Access Partnership

ICEA
INDIA CELLULAR & ELECTRONICS ASSOCIATION
Inspire.Enable.Lead

Economic Impact Report:

Accelerating India's digital leadership with Google

October 2023

Important Information

This report has been prepared by Access Partnership for Google, and supported by the India Cellular & Electronics Association (ICEA). All information in this report is derived or estimated by Access Partnership analysis using both non-Google proprietary and publicly available information. Google has not supplied any additional data, nor does it endorse any estimates made in the report. Where information has been obtained from third-party sources and proprietary research, this is clearly referenced in the endnotes. With the exception of claims obtained from desktop research which have been footnoted, all estimates in the report have been derived through Access Partnership modeling.

All calculations were done in USD and converted to INR based on the average exchange rate in 2022 of 1 INR = 0.01273 USD, obtained from the IMF database. All estimates in this report are expressed in INR, and are based on the latest available data as of time of analysis in 2023.

Access Partnership (https://accesspartnership.com/), a global digital policy consultancy, works with the public sector, corporations, NGOs, not-for-profits and investors to identify opportunities and develop strategies to grow, improve service delivery, support economic prosperity and generate tangible impact.

Access Partnership's Economics Strategy team (formerly known as AlphaBeta) is a leading economic and strategy consulting practice with deep experience across a number of topics in the digital economy and the future of skills, sustainability, and economic development.

India Cellular & Electronics Association (ICEA) with its motto - INSPIRE, ENABLE, and LEAD is the apex industry body of mobile and electronics industry, representing global and domestic companies, encompassing manufacturers, brand owners, technology vendors, VAS and solution providers, as well as firms participating in the burgeoning digital application ecosystem. Over the years, ICEA has been an instrumental voice in key policy decisions, leaving an indelible impact on key strategic initiatives and regulations. Guided by a shared vision with the Government of India, ICEA has a vision to make India a global hub for sustainable manufacturing and exports of electronics within a decade including developing a vibrant digital app ecosystem. ICEA's focus on R&D and skill development complements national programs like 'Make in India', 'Digital India', and 'Skill India' and have established robust global partnerships and maintain active dialogues with both Central and State Governments, thereby serving as a cornerstone for shaping the electronics manufacturing and digital ecosystem in India.

Contents

Executive Summary

The next leg of India’s digital success story

India is now the fifth-largest economy in the world by Gross Domestic Product (GDP), underlining its strong economic growth. India’s Digital Public Infrastructure has also supported significant digital-led financial inclusion and economic benefits in the last decade. As India fully embraces digitalization, the digital economy is expected to contribute over 20% of India’s GDP by 2026. Artificial Intelligence (AI) and cybersecurity are two critical enablers for future inclusivity and growth.

Google is doing its part to support India’s digital transformation through its initiatives and technology in AI and cybersecurity.

Accelerating India's digital momentum with AI

With a supportive Government and concentration of AI talent in India, AI is being used in many areas, in particular to promote linguistic inclusion and solve complex challenges in areas such as agriculture and healthcare.

Securing the cyberspace through advanced digital technologies

As more activity moves online, protecting India’s people and organizations from cyberthreats is critical. Advanced digital technologies, enabled through AI, could safeguard businesses and consumers and reduce losses to cybercrime.

Google’s impact in India

Enabling businesses to enhance operations

Google's AI-powered products and services stand to unlock revenue gains, cost savings and productivity gains for Indian businesses, including small and medium-sized businesses (SMBs). Such economic activity also supports jobs in India, enabling people to improve their livelihoods.

Enabling a flourishing app economy

Android and Google Play have turbocharged smartphone penetration and mobile usage in India, making it the second-largest app download market globally. Besides having a large domestic market, Indian developers can reach many Android users across the globe, with the Android ecosystem supporting many jobs in India.

Helping India’s digital payment goals

Digital payment transactions have grown quickly as a result of visionary government policies. Comprising a third of UPI transactions, Google Pay plays a key role in widening access to financial services, helping local businesses generate additional revenue gains by accepting multiple modes of payment.

Addressing societal concerns

Most Indians surveyed believe that technology multinationals like Google broaden consumer options and raise the overall quality of digital services in India. Google's products and services also help strengthen privacy, safety and productivity, as well as support lower emissions and facilitate progress towards India’s environmental goals.

Key highlights

The next leg of India’s digital success story

Accelerating India's digital momentum with AI

At least **INR 33.8 lakh crore**

of economic value from AI adoption can be achieved in 2030.

Securing the cyberspace through advanced digital technologies

INR 6.5 lakh crore

reduction in cybercrime losses in 2030 can be achieved by using advanced digital technologies like AI.

Google’s impact in India

Google

Enabling businesses to enhance operations

INR 1.4 lakh crore

in economic activity was unlocked by businesses using Google’s AI-powered products and services in 2022.[1]

Enabling a flourishing app economy

Over 25 lakh jobs

were supported by Indian developers' use of the Android and Play ecosystem in 2022,[2] in addition to the **12.3 lakh** jobs supported by businesses' use of Google’s products and services in 2022.[3]

Helping India’s digital payment goals

INR 0.58 lakh crore

of revenue gains were generated for local businesses in 2022 as a result of accepting digital payments through Google Pay.[4]

Google

Addressing societal concerns

83% of Indians surveyed

feel that global technology firms like Google have helped broaden the number of product options available in India.[5]

1. Products and services assessed include Google Search, Google Ads, Google AdSense, Google Play, Google Cloud and Google Pay.
2. Jobs supported by Android and Play account for direct, indirect and spillover jobs in the app economy.
3. These include direct and indirect jobs supported by the use of Google Search, Google Ads, Google AdSense and Google Cloud by businesses. For example, the use of Google Ads enables businesses to expand their customer bases, supporting job creation as they require increased hiring to meet additional demand.
4. This is a subset of the INR 1.4 lakh crore of benefits to businesses.
5. Taken from an Access Partnership 2023 survey of 500 digital consumers in India.

Chapter 1

Powering the next leg of India's digital success

India, the fifth largest economy in the world,[1] is projected to grow by 5.9%[2] in 2023, making it the fastest-growing economy in the world. The strong economic growth, especially in the past decade, has been complemented by the Digital Public Infrastructure rolled out by the Government of India, such as digital identities (Aadhaar), digital payments (UPI), document storage (DigiLocker) and new digital platforms such as Open Network for Digital Commerce (ONDC).[3] The uptake for these notable initiatives has supported a massive shift towards digital-led financial inclusion and enabled more Indians to benefit from digital services.[4]

Studies on the impact of India's Digital Public Infrastructure have been highly positive. For instance, digitalization supported the formalization of the economy, as around 88 lakh new taxpayers registered for the Goods and Services Tax between July 2017 and March 2022, supporting government revenue.[5] Know Your Customer (KYC) procedures have been digitized and simplified, with banks that use e-KYC lowering their cost of compliance from INR 1,000 to INR 5, making lower-income clients more attractive to service.[6] The Government of India estimates that up to March 2021, it saved about 1.1% of GDP in expenditure due to digital infrastructure and other governance reforms.[7]

The increasing digital connectedness of Indians also bodes well for India's digital economy. According to the Government, the digital economy has gone from 4.5% of India's total GDP in 2014 to 11% today, and is expected to contribute over 20% of GDP by 2026.[8] Moving forward, two elements will be particularly key in enabling further inclusivity and broader economic growth through the digital economy in the next decade:

1. Becoming a global AI hub to accelerate digital-driven productivity across sectors

2. Prioritizing cybersecurity to support India's digital transformation

1.1 Accelerating India's digital momentum with AI

India has become home to the world’s highest concentration of AI talent,[9] and has been a critical leader in AI-related research, generating the 4th most scholarly papers since 2010.[10] As the Government recognizes the importance of AI as an accelerator of the digital economy and innovation ecosystem, it has implemented a series of policies and set up a robust infrastructure on which to nurture a thriving AI sector.[11] As such, India has risen from 51st in 2021 to 32nd in 2022 on the Oxford Insights Government AI Readiness Index, which measures how ready governments are to implement AI in the delivery of public services to citizens.[12] Despite these positive signs, the benefits of AI can be more broadly distributed across the population.

AI’s role in driving social good and inclusivity

AI can be instrumental in making online content, products and services available in local languages to enable Indians to take part in the digital economy meaningfully. Many Indians are constrained from participating in the digital economy, mainly because of a lack of accessible content. Even though an estimated 50-60% of websites on the Internet are in English,[13] only 10% of Indians are conversant in English.[14] The Ministry of Electronics and Information Technology (MeitY) under the Government of India has launched the AI-powered Bhashini program to bridge this accessibility barrier.[15] This platform aims to utilize AI and natural language processing (NLP) to help developers offer Indians easy access to the Internet in their native languages - a big step towards bringing more Indians online and enabling them to participate meaningfully and benefit from the Internet.

IISc collaborates with Google to launch Project Vaani

To create an AI-based language model that can understand diverse Indian languages and dialects, the Indian Institute of Science (IISc) teamed up with Google India for Project Vaani to gather speech data across 773 districts around the country.[16] The data collected under Project Vaani is being open sourced through the Government of India's Bhashini platform. Through this initiative, startups, developers, researchers and even students can tap into the rich and diverse speech data to create technologies that respond to the vast array of local languages. Initiatives like Project Vaani are instrumental to those seeking critical services online, such as medical services or educational tools, traditionally unavailable in hyper-localized languages.

[Front view of Indian Institute of Science, Bangalore]. 2021. [Photograph]. The Dispatch.

AI facilitates new innovation opportunities in the digital economy

At least
INR 33.8 lakh crore
of economic value from AI adoption can be achieved in 2030.[17]

Manufacturing, professional services and wholesale and retail trade
are the top three industries in India projected to gain the most from AI.[18]

AI is revolutionizing India's digital ecosystem, which benefits stakeholders, including the government, businesses, startups, developers, users and citizens. India saw the fifth highest investments last year in startups offering AI-powered products and services.[19] By harnessing subfields like generative AI, machine learning (ML), robotics, NLP and computer vision, AI has facilitated much interest and innovation in India across businesses of all sizes. These applications and benefits are also distributed across multiple sectors.

For instance, in packaged goods, AI forecasting based on underlying causal drivers of demand can improve forecasting accuracy by 10-20%, or a potential 5% reduction in inventory costs and revenue increases of 2-3%. Generative AI applications in the banking industry, such as virtual experts to assist frontline workers, code acceleration to reduce tech debt and deliver software faster, and the production of personalized content at scale can also increase productivity up to 3-5% of annual industry revenues.[20]

Studies on AI adoption in India indicate latent potential for Indian organizations

A 2023 PwC study surveying AI adoption in India indicates that there has been steady progress in organizations adopting and implementing AI/ML solutions across business functions such as manufacturing and operations, supply chain and logistics, and IT and cybersecurity.[21] Nevertheless, sector-level differences were still present - industries such as industrial products and manufacturing and technology, media and telecommunications were accelerating in their implementation, while the retail industry saw a marginal decline, struggling to find the right use cases in a volatile environment.

Based on Boston Consulting Group’s analysis in 2023, a significant number of banking sector organizations had mature AI processes on par with global benchmarks, while around three out of four companies dealing in consumer and industrial goods were lagging in AI implementation in contrast. New evidence is also emerging on the positive financial impact of superior AI implementation at the firm level, with an estimated 3-5 percentage point margin difference between AI leaders and laggards.[22]

A sizable economic prize is available if lagging organizations develop their infrastructure, business processes and people capabilities to adopt AI.

Altmann, G (2021). [An abstract illustration of artificial intelligence]. [Digital Art]. Pixabay.

1.2 Securing the cyberspace through advanced digital technologies

A critical aspect of enabling higher digital adoption in the future is ensuring that the overall digital ecosystem is safe and secure. Safeguarding the country's digital infrastructure and systems while protecting the online safety of citizens and businesses is critical.

Indian businesses and consumers face significant cybersecurity risks today. In 2022, India witnessed 13.9 lakh cybersecurity incidents, according to the Indian Computer Emergency Response Team (CERT-In).[23] Meanwhile, trends arising from COVID-19, such as remote work and digital payments, have also increased digital users' exposure to vulnerabilities. In this light, businesses must have systems in place to defend themselves against future threats.

Advanced digital technologies enabled by AI can tackle these issues. Deploying AI to automate the prevention and detection of cyber threats can minimize potential losses from malicious digital attacks. Security automation tools, for example, can reduce the cost of data breaches by an average of 65% for organizations.[24]

INR 6.5 lakh crore

reduction in cybercrime losses in 2030 can be achieved by using advanced digital technologies enabled by AI.[25]

The Government is renewing its focus on cybersecurity

The Government operationalizes the nation's cyber defense capabilities through the functions of agencies such as the National Cyber Coordination Centre (NCCC), National Security Council Secretariat (NSCS) and the CERT-In, among others.[26]

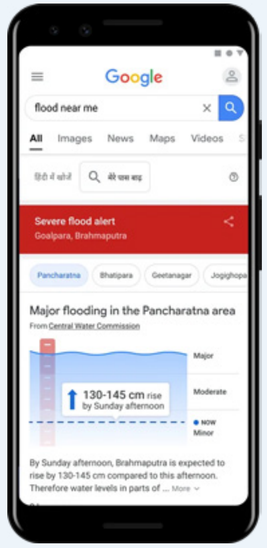
In recent times, India has also been revising its cybersecurity rules. In April 2022, the CERT-In issued a new directive modifying obligations under the 2013 rules, including requirements to report cybersecurity incidents within six hours, syncing system clocks to the time provided by government servers, maintaining security logs in India, and storing additional customer information.[27]

The latest cybersecurity regulatory development is the passing of the Digital Personal Data Protection Act, 2023 (DPDP Act). The DPDP Act is India's first data protection act, establishing a framework for processing personal data in India.[28] The DPDP Act underlines the role of Significant Data Fiduciary (SDF), with specific obligations including appointing a Data Protection Officer (DPO) based in India; appointing an independent data auditor; and conducting a Data Protection Impact Assessment (DPIA). The DPDP Act empowers citizens with the right to information, the right to correction and erasure, the right to grievance redressal, and the right to nominate other individuals to exercise these rights in the event of death or incapacity. There are penalties for non-compliance of the provisions by data fiduciaries up to INR 250 crore.

1.3 Google's contribution to AI and cybersecurity in India

To support India's digital transformation, Google has launched a number of initiatives. These were all created to leverage technological advancements to ensure that India is competitive and future-ready, and to protect its citizens and businesses.

Google in India turns to AI for social good and public inclusion



[A sample Google Flood alert]. 2021. [Photograph]. Google.

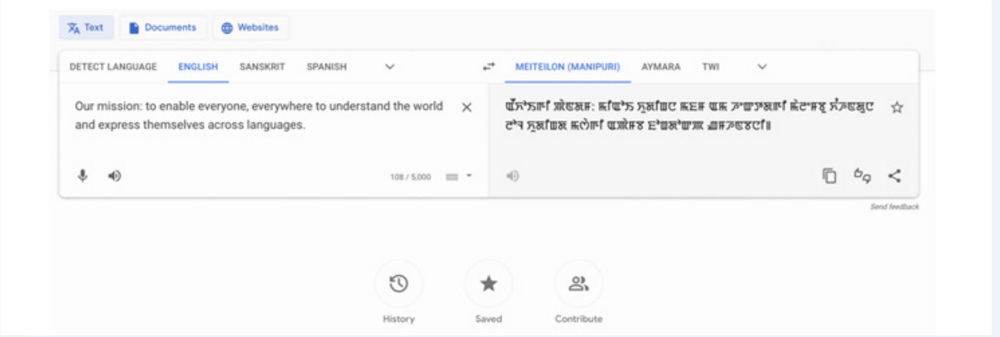
In 2018, Google began its flood forecasting initiative to mitigate the catastrophic damage from floods by providing precise and comprehensive alerts to at-risk individuals.[29]

Google's flood forecasting system is built on AI. It integrates two AI models that analyze a variety of publicly accessible data sources. The Hydrologic Model forecasts the amount of water flowing in a river, and the Inundation Model, predicts what areas are going to be affected and how deep the water will be.

By 2021, this initiative had covered a region inhabited by more than 360 million people, sending out over 115 million alerts annually. Presently, it is fully operational in all of India. Google also continues to work with various local humanitarian organizations, such as the Federation of Red Cross and Red Crescent Societies and the Indian Red Cross Society (IRCS), to ensure that alerts reach individuals lacking connectivity.

In line with Google's focus on linguistic inclusivity:

- **Search** will be made available in over 100 Indian languages in the near future.[30]
- **Bard**, its generative AI chatbot, responds to 9 Indian languages.[31]
- **Google Translate** now supports 19 Indian languages.[32]
- **Google News** has increasingly expanded the list of supported Indian languages to 10 as of August 2023,[33] supporting the Indian language news ecosystem.



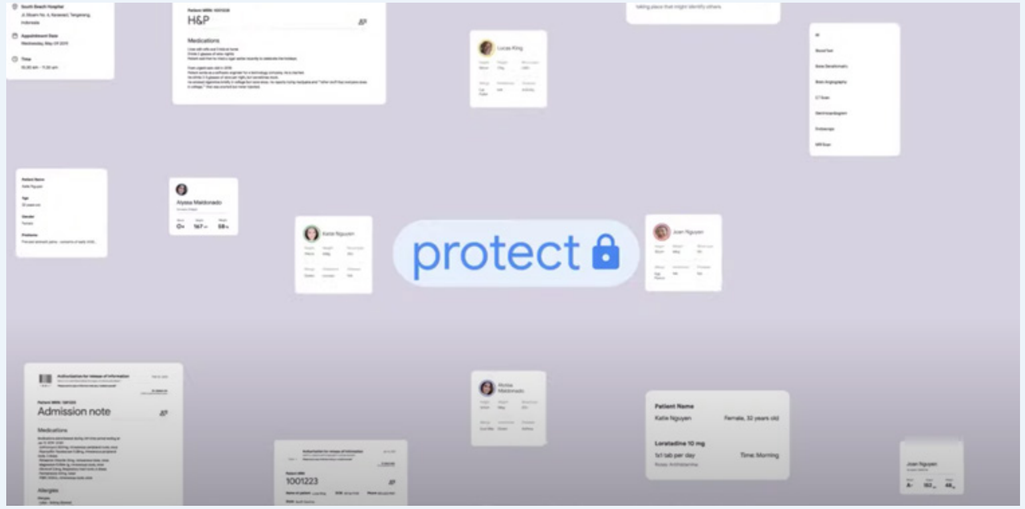
[AI-powered Google Translate's mission translated into Manipuri, one of the newly added Indian languages]. 2022. [Photograph]. Google.

1.3 Google's contribution to AI and cybersecurity in India

To support India's digital transformation, Google has launched a number of initiatives. These were all created to leverage technological advancements to ensure that India is competitive and future-ready, and to protect its citizens and businesses.

Google strengthens online safety in India

As the world explores the power of generative AI, Google has taken steps to uncover how AI can help boost cybersecurity efforts. The **Google Cloud Security AI Workbench**, built on Google Cloud's Vertex AI and other large language models (LLMs), combines world-class intelligence with point-in-time incident analysis and novel AI-powered detections and analytics to "make strong security pervasive and simple for everyone."[34]



[AI-powered cloud security for hospital data systems]. 2023. [Video]. Google.

In 2022, Google India announced new online safety initiatives,[35] including multi-city cybersecurity roadshows designed to help upskill developers. Another program disbursed digital safety-related grants, focusing on organizations that raise awareness among high-risk groups.[36] Google is also raising awareness to safeguard against online fraud and strengthen online safety, challenging users to 'Raho Do Kadam Aagey' by abiding by two rules: "Never click on dubious links", and "Never share your bank data."[37]

Chapter 2

Google’s AI-powered products and services support India’s businesses and society

Google’s AI-powered products and services also help businesses in India unlock economic value and new opportunities. Home to the world’s second-largest digital consumer market,[38] India’s digital-led transformation has impacted urban and rural areas, benefiting a wide range of consumers and especially businesses. Google has contributed to this shift with its products and services - Google Search, Google Ads, Google AdSense, Google Play, Google Cloud, Google Pay and Google Maps - being used by companies around the country every day.

INR 1.4 lakh crore

in economic activity was unlocked by India’s businesses through Google’s AI-powered products and services*.[39] The manufacturing, wholesale and retail trade, and agriculture sectors gained the most.[40]

INR 11.2 lakh crore

worth of sales transactions for local businesses in 2022 were facilitated by customer use of Google Maps, for instance to navigate to the correct location or retrieve other information.[41]

12.3 lakh

jobs were supported by businesses' use of Google's products and services in 2022**.[42]

*Products and services assessed include Google Search, Google Ads, Google AdSense, Google Play, Google Cloud and Google Pay.
**Products and services assessed include Google Search, Google Ads, Google AdSense, and Google Cloud.

2.1 Google’s AI-powered products and services enable businesses to enhance and expand their operations

An AI-generated portrait image of a businesswoman

AI is deeply embedded across Google's suite of offerings, enabling these products and services to maximize benefits and strengthen their impact on businesses and jobs around the country. For example:

- Since 2018, Auto Ads for AdSense has enabled content creators to strategically place their ads in better locations that would generate the highest revenue.[43]
- A wide range of users, from entrepreneurs to employees, benefit from AI-powered Google Workspace.[44] Features like Gmail’s Smart Replies, which provides popular answers to emails, and auto-generated summaries in Docs, have led to heightened productivity.[45]
- Google Cloud has become more secure than on-premise solutions and better at detecting and preventing hacks.[46] In cases where cyber-attacks have occurred, Google Cloud also enables faster recovery time, boosting organizations’ resilience and reducing disruptions.[47]

Myntra: Google's AI-powered solutions boost online outreach to Indian fashion consumers[48]

[A group of young fashion consumers]. 2023. [Photograph]. Myntra.

As a fashion-forward e-commerce brand, Myntra aims to democratize fashion and help its customers access a larger variety of brands and 2.3 million+ styles, from international brands to domestic ones, from workwear to Gen-Z fashion. However, Indian consumers often search for fashion on Google Search in a generic non-branded way, requiring Myntra to reach consumer cohorts in a more streamlined and targeted way.

Through a combination of Google AI-powered Ad Solutions such as Value-Based Bidding, Performance Max, Video Action Campaigns and Firebase Signals, Myntra optimized its reach to consumers wherever purchase intent occurred. In particular, Video Action Campaigns have enabled Myntra to beautifully combine the power of video ad messaging and relevant product feeds to boost performance, while Firebase signals aided Myntra in driving efficiencies and scale. As a result, Myntra saw an upturn in its customer outreach as well as a notable increase in return on its ad spend after adopting full-funnel Google AI-powered solutions across Search, Video and Apps.

2.2 Google Play and Android have enabled a flourishing app economy

Since 2008, Android's open-source model meant anyone could access, download and modify Android source code at no charge.[49] This bold move enabled any developer to build apps, mobile devices, and even new operating systems, which led to the creation of a wide range of devices with unprecedented consumer choice. Smartphones became significantly more affordable to India's broader population. The retail price of entry-level smartphones has remained relatively accessible, from INR 6,100 in 2011 (worth INR 12,800 in 2022 prices) to around INR 7,100[50] in 2022 - principally as a result of the adoption of free, open-source operating systems such as Android.

Lower prices spurred a dramatic increase in smartphone ownership. Today, India has 120 crore mobile phone users and 60 crore smartphone users.[51] This has also made India a mobile-first market, with mobile accounting for 93% of total time spent on the Internet.[52] In short, many users across India have gained access to the digital world and the information and freedom that comes with it.

India's mobile users can now tap into 29 lakh quality apps and games from over 190 countries via the Google Play Store.[53] Unsurprisingly, the country boasts the second-highest downloads of mobile applications globally.[54] With apps becoming an essential part of everyday life, the Play and Android ecosystem have essentially fuelled a more inclusive and far-reaching base of Internet users in India.

An online experience made possible by robust and forward-looking safety efforts

A key reason that both users and developers can confidently explore and transact online is the secure digital environment that Google's platforms provide. Built-in security features like Google Play Protect scan about 12,500 crore apps daily globally,[55] with 1.73 lakh bad accounts banned and INR 15,700 crore in fraudulent and abusive transactions blocked before they could occur.[56] Google continues to prioritize investment in ML to detect and enhance app review processes and remove apps with abusive or malicious content before anyone installs them. As part of a progressive and ongoing effort, Google's policies are regularly updated in response to new and emerging threats and bad actors, especially in the realm of online payments.

Google Play helps developers flourish

Over 250 crore **active users are accessible to developers on the Android ecosystem.[57]**

Beyond the people who use Android phones and the manufacturers who produce them, another critical player in the Android ecosystem exists: developers. Back in 2005, bringing an app from conception to development and then to market required significant resources, especially since developers had to build for many platforms, including Symbian, Web OS and S60. This made reaching a wide enough audience too costly for most studios.

By introducing an open-source platform and operating system in 2008, Android leveled the playing field for all developers. Regardless of size, developers could suddenly optimize for a wide range of devices and functionalities, roll out regular app updates and reach over 250 crore active users per month in over 190 markets.[58]

The Android ecosystem drives job creation

Over 25 lakh **jobs were supported* by Indian developers' use of the Android and Play ecosystem in 2022.[59]**

Apps have not only made Indians' lives more convenient, entertaining and productive, but they have also delivered many job opportunities. The growth of the Play and Android ecosystem generates tech and non-tech jobs within app and game development companies, such as software engineers, marketing managers and content creators, thereby creating direct and indirect jobs. These workers further generate jobs in other sectors by virtue of spending their incomes.

*This does not refer to jobs hired from Google directly.

Gametion: Local app studio thrives in the global market through Play and Android

[A logo of Ludo King]. (n.d.). [Logo] Retrieved 1 Oct 2023. Ludo King.

Local app and game developers have benefited significantly from the global access provided by the Android and Play ecosystem. For instance, Mumbai-based Gametion Technologies created the mobile game Ludo King. Ludo, a board game, is popular among children across Asia, the Middle East and parts of Europe. Gametion saw an opportunity to launch it in a digital format. A faithful yet stylish rendition of the board game, Ludo King retains the game's simplicity and social interaction. Ludo King swiftly became one of the most played games in the world during the COVID lockdown. In 2021, more than 30% of Ludo King's players were from outside India, leading the team to add six more international languages to accommodate a diverse user base. The Ludo King team also engaged with the Google Play team, learning about new design techniques, Key Performance Indicator frameworks and analytics on the Google Play console to scale their reach.[60] Today, Ludo King boasts over 90 crore downloads worldwide.[61]

"Utilizing the Android and Google Play platforms, we've been able to tap into an expansive audience both in India and globally. This synergy has not only generated employment opportunities within our company but has also bolstered the broader mobile gaming sector in India. Being prominently featured on the Google Play Store has enhanced our reach, leading to a surge in user spending on our India-produced games."

Vikash Jaiswal
Director, Gametion

Google’s Startup School helps India's vibrant startups thrive

Google and Startup India joined forces to support early and mid-stage startups, with more than 30 Google and industry experts guiding them on topics such as AI, app development, growth expansion and funding. Over 14,000 startups from over 600 towns and cities participated in Startup School in 2022.[62]

With nearly one lakh startups nationwide, digital entrepreneurship is moving well beyond India’s metros. It is no longer just an urban phenomenon, with cities like Indore, Madurai and Gorakhpur becoming birthing grounds for more startups. Within Startup School, founders across the country are finding it increasingly easy to interact and benefit from the experience and expertise of previous founders who have experienced a similar journey.

[A snapshot of Startup School India]. 2023. [Photograph]. Google.

“India began its startup journey with the vision laid down by the Honorable Prime Minister Shri Narendra Modi in January 2016 with the launch of the Startup India initiative. Google Startup School 2023 is supported by Startup India and DPIIT. Startup India and Google, with this shared mission of contributing to the growth of entrepreneurship in the country, have come together to enable startups at scale through this program.”

Manmeet K Nanda, Joint Secretary, Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Government of India

"Monetizing an interview preparation platform is very hard. With an effective product strategy and by leveraging best practices in Google Analytics, we were able to build and understand user segments that led to 2X growth in paid users."

Gaurav Sen
Interview Ready
Startup School Alumni

"With insights from industry experts around building a scaled business for niche audience, we made the investments in the right areas coupled with marketing & growth hacks and grew our user base by 10X."

Supriya Parashar
Skillster Employability Solutions
Startup School Alumni

"We enable customer engagement for offline SMB retailers with a hyperlocal app. Startup School provided product frameworks and insights on new user acquisition channels which helped us grow our quarterly revenue by 8X."

Anil Balan
Lookodu
Startup School Alumni

2.3 Google Pay helps achieve India's digital payment and financial inclusion goals

Digital transactions have increased dramatically from 2021 to 2022. In particular, UPI transactions doubled in the same period, its resounding success resulting from bold government policy and state-led innovation.[63] Google Pay is a contributor to India's digital transaction adoption, accounting for just over a third of UPI transaction volume and value in June 2023.[64]

Google Pay widens access to financial services. With Google Pay reducing market friction and enabling digital payment adoption, businesses and consumers from all walks of life can enjoy greater economic opportunities.[65]

INR 0.58 lakh crore

of additional revenue gains were generated for local businesses in 2022, as a result of accepting digital payments through Google Pay.[66]

In enhancing payment security, Google Pay blocks one lakh fraudulent transactions per day and sends out two lakh alerts to users daily.[67] This vigilant approach translates to 40% of its users taking swift action by canceling suspicious transactions.[68]

Supporting business growth with Google Pay for Businesses (GP4B)

Besides facilitating digital payment adoption and increasing the welfare of businesses and consumers, Google also extends loans through Google Pay to assist merchants in effectively managing their finances and expanding their operations, thus enabling them to fully capitalize on their potential.

Trust Med Pharma, Bengaluru

Holding a Bachelor of Medicine and Bachelor of Surgery (MBBS), Alisha Khan embarked on an entrepreneurial journey by establishing a medical store. Driven by aspirations of expanding his venture into a chain in the future, he sought avenues to enhance his business operations. To achieve this goal, Alisha secured a loan of INR 5 lakh in March. What caught Alisha's attention was the remarkable swiftness, simplicity, and convenience of the Google Pay loan application process. With the additional funds, he strategically diversified his shop's inventory, resulting in a substantial increase in monthly sales from an average of INR 2.7 lakh to an impressive **INR 4.5 lakh** per month.

Alisha Khan at his store, Trust Med Pharma

External shot of Trust Med Pharma

Patiram Store, Gurugram

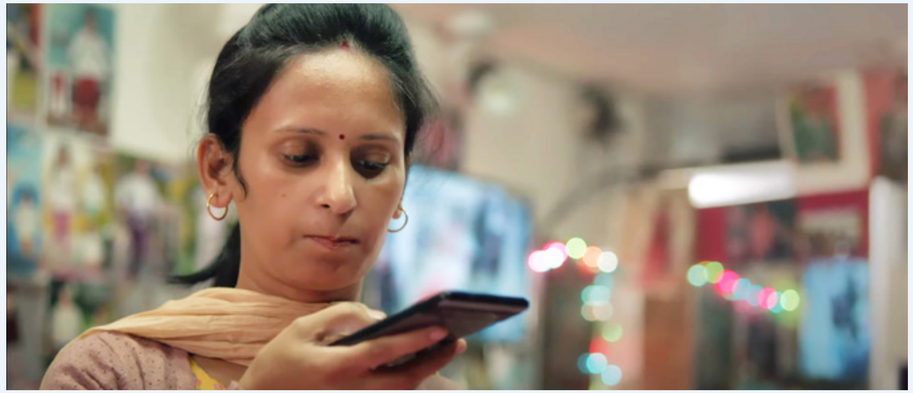
With 70-80 daily customers for his packaged goods business, Patiram aimed to open a new store to support his family of five. He turned to GP4B for financial aid and was pleasantly surprised by their quick fund disbursement within 24 hours. Supported by his son's assistance with the application and paperwork, Patiram secured a loan of INR 1 lakh, enabling him to establish the new store. This venture now brings in profits of around **INR 9,000-12,000** per month, showcasing the effectiveness of GP4B's support in propelling small businesses forward.

Patiram at his store

"I had no support - no one was giving loans; not friends, not family, no one. GP4B is good; it helped me set up a new business".

- Mr. Patiram

2.4 Google helps address societal concerns



[A user using Project Relate]. 2022. [Video]. Google.

Project Relate: Connecting people with non-standard speech through AI-powered Google Assistant

Individuals with non-standard speech often face challenges in being understood. To break these communication barriers, Google's Speech and Research teams created Project Relate, an AI-powered app designed to learn and understand the distinct speech patterns of such individuals.[69]

This innovative app aims to facilitate smoother communication for people with non-standard speech when interacting with others through Google Assistant. Google initially piloted the app with English users in India and later expanded its reach to include Hindi users in 2023.

Over the last decade, Google's products and services have contributed to a vibrant digital environment that enriches lives all around India. As a result, people can more freely enjoy the positive impacts of digital tools, including improved privacy, safety and productivity.[70] Our survey conducted with 500 Indian consumers in 2023 indicates that:

83%
feel that global technology firms like Google have helped broaden the range of options for digital tools in India.

96%
believe that global technology firms like Google have raised the quality of India's digital services, catalyzing India's digital adoption.

91%
feel that Google Search makes information accessible to everyone, promoting fairness and reducing imbalances in information and knowledge.

91%
feel that safety features on Google Play have enhanced online security for them in the course of discovering and using mobile apps in daily life.

90%
feel that Google Maps has improved their navigation skills and helps them be more confident of their surroundings.

93%
indicated that Google Drive tools (e.g., Google Slides, Google Docs, Google Sheets, Google Photos) have enhanced the quality and convenience of collaborating and sharing material.

Finally, Google has supported India's environmental efforts. Google Maps has helped save over 28.7 lakh metric tonnes of CO_2 annually in vehicle emissions by providing optimized routes - equivalent to emissions from 19 lakh cars in 2022.[71] Similarly, migrating from physical data centers to cloud providers like Google Cloud is likely to result in a 78% improvement in energy efficiency.[72]

Methodology

- **Estimating the economic value of digital technologies in India**

This report estimates the annual economic benefits of digital technologies in two areas: Artificial Intelligence and cybersecurity. The analysis takes 2030 as the target year to ensure sufficient runway for reasonable projections (which takes into account increases in technology uptake over the coming years).

The economic value of AI in 2030 was assessed by conducting a sector-specific analysis of the impacts of both traditional and generative AI within each sector. This evaluation involved measuring the sector-targeted effects of over 400 traditional AI applications and over 60 use cases related to generative AI. For cybersecurity risks, the cost savings for businesses deploying AI in cybersecurity was estimated. This report measures the potential reduction in direct costs (financial losses associated with a cyber-security incident, such as loss of productivity, fines, and remediation cost) and indirect costs (opportunity cost to the organization, such as customer churn due to reputation loss) as more businesses in India deploy AI in cybersecurity in the year 2030, forecasted based on global trends.

- **Estimating Google's economic benefits in India**

Insights on the household and societal benefits supported by Google in 2022 were gathered through a survey conducted in July 2023 with 500 individuals based in India. The sample size of respondents is statistically significant at a 90% confidence level based on the Internet population in the country. Also, it accounts for a representative regional distribution based on dominant language use.

The economic impact of Google Pay was estimated based on revenue gains from digital payment adoption and Google Pay's share of digital payments in India. Sales facilitated by Google Maps were estimated by sampling the value of purchases facilitated by Google Maps usage across Google Maps users, accounting for income differences. Sales facilitated by Google Maps are raw transaction values and are excluded from the overall economic activity unlocked, which broadly represents additional gains by businesses.

The economic activity generated by businesses from Google's products and services, such as Google Search, Google Ads, Google AdSense, Google Play, Google Cloud and Google Pay in 2022 was estimated based on the economic value generated by businesses in India from leveraging Google's products and services. The value of using Google products and services does not include flow-on economic effects generated, such as further purchases from their suppliers or the economic activity generated by employees of these businesses who spend their wages in the broader economy. The value also does not account for the activities that Google may have displaced, nor do they attempt to estimate the incremental impact of Google on India's economy in hypothetical instances where Google itself does not exist but similar companies do. The methodology adopted to derive the economic activity generated by Indian businesses in this report references the US Google Economic Impact Report methodology.

The number of jobs supported by Google Search, Google Ads, Google AdSense and Google Cloud in 2022 was estimated based on the economic benefit to businesses from each advertising tool, the share of digitally-enabled businesses, and the labor productivity in India. The number of jobs supported by the Android app economy in 2022 was calculated based on the methodology from the Progressive Policy Institute, a leading institute studying app economies worldwide. This is derived based on the estimated app intensity of India (app economy jobs as a share of total jobs) and the economically active population in India.

A detailed methodology memo outlining the approach adopted in our study can be accessed on our website here.

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