

# **How the tribes of India are using AI and 21st-century technologies**

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## **Introduction**

In the 21st century, technology has become a driving force in changing how people live, work, and communicate all over the world. India is no exception. Even in far-flung villages and forests, modern devices and inventions are steadily influencing daily life. One of the biggest transformations can be seen among India's tribal communities, also called Adivasis. These communities, with their unique cultures, languages, and traditions, have lived for centuries in harmony with nature—depending on forests, rivers, and traditional farming for survival.

For a long time, tribal people relied mainly on age-old ways of living: they used tools made from wood and stone, shared knowledge through storytelling, and followed customs passed down through generations. Life was simple, and technology meant small improvements in farming methods or household tools. But with the arrival of the internet, smartphones, computers, and artificial intelligence (AI), the world of tribal communities started to change rapidly.

Today, many tribal villages are slowly becoming digital. Children watch videos on smartphones, women use apps to sell forest products, and young people join online classes to study subjects far away from their hometowns. Technology brings new opportunities—like better healthcare, easier communication, and access to government services. At the same time, it creates new challenges, such as the risk of losing ancient traditions or facing difficulties in learning how to use new devices.

Artificial intelligence, or AI, is one of the latest tools that tribal communities are beginning to explore. AI can help translate languages, identify diseases quickly, improve farming, and preserve storytelling and songs in digital archives. These changes offer both hope and questions: Will technology empower tribal people and protect their heritage, or will it make them feel left behind in a fast-moving world?

In this commentary, we will take a closer look at how tribal communities across India are encountering and using these technologies. We will explore the positive ways in which AI and digital gadgets are opening doors, describe the practical difficulties and worries faced by tribal families, and highlight some wonderful examples of how tradition and progress can walk hand in hand. Our aim is to provide a clear and simple understanding of how the world of tribal India is changing, thanks to the powerful influence of 21st-century technology.

## **Who are the Tribes of India?**

India is a vast land of incredible diversity, where people from hundreds of different groups live with their own customs and cultures. Among these are tribal communities, commonly known as “Adivasis,” a word meaning “original inhabitants.” These people belong to some of the oldest

cultures in the country, with traditions, languages, and wisdom that have been preserved for generations-often far away from the hustle and bustle of busy cities.

Tribal groups are found in every corner of India, especially in places rich with forests, mountains, hills, and rivers. You will find Adivasi families in the cool mountains of Nagaland and Assam, in the deep green forests of Jharkhand and Chhattisgarh, across the villages of Odisha, Madhya Pradesh, and Maharashtra, and even in Rajasthan's deserts or Gujarat's plateaus. Their villages are hidden treasures, where daily life is shaped by the environment around them-dense forests, winding rivers, and tall hills.

Adivasis depend closely on nature for food, safety, and work. They gather fruits, vegetables, and roots from the forests, hunt animals using traditional methods, and are skilled at eco-friendly farming, changing their crops with the seasons to keep the land healthy. Their homes are often built from bamboo, mud, and natural materials, which help them suit the local climate. With hands passed down through generations, tribal people weave baskets, carve idols, make musical instruments, and create crafts that are part of daily life and also reflect their beliefs.

Tribal life centers around tradition and community. Elders teach the young about medicinal plants, sacred rituals, and the stories of their ancestors. Music, dance, and festivals are occasions to thank nature, honor elders, and celebrate unity within the group. Leadership comes from chiefs, elders, or councils, who resolve conflicts by listening to the community and applying their shared wisdom.

Despite their strengths, tribal communities have faced tough challenges-like deforestation, mining, and outside pressures that threaten their land and traditions. Poverty and lack of opportunities sometimes make life difficult. But Adivasis remain strong in their spirit, holding fast to family ties and old customs.

Today, change is beginning to reach even the most remote villages. Many tribal people are curious about the outside world. Roads, schools, and digital technology are slowly arriving, and some communities are opening up to new ideas. They dream of combining traditional wisdom with modern opportunities, hoping for better education and health but determined to protect their special heritage.

In summary, the tribes of India are unique guardians of ancient knowledge and rich culture. Whether in forest villages of Chhattisgarh or mountain hamlets of Nagaland, they represent a key part of India's heritage. Their simple, self-sufficient way of living teaches important lessons about harmony with nature, the value of community, and how to respect old traditions while embracing the future.

### **Technology Reaches the Villages**

For many years, tribal villages in India lived far from cities and towns. Their homes were surrounded by forests, mountains, and rivers. Life was very simple. Most people did not have televisions, computers, or telephones. They cooked on wood fires, fetched water from wells or

streams, and used animals for farming. Children played games with sticks and stones and listened to stories from their elders. Almost all news was shared by word of mouth because there was no newspaper or radio.

But today, things are changing. Technology, which means new machines and gadgets like phones and computers, is slowly coming to tribal villages. This change is happening because the Indian government is working hard through projects like Digital India. Their goal is to help every village get better roads, mobile towers, and internet connections. These things can make life easier for everyone. NGOs (groups that help people) and volunteers are also visiting villages to teach new things.

Now, when you walk through many tribal villages, you will see changes. Tall mobile towers stand on hills. Roads are smoother and connect villages to markets, schools, and hospitals. Electricity wires run through trees to bring power into homes. Some houses now have lights, fans, and charging points for phones. People no longer have to walk for hours just to send a message or buy something from town—they can do some of these things with their mobile phone.

Mobile phones have become very important. In the past, only a few people had basic phones. Now, many young people own smartphones with touch screens. Even children know how to use them. On these phones, you can find many things: music, movies, games, lessons for school, news updates, and ways to talk to friends far away. Sometimes, several people from a village gather around one phone to watch a cricket match or a funny video. For many tribal families, their phone is like a window into the outside world.

Technology also brings new ways of learning. Before, children went to small schools with few teachers and books. Now, some schools use tablets and computers. During the COVID-19 lockdowns, students joined online classes using video calls or recorded lessons sent through apps like WhatsApp. If a student had a question, they could send a voice message and get help from their teacher, even if the teacher was far away. Kids see pictures and videos that make learning fun and easier to understand.

For adults, technology opens the door to many new things. Government officials and volunteers have taught villagers how to use simple apps for important tasks. For example, now you do not have to travel far to get information about your land, apply for government schemes, or find out about health camps—you can get many updates on your phone. Sometimes, a local leader will send a message to everyone in the village about a festival or meeting. Some villages make groups on Facebook or WhatsApp where people share news about their crops, weather, or jobs.

Banking is another area where technology has made life simpler. Before, most tribal people used only cash or traded goods. Now, bank officials come with small machines to open new accounts and link them to people's fingerprints. With a phone and internet, families can receive money directly from the government. This helps with savings, school fees, and buying things in the market. It has also reduced cheating, because the money goes straight to the right person.

Technology is also helping farmers and workers. Many tribal families grow rice, maize, vegetables, or collect fruits and honey from forests. New farming apps can tell farmers about the weather-if it will rain soon or if it will be sunny. This helps them decide when to plant or harvest crops. Some apps help spot diseases in plants by taking pictures, so farmers know what medicine to use. This information is given in simple language, sometimes in the tribal dialect. Farmers watch videos that show how to protect crops, rear animals, or use new tools for better results.

When someone gets sick, technology can help find care faster. Telemedicine means that a person does not always have to travel far to see a doctor. Sometimes, they can talk to a doctor through a video call and get advice. Photos of rashes, wounds, or sick plants can be sent for quick help. If there is an award about a new health hazard, volunteers send voice messages to warn everyone in the village. This is very helpful in areas where hospitals are far away.

Technology makes connecting with others easier. Many tribal young people make videos of their songs, dances, or festivals and post them online. Some show their handicrafts or talk about village problems. In some cases, videos posted on social media have helped get attention from government officials when there is an emergency in the village. It has also helped tell the wider world about the beauty, knowledge, and challenges of tribal life.

Even elders, who once hesitated to use gadgets, are now curious. Young people often help them learn how to use phones. For some, hearing the voice or seeing the face of a relative who works in the city is a joyful thing. During festival time, families send greetings using digital apps and share photos. Teachers and community leaders explain how to use digital tools safely, showing which messages are true and how to avoid scams.

But technology in tribal villages is not perfect yet. Some places still have poor mobile signals, slow internet, or frequent power cuts. Not everyone can afford a smartphone, and some people, especially elders, find them confusing. That's why help from outsiders-NGOs, government workers, and volunteers-remains important. They visit villages, organize classes, and answer questions kindly and patiently.

What is clear is that technology is changing life in tribal villages, step by step. Children can learn more, families can stay connected, workers can find new opportunities, and villages can share their voice with the world. Technology brings excitement, hope, and curiosity. It also brings questions: How will people keep their old traditions? Will technology make everyone equal?

For now, technology is opening windows and doors to bigger dreams. In places where nothing much changed for hundreds of years, small machines and digital gadgets are now part of daily life. With more help, more education, and the right tools, tribal villages can use technology to make life better-while still remembering the wisdom of their ancestors.

### **How Are Tribes Using Technology and AI?**

All across India, tribal people are slowly learning to use modern technology and artificial intelligence (AI) in their daily lives. These new tools are helping them solve old problems and find better ways to live. Let's look at how tribal communities are using these technologies in simple, practical ways:

### **Language Preservation and Saving Culture**

Many tribal languages in India are slowly disappearing because children are not learning them at school. Most schools teach only in Hindi or English, so tribal languages like Gondi, Santhali, Ho, and Kui are being forgotten. But now, technology is helping to save these precious languages.

In 2025, the Indian government created something special called "Adi Vaani." This is a smart computer program that can translate between tribal languages and Hindi or English. For example, if an elder speaks in Gondi, the app can convert it to Hindi so younger people can understand. Or if there is an important government message in English, it can be translated into the tribal language so everyone knows what it says.

Young people in villages are also using phone apps to record their grandparents telling old stories, singing traditional songs, or sharing wisdom about plants and medicines. Once these recordings are saved, they can be shared with family members who live in cities or with future generations. This way, the culture and knowledge of the tribes will not be lost.

### **Digital Education and Learning from Far Away**

Education has always been hard for tribal children because many villages do not have good schools or enough teachers. But now, with tablets and smartphones, children can learn from teachers who are far away. During COVID-19, when schools were closed, many tribal students joined online classes using video calls or received lessons through WhatsApp messages.

Some schools are using AI to help students learn better. For example, in Maharashtra, tribal schools use special AI cameras to check if children are eating enough healthy food. The camera takes pictures and the AI tells teachers if a child looks weak or sick. This helps teachers give extra care to students who need it.

### **Easy Healthcare Through Technology**

Getting medical help used to be very difficult for tribal families living in remote places. Doctors rarely visited villages, and traveling to hospitals was expensive and time-consuming. But now, telemedicine-which means talking to doctors through phones or video calls-is becoming common.

A family can now show their sick child to a doctor using a video call. The doctor can see the symptoms, ask questions, and give advice or prescribe medicine. There are even AI apps that can help identify diseases by looking at photos or asking simple questions about symptoms. This has helped with finding diseases like malaria, tuberculosis, and COVID-19 early in tribal areas.

### **Smarter Farming and Taking Care of Forests**

Most tribal families depend on farming, gathering forest products, or raising animals like goats and cows for their living. New farming apps powered by AI can help them in many ways. These apps can predict when it will rain, suggest which crops will grow best in their soil, or warn them about pests and diseases that might destroy their plants.

For example, if a farmer sees that their crop looks sick, they can take a photo with their phone. An AI app can look at the picture and tell them what is wrong and what medicine to use. The advice is often given in simple Hindi or even in their local tribal language.

Tribal communities are also using technology to protect their forests. Drones and satellite images help them spot illegal cutting of trees or forest fires early. AI helps analyze lots of pictures quickly to create maps showing what is happening in their forests. This information helps tribal leaders take action to protect their land.

### **Selling Tribal Products to the World**

In the past, when tribal women made beautiful baskets, jewelry, or wooden carvings, they could only sell them in local markets for very little money. But now, with the help of e-commerce websites, their products can be sold to people in big cities or even other countries.

The government created websites like "Tribes India" where artisans can upload pictures of their products and sell them online. Big shopping websites like Amazon and Flipkart also have special sections for tribal products. Some platforms use AI to help match products with customers who might want to buy them, suggest fair prices, and track orders easily.

### **Banking and Digital Money**

Most tribal families used to deal only in cash or trade goods directly with each other. But now, many have bank accounts and use simple apps to receive money from government programs like pensions, scholarships, or disaster relief.

Opening a bank account has become easier with AI-powered systems that use fingerprints or face scans to identify people. Simple payment apps let people send or receive money safely, even if they cannot read or write well. This has reduced corruption because money goes directly to the right person.

### **Protecting Land Rights and Fighting for Justice**

Tribal communities often face problems like people stealing their land, illegal mining, or cutting down their forests. Technology is helping them fight these problems. GPS devices and drones help tribal leaders map their land and gather evidence when someone tries to take it illegally.

AI helps process large amounts of government documents and court cases, making it easier for activists and lawyers to fight for tribal rights and get compensation. Photos and videos taken with phones can be used as proof in courts.

## **Having a Voice Through Social Media**

In the past, problems faced by tribal people were often ignored by the government and media. But now, with social media like Facebook, Instagram, and X (Twitter), young tribal people can share their stories, raise awareness about problems, and ask for help.

Videos showing beautiful tribal festivals, traditional dances, or serious issues like land grabbing can quickly become popular online. This brings attention from journalists, government officials, and social workers who can help solve problems.

These examples show that technology and AI are slowly but surely changing life in tribal areas. While there are still challenges-like poor internet connections, expensive devices, and the need for more training-the positive changes are encouraging. Technology is helping tribal communities preserve their culture, improve their health and education, earn more money, and have a stronger voice in society.

## **Barriers and Difficulties**

Even though technology is helping many tribal families in India, not everyone can use smartphones, computers, or AI tools yet, as there are still many challenges in their way. First, poor connectivity is a big problem-many tribal villages are in deep forests or hills where mobile and internet signals are weak or sometimes missing, so it becomes hard for people to join online classes or use apps, especially when the connection is slow. Second, low digital literacy is common; elders and adults in these communities often feel nervous or scared to try new gadgets because they have never seen or used them before, making it hard for them to learn digital skills quickly. Third, buying devices like smartphones, tablets, or paying for internet plans costs money, and since most tribal families have very little income, it becomes too expensive to afford new gadgets or keep them charged and working. Fourth, language and content is an issue; most online information comes in English or standard Hindi, but there are very few resources in tribal languages, so many people cannot understand, learn, or feel included while using technology. Fifth, there is a fear of losing traditional knowledge; elders worry that if youngsters spend too much time with phones or the internet, they could forget old ways of farming, healing, storytelling, and living together as a community. Finally, privacy and safety cause concern-tribal leaders are afraid that sharing too much community information online, like maps of forests, family names, or village news, could let outsiders misuse or steal this data, which might harm the community. Because of these barriers, it is important that support, training, and careful planning are given so tribal families can safely and easily enjoy the benefits of technology without losing their roots.

## **Stories of Change**

Indian tribes across India are experiencing amazing changes through technology and artificial intelligence, shown by many real stories from their villages and communities. In Nashik, Maharashtra, tribal schools use cameras and AI software that look at students' photos to find out who needs more food or medical help, making it easier for teachers to keep children healthy. "Adi

Vaani,” an AI language translator created with the help of scientists and tribal elders, helps people who speak Gondi, Santhali, Ho, Hindi, or English understand important public news and government schemes, especially elders who do not know the mainstream languages. In Jharkhand and Chhattisgarh, tribal women’s groups collect forest honey and herbs, then use online shops-sometimes with AI tools-to upload product photos, write names in their local dialects, and sell their products to a much wider audience. Odisha’s tribal communities use drones and AI-powered maps to count trees, watch for animal movements, and check for illegal forest cutting, so they can better protect sacred groves and prove their rights. Many tribal farmers now listen to WhatsApp voice messages-sometimes made with the help of AI converting texts into local languages-to get quick warnings about weather changes, like when rain is coming or a cyclone is near, so they can keep their families and crops safe. Young people and women in these villages have become leaders, teaching others how to use phones, fill out online forms, pay with digital money, and apply for jobs or government schemes; women use mobiles for small businesses and stay connected with family, gaining more confidence and respect in their homes. For tribal communities, technology is not just about surviving-it helps them dream about becoming engineers, doctors, or bringing clean water, better schools, and green energy to their villages. By using modern science together with old wisdom, tribes can now find new solutions for farming, conservation, and even fight problems like climate change. Overall, these success stories show that, with enough support and respect for their culture, even the most remote Indian tribes can use new technology to make life better. The journey with AI and modern gadgets is only beginning, but every month brings more connections, more elders learning apps like WhatsApp, and more children using technology without forgetting their roots. Technology can be a bridge between old traditions and new opportunities: with good training, affordable devices, and respect for local customs, AI and digital tools can help India’s Adivasis live healthier, happier lives while still celebrating their history and values. If this change happens carefully, step by step, tribal communities will not lose their identity; instead, they will have new ways to share their voices, preserve their culture, and create a brighter future for themselves and the generations to come.

## **Conclusion**

The journey of Indian tribal communities as they begin to use technology and artificial intelligence is only at its starting point. With each passing month, more and more tribal villages are getting connected to mobile networks and the internet. You can now see elders who once depended solely on traditional ways bravely trying new applications like WhatsApp, Skype, and simple learning apps. Children, too, are quickly adapting-attending online classes, playing educational games, and learning from videos that bring the world closer to their homes.

Technology is acting like a bridge, joining together the old wisdom of the tribes with new possibilities for the future. Ancient values such as storytelling, respect for nature, music, and local languages are still very important, but now, with digital recording and sharing, these traditions have a chance to reach future generations and even people living far outside the village. This helps

preserve the unique identity of tribal communities while allowing them to join the worldwide conversation.

With the right kind of support, tribal people can use digital tools to make their lives better in many ways. Good training and guidance help explain the benefits and how to use technology safely. If phones, tablets, and internet connections are made more affordable, more families can use them. Volunteers, NGOs, and teachers play a huge role, visiting villages, teaching people step-by-step, and answering questions kindly and patiently.

However, while technology opens many doors, it is important to respect tribal customs and special ways of life. If change happens too quickly or without care, some old traditions might be lost. So, the best approach is to introduce new tools slowly, with full respect for language, culture, and community needs. Listening to the elders and ensuring that everyone, from children to grandparents, is involved in learning new skills is key.

If this balanced and gentle path is followed, technology will not erase tribal identity. Instead, it will help tribal communities find new ways to share their voices, protect their lands, run better schools and businesses, and solve problems together. They can take pride in both their ancient wisdom and their new achievements. For Indian tribes, the future can be bright and hopeful-filled with new opportunities, stronger communities, and a fresh sense of confidence. By connecting their old customs to new knowledge, tribal people will not only improve their own lives but also inspire the whole world with lessons of harmony, resilience, and the value of respecting both past and future.

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