A Study on the Impact of AI in Rural Development and Social Enterprises

Shodh Siddhi
A Multidisciplinary & Multilingual Double Blind Peer Reviewed International Research Journal
Volume: 02 | Issue: 03 [July to September : 2026], pp. 63-70



Bal Krishna
(Research Scholar)
Awadhesh Pratap Singh University
Rewa (Madhya Pradesh) India



Dr. Preeti Dwivedi
(Professor and Head)
MBA Vindhya Institute of Technology & Science (VITS)
Satna (Madhya Pradesh) India

Abstract

The present era is often described as an age of science, technology, communication, intelligence, education and economy. Human beings are trying to develop society by adopting these concepts, particularly in villages, towns and cities, and are transforming them into Smart Villages, Smart Towns and Smart Cities. The objective of this survey paper is to discuss the impact of artificial intelligence (AI) and social media on the development of rural areas, that is, the villages that lie outside cities and towns. The paper examines the relationship of AI and social media with rural development and considers how rural areas can be improved through the implementation of AI-related and social media technologies..

Keywords: Artificial Intelligence (AI), Social Media, Rural Development, Smart Villages.

I. Introduction

India comprises 29 states and 7 Union Territories, which together contain 725 districts and 649,481 villages. According to the Census, of a population of 133.92 crore, approximately 69% lives in rural areas and the remaining 31% in urban areas. Rural areas clearly face greater difficulty in securing livelihoods and require development in fields such as education, the economy, science, technology, communication and networking.

The Government has recognised these issues and addresses them through the concept of rural development, known as Smart Villages. Rural development focuses mainly on basic amenities, infrastructure, livelihood opportunities, literacy and poverty, through various innovative self-employment programmes.

The present age is called the Smart Age because people use information technology in the form of smart phones and smart televisions and live in smart homes. There has recently been considerable interest in the development of Smart Cities, a concept that evolved as a plan to deal with the problems generated by urban population growth and urbanisation. The Smart City aims to improve the quality of life of urban residents and has significant potential for urban development. Given the successful implementation of Smart Cities, the concept of Smart Villages has been proposed for unplanned, unorganised and under-developed villages through the use of AI and social media.

AI has an impact on the developed world and on people's daily lives, appearing in forms ranging from virtual assistants and recommendation engines to news services in homes and offices. Most businesses, non-governmental organisations (NGOs) and governments use AI in their processes and products, and in sectors such as healthcare, education, economics and agriculture.

Researchers have recognised the potential of social media for rural development, and it may play a key role in the fast and sustainable development of rural India in the coming years. Information technology (IT) can make a difference in a developing country only if it is designed in close collaboration with its users. Given the limitations of traditional rural planning and construction, village planning needs to be a bottom-up process that focuses on local community participation.

Social media are web tools that allow users to interact personally, formally and informally, and to create, share, exchange and retrieve information, ideas and concepts in virtual communication networks. Social networking sites, blogs, forums, wikis, messaging services, discussion boards and groups, and video services are among the types of social media used as platforms for rural development.

II. Rural Development: The Smart Village

Indian society is multicultural, multi-tribal, multi-caste and multilingual, and it is marked by disparities between urban and rural people. The Government of India has started many initiatives to reach its large population, and several United Nations programmes have also been implemented in Indian villages.

Rural development is represented by the term Smart Village. The Smart Village concept addresses the challenges facing the sustainable development of rural India and provides long-run social, economic and environmental welfare for villages. It enables villagers to participate in local government processes, promotes entrepreneurship, builds stronger communities and empowers them. At the same time, a Smart Village ensures proper sanitation, good education, better infrastructure, clean drinking water, health facilities, environmental protection, efficient resource use, waste management and renewable energy.

A Smart Village encompasses sustainable and inclusive development of all sections of the village community so that they enjoy a high standard of living. Researchers suggest that the Smart Village concept can be developed by drawing on the Smart City model. The components vary from region to region according to the available resources and opportunities. They are as follows:

1. **Economic component:** includes local administration and economic factors, and covers governance models, bandwidth, mobility, cloud computing, entrepreneurship and related matters.

2. **Environmental component:** addresses the resources and infrastructure available at the local level, and may cover cleaner technologies, public and alternative transportation, green spaces, smart growth and climate change.
3. **Social component:** includes issues related to community life, participatory democracy, social innovation and proximity services.

The Smart Village–Smart Ward programme adopts the following approach, with Swachh (clean) Village/Ward and the sustainable development of resources as its overall guiding principle:

- Mobilising the community for participatory local-level development;
- Converging government schemes with private and voluntary initiatives to achieve comprehensive development;
- Building partnerships with voluntary organisations, co-operatives, and academic and research institutions;
- Paying attention to a life-cycle approach and gender sensitisation;
- Focusing on outcomes and sustainability; and
- Protecting the local traditions and heritage of the village.

A Smart Village can create a measurable and significant impact through the following applications:

- **Smart buildings:** security cameras, fire safety and electricity management.
- **Smart dairy:** remote supervision and monitoring in open fields and barns.
- **Smart farming:** use of satellite data for farm activities.
- **Smart agriculture:** smart agricultural equipment for crop production.
- **Smart weather and irrigation:** weather forecasts and monitoring of water levels in dams.
- **Smart healthcare:** smart beds and equipment to monitor patients.
- **Smart education:** interactive learning through videos.
- **Smart surveillance:** closed-circuit cameras and sensors to detect theft.

III. Impact of AI on Rural Development

Artificial intelligence is used to make machines smart, intelligent and human-like, and it appears to be the future of technology. It can contribute significantly to the development of a country if efforts are directed towards it, and India's future depends greatly on AI. With the advent of this technology, there is a strong focus on how it can change the way people access healthcare services.

AI is still finding its way into emerging markets, but certain applications have emerged and are now widely used. For instance, predictive models for disaster relief enable first responders to analyse large-scale behaviour and movement automatically, using multiple sources of data such as social media platforms, web forums and news sources.

Robotics and machine learning have enhanced the workplace and the economies of many developed countries by improving productivity. AI has advanced quickly into finance, transportation and defence. Its adoption is common in start-ups and is proceeding more slowly in larger enterprises.

The initial use of AI in developing countries has been at a micro level, solving small, specific problems in a defined industry. When duly adopted, AI can positively affect everyday life, not only in disaster intervention, education, healthcare and agriculture, but also in mitigating poverty, malnutrition and pollution.

The case of Nepal illustrates this. When a major earthquake struck in 2015, more than 8 million people were affected, and drones were used in the aftermath to map and assess the destruction and to speed up rescue efforts. In Rwanda, Zipline uses drones to deliver medical supplies and blood to hospitals and clinics that are difficult to reach by road, and the company reports that the drone system has reduced the wastage of blood by 95%. One Concern has created an AI programme, Seismic Concern, that predicts seismic events and is also developing solutions for floods, wildfires and hurricanes. The medical field may benefit most from emerging technologies in developing countries.

Another application is smart agriculture, in which farmers monitor crops and use AI tools to harvest, plant and weed more effectively and to make better predictions. AI can also analyse one plant at a time, so that pesticide is applied only to infected plants rather than sprayed across large areas of crops; a California-based technology company, for example, uses AI for this purpose. Farmers in rural India are also using AI to increase yields through better access to information about the farming season than they would otherwise have. Technology-enabled process automation offers the agribusiness industry remarkable growth opportunities not only in developed countries but around the world, with scope to increase yields, cut labour costs and improve people's health.

Education is another vital area benefiting from innovative technologies such as AI, which can enhance how people learn, teach and perform tasks. Tools such as personalised learning assistants can simplify learning by making tutorial services and study materials accessible to all students, wherever they are. Machines can be automated to help students learn basic concepts without a tutor, an area in which organisations such as Carnegie Learning are working. This allows students to learn at any time and from any place, making education easier and more accessible.

The transportation industry appears likely to be the first to be completely disrupted by AI, and much of the impact is already visible. Uber and Lyft are both working on self-driving technology. Waze, the navigation software company acquired by Google in 2013, released an application called Carpool that converts its more than 50 million users into drivers and allows them to commute to work together for a fee. Waymo, formerly the Google self-driving car project, has reached 5 million miles driven on public roads.

The criminal justice system is likely to be the next industry disrupted by AI. Advances in facial recognition are making the fingerprint obsolete, technology start-ups are using AI to automate legal work, and some courts already use AI to sentence offenders and determine parole eligibility.

AI will also take targeted and personalized advertising to a new level. The Facebook–Cambridge Analytica scandal showed the risks, and advertisers are already able to predict which types of advertisements emotionally influence purchasing behaviour. As time goes on, advertisements will become increasingly tailored to the individual.

IV. Impact of Social Media on Rural Development

New technologies have also been put to serious use for development communication. Mobile telephony, websites and the internet are interactive in nature.

Social networking sites such as Facebook, MySpace and Twitter are gaining popularity because of their attractive features, and today's generation is fascinated by them. Some studies argue that youth are distracted from their studies and professions by the rapid popularity of these sites; on the contrary, however, young people are also developing friendly and social ties with the world around them.

Mobile technology. This technology plays an important role in connecting people, and it has had a major share in bringing the nation to an outstanding level of progress.

Mobile banking. Banking transactions have partly shifted from paper to mobile and internet banking, which also benefits the environment by saving paper. The number of users of this facility is increasing. A user can view a balance, open an account, apply for a loan and carry out other banking transactions by mobile, and ATM facilities are now available in villages, so the banking sector has developed as well. Mobile banking has two advantages over traditional banking. First, it is available 24 hours a day and therefore meets clients' needs at any time. Second, it can be used wherever mobile internet is available, which saves clients trips to the bank.

Agriculture. Farmers receive proper guidance on the use of fertilisers, the quantity to be applied according to the nature of the soil, and the crops for which a given soil is more suitable. This guidance increases crop yields and thereby farmers' profits. Developers are increasingly using new technology trends to develop and deliver such m-services, complementing existing mobile technologies such as SMS and voice calls. A recent development is the introduction of the Kisan TV channel.

Recent developments in geographic information systems (GIS), the global positioning system (GPS), remote sensing, web services and location-based services can support innovative solutions for management, governance and citizen participation that are consistent with Smart Village objectives. Geospatial data and GIS are essential components of Smart Villages because they map the physical world into a virtual environment. GIS-based planning and support systems allow planners and village communities to create and visualise alternative scenarios efficiently and to determine their possible impact on future land-use patterns and on the associated population and employment trends.

V. Study Findings

A Smart Village/Ward encompasses sustainable and inclusive development of all sections of its community. Its residents enjoy a high standard of living when the following basic amenities are achieved in full:

4. Homes for all, with access to a toilet, safe drinking water and regular power.
5. Skills and village enterprise development, with bank and market linkages that give youth more flexible access to opportunities.
6. A functioning solid and liquid waste management system.
7. An end to all preventable maternal and infant deaths.
8. Zero school dropouts among boys and girls up to Class 12.
9. Functional toilets, potable water and electricity in Anganwadi centres and schools.
10. Freedom from malnutrition among children below 9 years of age.
11. No child marriage (girls below 18 years of age).
12. A functional bank account, including a PM Jan Dhan account, for every village household.
13. Tree plantations across the geographic boundary of every Gram Panchayat (GP) or Ward.
14. Functional water conservation and harvesting structures in every GP or Ward.
15. A functional Information Centre, Computer Lab and Mee Seva Centre in every GP or Ward.

The major government programmes relevant to rural development include the following.

Agriculture

- National Agricultural Development Programme

- Bank loans and free electricity
- Accelerated Irrigation Benefit Programme
- Fertiliser subsidy

Employment

- Mahatma Gandhi National Rural Employment Guarantee Scheme
- National Food Security Act
- Public Distribution System

Nutrition security

- Mid-Day Meal Scheme
- Annapurna Scheme (Ministry of Rural Development) for senior citizens
- Integrated Child Development Scheme (ICDS)
- Emergency feeding programme (in eight districts of Odisha)
- Nutritional Programme for Adolescent Girls

It is high time for NGOs and governments to leverage the true potential of AI and create a snowball effect. Start-ups are defining a holistic and humanitarian approach to building more sophisticated, AI-ready societies. Stakeholders in the AI landscape should understand the strengths and nuances of the developing world, as well as the limitations of AI, and create localised solutions and applications.

Medical AI technology could improve physicians' efficiency and the quality of medical services, and other health workers could also be trained to use it to compensate for the shortage of physicians, thereby improving access to healthcare and the quality of medical service. This paper proposes a multilevel medical AI service network comprising a frontline medical AI system (basic level), regional medical AI support centres (middle level) and a national medical AI development centre.

This review has identified limited evidence on the adoption and diffusion of AI, although it has been noted that neither AI nor other forms of digital technology appears to have led to significant productivity improvements in recent years. Surveys of business leaders and predictions by Frontier Economics, however, identify the following drivers of business adoption of AI:

- **Profitability of investing in AI:** technical feasibility is a necessary condition, but AI will be adopted only when the expected revenues exceed the costs of adoption.
- **Ability to reshape organisations and processes** in the ways needed to take advantage of the new technology.
- **Regulatory enablers and constraints:** adopting AI in a way that complies with relevant regulations may not always be possible; conversely, regulation may enable adoption, for example by setting necessary standards.
- **Social attitudes and preferences** regarding the role of machines.

In many settings, people may require interaction with a human even where a cheaper automated alternative is available, as may be the case in health and social care work.

VI. Conclusion

Smart Villages are the need of the hour, because development is needed in both rural and urban areas for better livelihoods, and information technology offers an effective solution. Successful technologies are available that have already been implemented in urban areas. Urban landscapes are

under tremendous pressure from the migration of rural people in search of livelihoods. Smart Villages will not only reduce this migration but also help redirect the flow of population from urban to rural areas. Information and communication technology (ICT), IT and GIS are the pillars that support the whole process of village development. The following points need attention for the development of rural areas:

- A policy to promote IT in rural areas is needed first of all, together with strong IT infrastructure.
- Broadband facilities are still non-existent for many rural people.
- A proper monitoring team should oversee e-governance projects in rural areas.
- Agriculture is the main source of livelihood in rural areas, so the Government should start e-business schemes there; ITC's e-Choupal, an internet-based intervention for rural farmers, is one example.
- Licensed software is not cost-effective, and IT facilities cannot be provided to rural areas without heavy funding. Maintenance of hardware and software is also difficult and costly, so a large budget is needed for rural areas.
- Lack of knowledge of English is a major obstacle in rural areas, and professional teachers are needed.
- Unconnected panchayats and villages should be linked with urban areas, and the quality of state highways and district roads should be improved.
- The quality of IT education in rural areas should be improved; primary education remains vital.

References,Notes and Bibliography:

1. Asian Development Bank. (2008). Managing Asian cities: Sustainable and inclusive urban solutions (Publication Stock No. 050608). Asian Development Bank. http://www.adb.org/Studies/Managing-Asian-Cities/mac-report.pdf
2. Bansal, E. (2015). Impact of social media on rural India. International Journal of Management Research and Business Strategy, 4(3).
3. Chourabi, H., Nam, T., Walker, S., Gil-Garcia, J. R., Mellouli, S., Nahon, K., Pardo, T. A., & Scholl, H. J. (2012). Understanding smart cities: An integrative framework. In Proceedings of the 45th Hawaii International Conference on System Sciences (pp. 2289–2297). IEEE.
4. Deshpande, V. J., & Sambhe, R. U. (2014). Information technology implementation for comprehensive development of rural India: A review. International Journal of Science and Research, 3(8).
5. Government of India. (2018). Census 2018. Government of India.
6. Gupta, A. R., & Zafar, S. (2013). Rural India: The next frontier for social media networks. International Journal of Engineering Research & Technology, 2(1).
7. Hall, W., & Pesenti, J. (2017). Growing the artificial intelligence industry in the UK. Department for Business, Energy and Industrial Strategy; Department for Digital, Culture, Media and Sport. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/652097/Growing_the_artificial_intelligence_industry_in_the_UK.pdf

8. Heeks, R. (2002). Information systems and developing countries: Failure, success, and local improvisations. The Information Society, 18(2), 101–112.
9. House of Commons Science and Technology Committee. (2016). Robotics and artificial intelligence (Fifth Report of Session 2016–17). https://publications.parliament.uk/pa/cm201617/cmselect/cmsctech/145/145.pdf
10. Kuppuswamy, S., & Narayan, P. B. (2011). The impact of social networking websites on the education of youth.
11. NITI Aayog. (n.d.). Roadmap on AI for inclusive societal development. https://niti.gov.in/sites/default/files/202510/Roadmap_On_AI_for_Inclusive_Societal_Development
12. Srinivas, M. N., & Shah, A. M. (1960). The myth of self-sufficiency of the Indian village. The Economic Weekly, 12(37), 1375–1378. http://www.epw.in/system/files/pdf/1960_12/37/the_myth_of_selfsufficiency_of_the_indian_village.pdf
13. Tariq, W., Mehboob, M., Khan, M. A., & Ullah, F. (2012). The impact of social media and social networks on education and students of Pakistan. IJCSI International Journal of Computer Science Issues, 9(4).
14. Verma, S., & Datta, A. (2013). GIS-driven renewable energy framework for smart and sustainable cities India.
15. Vesisenaho, M., & Sutinen, E. (2010). Smart morning in an African village: Diversifying technologies within a Tanzanian context. International Journal of Media, Technology and Lifelong Learning, 6(1). http://seminar.net/volume-6-issue-1-2010/138

❑❑❑