inter-operability among health IT systems deployed. So far approximately 99% of public health facilities have been allocated NIN. Hospital Information System (HIS) is being implemented for computerised registration and capturing medical data of patients in public health facilities upto PHC level. This will also facilitate workflow management leading to better delivery of services to patients and improvement in efficiency of processes in these facilities. The national digital health mission (NHDM) (*Strategy Overview Making India a Digital Health Nation Enabling Digital Healthcare for all*, 2020) aims to implement it (a) health identity—a unique health identity card to track an individual's medical history for improved prognosis, (b) digidoctor—a repository of doctors with their specialisation and contact details, (c) health facility register—a repository of all hospitals with their fee charts, and (d) personal health record—electronic file for each individual containing health status. This system aids in tracking contagious diseases like the Covid-19 and also aids in improved prognosis.

The immediate and biggest benefit of digitisation of data and digitalisation of services is evident in India's fight against Covid-19 (*Update on COVID-19 Vaccine Availability in States/UTs*, 2022; Ramachandran & Sarbadhikari, 2021). To date, more than 2.2 billion vaccine doses[2] have been provided to States/UTs so far through the Indian government for free through direct state procurement category and the people have been administered. Digital India has thus led the path in bringing vaccines to India's citizens. It started last April with the Aarogya Setu application, a contact tracing app with over 2 billion users. This was followed by another app, "Co-WIN" which was developed for booking vaccination appointments. India's vociferous vaccination drive is made seamless by digital technology and has at large saved many lives. The India's vaccination drive is indicative of the speed and equality ensured via e-governance in delivery and monitoring of government services to all the people.

4.4 Digital Governance

India has seen a paradigm shift in governance in the last eight years since the initiation of the Digital India programme. Digitalising all government information and digitalising all services has paved way for people to benefit directly from all schemes irrespective of their caste, creed, religion, gender and language (*7 years of Seva—Transforming India*, 2022; Mariotti, 2021; Paramasivan & Arunkumar, 2018; Ray, 2018). Moreover the disbursement of funds directly to people has increased transparency in governance, reduction in unaccounted money and reducing in funds diversion (corruption). This digital reform has consequently led to the empowerment of all Indians, welfare of the poor and marginalised and reduced corruption.

[2] Courtesy: https://en.wikipedia.org/wiki/COVID-19_vaccination_in_India.

The current digital infrastructure of the country that identifies and connects people while simplifying their day-to-day life through digital means includes Aadhaar Unique Identity (UID), JAM trinity (Jan Dhan-Aadhaar-Mobile) and Unified Payments Interface (UPI). To add, the Pradhan Mantri Jan Dhan Yojana is the world's largest financial inclusion program offering banking services, insurance and pension to more than 450 million people in India. 45% of these beneficiaries are from rural India, and 55% are women. RuPay debit cards were promulgated to encourage cashless transactions and nearly 330 million cards have been issued to date. Pension beneficiaries under Atal Pension Yojana (elderly pension), PM Suraksha Bima Yojana (health care), PM Fasal Bima Yojana (agriculture) etc. have their money credited into their accounts regularly without them having to visit the pension centres or banks. The Direct Benefit Transfer Scheme accurate targetting and timely delivery of benefits to people, ensures financial inclusion and it is estimated that nearly 6 trillion Indian rupees have been deposited directly into the accounts of people since 2014 until 2021, with not a single instance of funds fraud or discrimination. The vision of Babasaheb and Mahatma that could not be realised in seventy years of independence is realised in just a septennial; this demonstrates the power of digitalisation and technology in transforming society. This accomplishment also is the realisation of the sustainable development goals (SDGs) 2030. The Government e-marketplace assures transparent business entity transactions. It currently has nearly 700 thousand micro, small and medium enterprises (MSMEs) and over 200 thousand women entrepreneurs. The impact of digitalisation on small scale entrepreneurs was analysed in (Gromova et al., 2020).

5 Collation

The previous section described the impact of the Digital India Initiative of the government of India upon the nation at large in finance and banking, education, health and government schemes. This section collates the impact of the initiative to Babasaheb's and Mahatma's vision, i.e., how their dream is fulfilled by technology (the Digital Indian initiative).

5.1 Discrimination vs Digital Transactions

Both Babasaheb Ambedkar and Mahatma Gandhi strongly advocated equality and revoked discrimination of all forms. Some of their quotes hereunder mirror their opinions on the same.

> I like the religion that teaches liberty, equality and fraternity —*Babasaheb Ambedkar*

> What are we having this liberty for? We are having this liberty to reform our social system, which is the fuel of inequality, discrimination and other things, which conflict out fundamental rights —*Babasaheb Ambedkar*

> My idea of society is that while we are born equal, meaning that we have a right to equal opportunity, all have not the same capacity. —*Mahatma Gandhi*

Discrimination based on caste, gender, language and other factors posed a great challenge to the development of India. The key consequence of discrimination (caused by the caste system) is the large socio-economic divide that led to rich becoming more rich and the poor staying poor. This happened to be one of the rooted evils of India since long. Both Babasaheb and Mahatma fought for the rights of ex-untouchables/social outcasts known as Dalits. Babasaheb argued for a separate electorate for the dalits and unsurprisingly ensured in the 1949 constitution of India that the scheduled castes and scheduled tribes were guaranteed reservation in various fields such as legislative, employment and education. Mahatma founded the *Satyagraha* movement to fight against discrimination and racism of all forms. Babasaheb and Mahatma promoted advancement of thought and envisioned a design to rebuild India into a modern urbanised civilisation with equality for all. Since independence, it has been thought that social and economic policy framework is the biggest propellor to foster Babasaheb's and Mahatma's vision of India. In 1950, the newly independent India officially abolished its caste system and outlawed discrimination against the Dalits who had been attached as a the lowest sect of social hierarchy. But India's caste system buttressed by 3000 years of history has proved highly resilient to this change. Even after seven decades of government interference post independence, the caste system continues to pervade every aspect of Indian life with Dalits facing deep rooted socio-economic discrimination that impedes their advancement in better living standards.

> With India advancing towards becoming digitally empowered, what could not be achieved in more than seven decades of independence is now becoming possible due to the Digital India campaign of the government of India.

Although it is arguable that the Indian socio-economic disparity is tied to differences in income, assets or education, the evidence suggests otherwise. Dalits are even now subjected to humiliation and bullied in rural areas. Banks have discriminated systematically against lower castes. Loan applications from Dalits are discouraged, additional sureties are demanded and small loans are issued and high collateral are required. Dalits have long been subjected to long waiting periods are queues in banks, pension offices, shops, railway stations, etc.

The advent of cashless transactions, online bookings, pay n go contactless methods, online delivery of good, etc. the need to physically go and purchase has been nullified. With a tap the smartphone, people from all castes, races, gender, language and religion are able to, on a fully equal basis, apply for loans through online banking and banking apps, have access to food through food delivery applications, make payments without having to stand in queues based on their caste or creed, and much more. Online cinema (like the Netflix, Hotstar, etc.) have removed scope for socio-economic discrimination at theatres, including online sports bookings. With the advent of online payments, the giver does not know the receiver and vice-versa and hence scope for discrimination is nullified.

Digital transactions have now permeated into all aspects of human life in India, more-so into the deepest rural places also. People are now a tap away to avail almost all services, a tap into their smartphone and information technology services (Yadav et al., 2018). Technology does not discriminate and hence making the nation technologically empowered has helped overcome discrimination from all forms. All these digital transaction initiatives have increased the buying capacity of people thus contributing to the overall economic development of India. The Make-In-India campaign with a digital face (online applications, approvals, transactions, taxations, etc.) has become a great success in that the poor and the downtrodden, especially those classes of people that have been subjected to immense discrimination, have gone to become job providers.

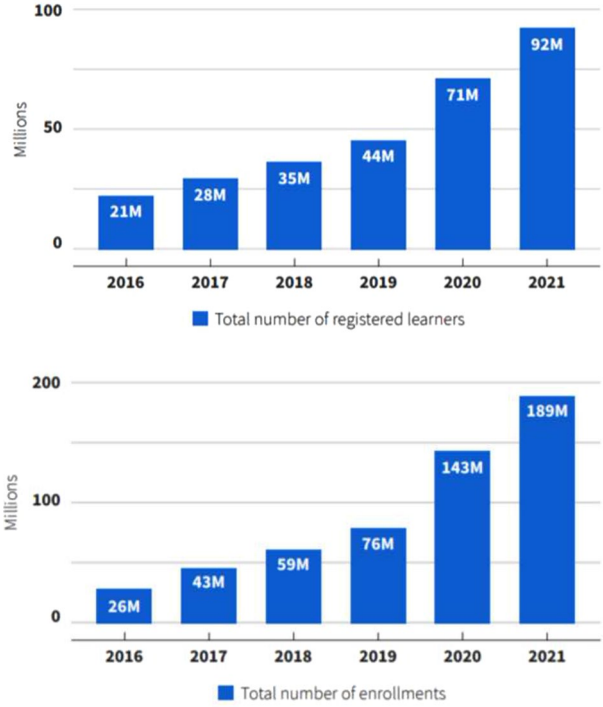
Defn. 5.1: Discrimination to digitalisation Digital India has reversed India's situation in the last septennial. The move is from discrimination to digitalisation. Seamless and cashless flow of money, firm and well monitored taxation system, transactions with less or no scope for corruption and discrimination, this is certainly what Babasaheb and Mahatma envisioned for India. Increasing the physical divide and reducing the digital divide is leading to reduction the socio-economic divide.

5.2 Discrimination vs Digital Education

The government of India's provision for creating a thriving digital education system in India fully complements Babasaheb's and Mahatma's vision of the Indian educational system. The advancement of online learning, availability of text books and study resources has allowed people of all sects, boys and girls, including Dalits to access the highest quality education. Dalit children were subjected to extreme discrimination in schools. Girls were not even sent to school. Poor students were not allowed high quality education due to the high fees involved. Today the Digital India Initiative helped these Dalits and girls and all citizens of India get access to all text books and study material and listen to high quality lectures from reputed professors who belong to the said upper classes. Digital education has interestingly caused a converse scenario: that children from the so called upper classes now listen to lectures of professors belonging to the said lower classes and children from the so called lower classes now listen to lectures of professors belonging to the said upper classes. Digital education initiatives have eliminated the caste divide that was once the most prevalent form of social evil in India. The boundaries of time, location, caste, gender and income are abolished. The last seven/eight years has seen the rise of equal opportunities and liberty to all student community to learn and fulfil their goals. The figure below shows the marked increase in the number of student enrollment in courses available on digital platforms, and the increase stands as a testament to the rise in education opportunity for all students of India irrespective of caste, creed, religion and gender.

Student hostel life marks a wonderful time for every student to learn independence and leaves him/her with memories and friendships that stay for a lifetime. The Indian caste system is so rooted in so much that almost all universities including the Indian Institutes of Technology provide separate hostels for Dalits. This only imposes and fuels social divide among students. The digital revolution brought forth by the

government of India, especially the digital university, would totally eliminate such a divide. Digitalisation of education is providing great scope to accomplish the vision of India's stalwarts like Babasaheb and Mahatma for a quality educational system with equal opportunities to all students and liberty to students to direct their careers according to their choice.



5.3 Discrimination vs Digital Health Service

People have been subjected to discrimination in medical deployment since ages in India. This discrimination is based on caste, gender and economic status. Dalits were not allowed into hospitals (George, 2015). Women were not treated. Remote villages did not have the availability of an on call doctor. Now almost every rural person in India has a smartphone and internet (there are about 104,259 gram panchayats that have WiFi Hotspots installed under BharatNet Project till January 2022) they can take online consultation. People can order medicines online which can be delivered to their houses in no time. This is the scenario that Babasaheb and Mahatma envisioned for India, a free and fair community with equal opportunities for health, education and economic empowerment, that the Digital India campaign is fully complementing the vision. The Indian Institute of Technology Madras has recently developed the "grameen ayurvedic" mobile application to render ayurvedic services especially to the Dalit community.

The several medical schemes introduced both by central and state governments were once subject to paramount discrimination both in race and spatial location. Dalits were not offered quality treatment, they were not offered beds and made to stand long at the pharmacies. The volume of doctors, especially specialists, was minuscule at tribal areas. Hence Dalits from tribal communities did not even have access to medicines and treatment. This scenario has totally changed in the last eight years due to the digitalisation of health care. For example, the "Arogya Sri" scheme introduced in the state of Andhra Pradesh, offers free health treatment and medical care to all economically backward people in corporate hospitals. The services provided by the scheme were completely digitalised in the Digital Indian initiative thus making it possible for patients from far and near to be able to register themselves as inpatients without having to approach the hospital first. Moreover the grievance redressal system has also been fully digitalised. Thus making freely accessible to the backward sects of people corporate health care without discrimination of any form. A similar thought was proposed in (Khaimani et al., 2022) with focus on the need for improvement while this paper focuses on impact. While there is more that needs to be done, especially in connecting villages to the internet and increasing digitalisation of services and improving security measures, the efforts of the government of India are laudable in realising Babasaheb's and Mahatma's India.

The key impact of digitalisation on health services was seen during the Covid-19 pandemic. India, not only being one of the first countries to develop vaccine, topped the world in administering the vaccine to all its residents. The vaccine tracker and the "Arogya Setu" application helped people and officials track the vaccination history of a person. This helped in seamless flow of humans at airports and other public places. As in 2021, India as administered 2,193,656,472 vaccination first doses and 949,249,860 second doses. Such an accurate tracking of vaccine administration in a country of more than 1.4 billion people is only possible due digitalisation technology.

India lockdowns across 2020 and 2021 created a spike in demand for remote medical consultation and sale of online medical supplies. There was a more than 100% increase in demand of medical supplies at pharmacies throughout the country in 2020. Such a huge demand would cause huge differences in dispensation of supplies based on socio-economic status of people. However digitalisation of medical supplies and consultation, overseen by the government, helped avoid discrimination of all forms so that social and rural outcasts had nearly the same access to health care did the others. Slowly but steadily, India's healthcare system is moving from record maintenance (digitisation) to online health monitoring, consultation, testing and medication (digitalisation).

5.4 Discrimination vs Digital Governance

Discrimination has always been at its peak in the delivery of government schemes. The political, religious, caste and economic disparities led to unequal disbursement of government money to people thus causing the poor-rich divide. People were discriminated and ripped off their benefits so inhumanely that it caused the poor to die of starvation and hunger. The biggest gain from the digital India movement is that the government monetary benefits are being directly credited into the accounts of

the citizens. This has removed any scope for discrimination. Moreover the scope for corruption has been eliminated as now there is no scope to show partiality or undue favouritism at the panchayat level during disbursement of funds. Most corruption within cash flows happen during the sale and purchase of properties; this leads to a lot of accounted wealth generation; going digital has caused all services to be rendered in a free and fair manner with equal opportunity and accountability to all people to make their cashflows without any human intervention. Going cashless gives great accountability to every penny spent by every individual. This has drastically reduced the scope for the proliferation of unaccounted (black) money. Ambedkar advocated the need for stringent taxation measures. The digitalisation of all transactions, including salaries and purchases, allows the government to monitor the cash flows both and the national level and at the individual level and account each individual/company for the taxes they are due. For instance, India's gross revenue collection soared to a record high of Rs 27.07 lakh crore rupees in FY22, while the tax-to-GDP ratio jumped to an over two-decade high of 11.7%.

Babasaheb Ambedkar and Mahatma Gandhi dreamt of equal opportunities and services to all sects of people in the society. But this dream had not been realised till the initiative of Digital India Movement. People for rural communities struggled to avail government services as they had to wait for days and also had to pay bribes to get their simple works done. The government offices were breeding grounds for discrimination based on the caste and other aspects. Digitalisation put an end to this discrimination as people now are a click away from applying for any service they require. The officials, in most case, do not physically meet the person they are servicing, and hence scope for service irregularities are reduced. For example, earlier farmers had to spend hours at the Mandal Revenue Offices for their lands mutation and other transactions. Now Mee-Seva centers, that are widely available even at remote localities, help farmers get their work done quickly and seamlessly. Digitalisation helped people log their grievances online which allows the government administrators to resolve them in a manner that is structured and nondiscriminatory, as the complainant's socio-economic status remains unknown to the service administrator.

The advent of digital technologies helped the Indian government serve people directly by depositing money into their banks directly. 2023 alone saw an whopping amount of 1.4 billion rupees credited directly into the accounts of beneficiaries/people. In eight years the government of India has directly transferred nearly 31,244,830 million rupees to beneficiaries through digital payments (*Direct benefit transfer: Report 2023*, 2023). Digital India initiative has helped reduced the divide between rural and urban, low-caste and high-caste, poor and rich, female and male, black and white, inferior and superior classes of people. From birth to death certificate, from land acquisition certificate to sale document, all government services have been digitalised. Incorporating technology into all aspects of service has erased scope for discrimination of all forms and has re-engineered social welfare. The key aspects of social welfare that contribute to misconduct are, (a) accurate targeting of beneficiaries; where beneficiaries are selected based on personal favor and (b) socio-economic statuses and corruption and diversion of funds. The digitalisation of all government social welfare schemes has substantially reduced both the above aspects as welfare reaches the beneficiary directly and his/her eligibility is tracked/monitored online.

When the Covid pandemic hit, going "digitally online" became the new norm for India. In an unprecedented historic move, most of the regular services (except for those that are not high priority) were performed as usual in spite of prolonged lockdown through digital means. Online classes for students, online booking for travel, online payments for groceries, telemedicine, online courts, online government services, direct benefit transfers of government schemes were possible only due to the Digital India initiative that ensured digital empowerment of its people.

6 The Challenges of Digitalisation

The prequel has discussed the positive impact of digitalisation of public services in masking the caste and economic status of people which consequently leads to bridging the socio-economic divide. However, digitalisation brings it own challenges which, if unaddressed, could lead to more devastating effects. In this section, we present a few such challenges.

6.1 Algorithmic Bias

Algorithmic bias in digitalisation refers to the biases included in software programs for automated decision making, which can lead to discriminatory outcomes. Artificial intelligence algorithms designed to be skewed towards select choices, recommendations or decisions could disadvantage certain groups; this causes discrimination to creep into the digital services (Eynon, 2024). This is particularly precarious as the discrimination in the digital arena is not limited to social, gender or economic specifics at the local level but spans globally. Algorithmic discrimination denies individuals their opportunities, rights, or resources based on their characteristics and could lead to economic disadvantages and social exclusion for those affected. The solution to this problem is to develop a public policy to continuously monitor and regulate any bias using bias detection methods and data analytics (Vrana & Singh, 2024). Governments should focus on developing acts that mitigate digital bias and laws that severely punish individuals and corporations that cause it.

Defn. 6.1: Digitalisation to discrimination While algorithmic bias in digitalisation and discrimination by itself are distinct concepts, they relate closely to prohibiting equal opportunities and resources to all people, and hence should be stringently dealt with law and public policy.

6.2 Financial Fraud

The promulgation of digital payments has propelled cybercrime through financial fraud. This has become a significant threat in today's digital world connected through digital media like websites, debit and credit cards and smartphones for UPI payments. Cyber financial fraud has impacted individuals, businesses, and even governments. Cybercriminals target financial assets through various means such as phishing, iden-

tity theft, and fraudulent transactions. Companies that fall victim to financial fraud via cybercrime often suffer damage to their reputation. Customers may lose trust in the affected organization, leading to a loss of business and difficulties in attracting new customers. Moreover, an interesting psychological phenomena, that could especially occur in the marginalised communities is that, since digitalisation gives them a clear view of the life of the privileged, they could be lured towards the lifestyle which force them to purchase over and beyond their capacity. It is generally this class, who have access to digital technology but are semi-knowledgeable about measures to be taken to protect themselves against cybercrime, that fall prey to financial fraud. They may then experience emotional distress, anxiety, and a sense of violation. This can have long-lasting psychological effects as victims struggle to reclaim their identities and restore their financial well-being. Another interesting downside of digitalisation is that the fear of financial fraud can impede innovation, particularly in domains that rely on digital technologies. Businesses may become overly cautious and limit their adoption of new technologies that could otherwise drive growth and efficiency. A few cyber financial crimes could include ATM skimming, phishing scams, online banking scams, crypto-currency fraud and ransomware attacks. Theft of personal information could lead to crimes more serious than financial fraud. The advancement of the dark web is one example that characterises the negative impact of digital technology on humankind (Weimann, 2016).

6.3 Mental Health

While digital technology and smartphones offer convenience, connectivity, and access to information, their obsessive and excessive use can have negative effects on mental health (Cleary et al., 2020). Constant connectivity through smartphones can lead to increased anxiety and stress as users feel the urge to continuously respond to notifications, messages, and social media updates. Obsessive smartphone use can lead to decreased concentration and increased distractions, making it impossible for people to perpetually focus in deep, uninterrupted work. Moreover the blue light emitted by smartphone/computer screens can disrupt the body's natural sleep-wake cycle, making it harder to fall asleep and achieve restful sleep (Arshad et al., 2021). The increased use of digital tools have made people slaves of them, so much so that people have disconnected amongst themselves. Technology giants, Nokia and Bharat Sanchar Nigam Limited (BSNL), which have fashioned themselves altruistically as "Connecting People" and "Connected India" might not have envisioned the downside digital media penetration into their realms, to the extent of causing people to be "disconnected" to people. Another downside of the effect of digitalisation is online trolling. Trolling involves hurling abuse at targeted persons with hurtful, offensive, or harassing comments. This could lead to emotional distress, anxiety, depression, and even suicide in extreme cases. Victims may feel powerless and isolated, especially if the trolling behavior is persistent or widespread. Unregulated trolling could lead to perpetual social damage as both trolls and victims experience negative health effects. Incidentally, the most vulnerable class among these are the marginalised, meaning that any positive outcome of digitalisation in removing discrimination are offset by its negative impact. While algorithmic bias and cyber crime could be countered by

government intervention, digital technology has penetrated so deep that its affect on mental health cannot be prohibited through government intervention by way of policy and regulation. Therefore there is a need for Dr. B. R. Ambedkar's and M. K. Gandhi's strategy to vibrantly educate the people on the affects.

6.4 Survey and Analytics

To measure the ambivalent impact of digitalisation and the promulgation of smartphones, we have conducted an online survey[3] among students who are 23 years and below. The survey was conducted among a majority of rural students who belong to marginalised and semi-marginalised communities. The total number of candidates interviewed, i.e., the sample size, is 532. Of the total sample size, 58.8% (343 Nos.) belong to a annual income strata of less than three lakh Indian rupees per year, 14.5% (77 Nos.) belong to an annual income strata of three-to-five lakh Indian rupees per year and 26.7% (142 Nos.) belong to an annual income strata of more than 5 lakh Indian rupees per year. Of the total number of candidates, 97.7% (520 Nos.) posses a smartphone. A 12.2% of the candidates use smartphone for less than one hour a day, 45% for one-to-three hours a day, and 42.8% for more than three hours a day. This shows that, when the statistics are scaled linearly, nearly the half the young people use their smartphones for more than three hours a day. For what purpose is the phone being used? Unsurprisingly, 77.8% of the total candidates voted for movies, videos and short videos, and music. From this, it could be inferred that a majority of the people, especially the student community, are using their smartphones for work that is minutely productive.

With regard to mental health, 65.6% replied in the positive for having decreased levels of concentration and 43.5% for having sleep related issues because of excessive use of smartphones. The same measure, among those with annual income of less than three lakh Indian rupees, is 63.33% and 45.45% respectively, indicating that misuse of digital technology has already lead to more than half of the digital technology users to have mental health issues. This is shown in Fig. 4. We propose that overcoming this requires both governmental and corporate intervention in creating awareness on the adverse effect of the excessive use of smartphone or introducing algorithms to limit screen time, especially in children, or the development of low frequency technology to limit the amount of signal radiation. The converse argument to this proposition is that the proposal is discriminatory, by definition, and the same will be explored in the future.

Finally, we measured the subjugation of people to smartphones. A 76.4% of the total supported the penetration of digital services into all sectors of governance as it ensures equal and access to all people while only 68% opined that such an exercise is unsafe due to cyber threats. While 53.7% of the people interviewed opined they could not imagine life without digitalisation, 59.6% said they could not imagine life without a smartphone.

[3] The weblink to the survey is https://forms.gle/8pLkdCoyFZ1JYsQu8 and it will be open for continuous assessment of the impact of smartphone usage on mental health.

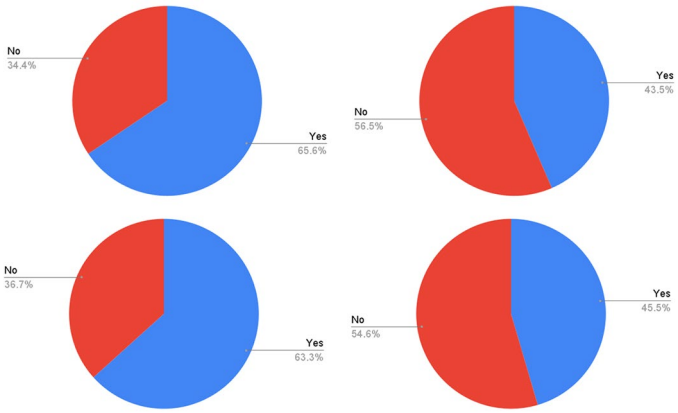


Fig. 4 The left panel corresponds to the % of the candidates having concentration issues and the right to those having sleep issues, among the 532 interviewed individuals, for excessive use of digital mediums. The top panels correspond to the % with respect to the total sample size and the bottom with respect to those having annual income less than three lakh Indian rupees

6.5 Key Findings and Propositions

Here we summarise the key findings, ideologies and propositions of this paper in light of the survey conducted. The use of digital technology by mediums such as smartphone, computer, etc. and the extensive availability of internet connectivity has caused the discharge of public services to be equal and unbiased, thus realising the vision of Babasaheb Dr. B. R. Ambedkar and Mahatma M. K. Gandhi. However, the excessive use of smartphones has adverse effects including cyber crime and mental health issues. Our survey has found that more than half of the total number of smartphone users, especially the young student community, suffers from mental health issues with regard to sleep and concentration. Our survey has also found that nearly 50% of the total smartphone users do not want to stop using it. In this context, it is critical for governments, industries and research agencies, to initiate measures to overcome the cyber crime and mental health issues.

7 Conclusion

This paper presented a collative perspective of how Digital India initiative is realising the vision of Babasaheb Ambedkar and Mahatma Gandhi for India. Both the stalwarts advocated against discrimination of all forms and called for a firm financial system with government monitoring and accountability. India's Digital India Initiative is providing nearly all services electronically and seamlessly to all sections of people in India. Digital technologies including mobile applications and cashless transactions have emerged as the catalysts for economic growth and citizen empowerment in the last eight years. Behind the scenes, this initiative is slowly and steadily reducing discrimination. This consequently leads to reduction in the socio-economic divide that plagued the nation from ages. How this is being realised is presented in this

paper[4] with focus on cashless transactions, education, health and governance aspects and their impact in the last eight years. This paper also presented the downside of the impact of digitalisation and proposed policy and public engagement measures to overcome the same.

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[4] The data presented in this article is by no means exhaustive but is collective and collative to the ideology of Babasaheb and Mahatma.

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