

A Survey on Impact of AI and Social Media for Rural Development

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Abstract— Today's era is considered as an age of science, technology, communication, intelligence, education and economy. The human being is tried to develop the society by implementing and adapting these concepts, especially in villages, city and town and turn them into Smart Village, Smart city and Smart Town. So, the objective of this survey paper is to discuss the impact of artificial intelligence and social media in rural areas for the development purposes, which is located outside of cities or town which is also known as villages. This paper puts light on the relationship of AI and Social media with rural development, that how to improve the rural areas by implementing various technology related to AI and social media.

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

I. INTRODUCTION

As considering the statistical view, in India there are 29 states and 7 Union Territories which consists of 725 districts that includes 649481 villages. Out of 133.92 crores of population in India, 69% is from rural areas and remaining 31% from urban areas approximately as per Census [1]. From this figure it is clear that rural areas are suffering more from livelihood and requires development by improving themselves in various fields like education, economy, science, technology, communication, networking etc.

The government already recognized these and deals with these issues by providing the concept of rural development called as Smart Villages. Rural development concept mainly focuses on basic amenities, infrastructure, livelihood opportunities and literacy and poverty issues through various self-employment innovative programs.

The current modern age is called as Smart age though the human being uses Information Technology in form of Smart Phone, Smart TV and stays in Smart Homes. Recently there is an huge interest in the development of Smart Cities [2]. Making a Smart City is evolved as a plan to deal with the problems generated by the urban population growth and urbanization [3].

The concept of Smart city initiates to improve the qualitative life of urban people and became a boon which has the potentiality for urban development. Considering the successful implementation of Smart City, the concept of Smart Villages is innovated for the unplanned, unorganized, under-developed villages by implementing AI and Social media.

AI puts impact in the developed world and in people daily lives and it is present in various forms like from virtual assistants to recommendation engines, in form of news, at homes and offices. Most of the business, NGOs and Government uses AI in their process and products and in various sectors like healthcare, education, economics and agriculture.

The various researchers have recognized the potential of social media for rural development and it may play key role for the fast and sustainable development of rural India in coming years. Information technology (IT) can make a difference in a developing country only, if it is designed in close collaboration with its users [6]. Based on the analysis of limitation of traditional rural planning and construction, the village planning needs to be a bottom-up process that focuses on the local community participation [7].

Social media is the web tool that permits users to do interaction personally, formally and informally and to create, share, exchange and retrieve information and ideas and concepts in virtual communication networks. Social sites, blogs, forums, wikis, message services, discussion boards and groups, video services etc. are the types of social media that used as a platform form rural development. [4]

II. RURAL DEVELOPMENT: SMART VILLAGE

The society of India is a multi-cultures, multi tribes and castes, multi lingual society and it disparities between the urban and rural people. The Indian government has started many initiatives which have tried to encompass the large Indian crowd and while also many UN programs have been put to use in Indian villages.

Rural development represents the term Smart village. The “Smart Village” concept will provide various challenges that face sustainable development of rural India and also provide long-run social, economic and environmental welfare activities for villages which will take participation in local government process, promote entrepreneurship, build more communities and empower themselves. [5]. At the same time, a “Smart Village” will ensure proper sanitation facility, good education, better infrastructure, clean drinking water, health facilities, environment protection, resource use efficiency, waste management, renewable energy etc.

A „Smart Village“ will encompass a sustainable and inclusive development of all sections of the village community, so as they enjoy a high standard of living. Researchers said that Smart village concept can be developed by considering the smart city model [5]. The various components will vary from region to region for villages, based on the available resources and opportunities. The components are:

1. Economic Component: It includes local administration and economic factors and covers governance models, bandwidth, mobility, cloud computing, entrepreneurship etc.
2. Environmental Component: It addresses the issues of resources and infrastructures available at local level. It may cover cleaner technologies, public and alternative transportation, green spaces, smart growth, climate change etc.
3. Social Component: It includes the issues related to community life, participatory democracy, social innovation, proximity services etc.



Fig-1: Components of Smart village

The „Smart Village-Smart Ward“ programme will adopt the following approach in achieving its consequences with Swachh Village/Ward and sustainable development of resources as overall guiding principle:

- Community Mobilizing for participatory local level development;
 - Converging government schemes and private and voluntary initiatives to achieve comprehensive development;
 - Building partnerships with voluntary organizations, co-operatives, academic and research institutions;
 - Attention to a life-cycle approach and gender sensitization;
 - Focusing on outcomes and sustainability;
 - Protecting local traditions and heritage of the village;
- Smart Village may create measurable and significant impact:-
- Smart Buildings** – security cameras , fire safety, electricity managements
 - Smart Dairy**-Remote supervision and monitoring in open fields and barns.
 - Smart Farming**- Satellite data for farm activities.
 - Smart agriculture**- Smart agricultural equipment for crop production.
 - Smart Weather and Irrigation**-Weather forecast water levels in dams.
 - Smart health care** –Smart beds and equipments to monitor patient.
 - Smart Education** – Interactive learning through videos
 - Smart surveillance system** – CC cameras and sensors to detect robbery

III. IMPACT OF AI IN RURAL DEVELOPMENT

Artificial intelligence used to make our machines smart, intelligent and human like and it seems to be the future of technology. It can significantly contribute towards the development of a country, if efforts are taken in this direction. Our country’s future greatly depends on AI. With the advent of this technology; there is a great focus on how it can impact the way people access their healthcare services.

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

Robotics and machine learning has enhanced the workplace and economies of many developed countries by improving productivity. Artificial intelligence has advanced quickly into finance, transportation and defence industries. Adoption of AI and machine learning are common in start-ups and are being adopted slowly by enterprises. [10]

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 impact our everyday lives not just in disaster intervention, education,

health care and agriculture but can also help in mitigating poverty, malnutrition and pollution. [9]

As per the case study of Nepal when In 2015, a major earthquake hit Nepal, more than 8 million people were affected. During the aftermath, drones were used to map and assess the destruction and speed up the rescue mission. In Rwanda, for example, Zip-line is using drones to deliver medical supplies and blood to hospitals and clinics that are difficult to access by car. The drone system in Rwanda has also helped reduce waste of blood by 95%, as noted by Zip-line.

One Concern has created an AI program called Seismic Concern that accurately predicts seismic events and is also working on solutions for floods, wildfires and hurricanes. The medical field may actually benefit the most from emerging technologies in developing countries.

Another application is Smart Agriculture, where farmers monitors crops and try to harvest, plant and weed more effectively and can make better prediction using AI tools. It can also be used to analyze one plant at a time and add pesticides only to infected one and spray pesticides across large swaths of crops. Eg.: California based tech company uses AI for this.

Farmers in rural parts of India are also using AI to increase yields through better access to information about the farming season than they would normally have. Technology-enabled process automation offers the agribusiness industry the chance for remarkable growth -- not only in developed countries but around the world. There's a unique opportunity to increase yields, cut down labor costs and improve people's health.

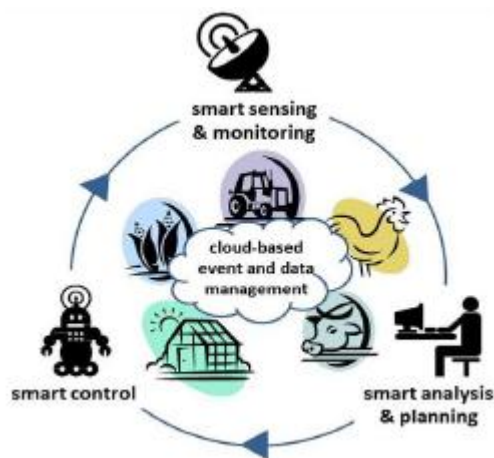


Fig-2: Smart Agriculture or Smart Farming Another vital area benefiting from innovative technologies like AI is education. Advanced technologies can enhance how we learn, teach and perform tasks.

AI tools like personalized learning assistants can simplify learn process 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, which companies like Carnegie Learning are working on. This would allow students to learn at anytime from anywhere. With AI, education is made easy and accessible to more people.[10]

The transportation industry looks like it will be the first to be completely disrupted by artificial intelligence. In fact, a lot of the impact of AI is already taking place.

Uber and Lyft are both working on self-driving technology. GPS navigation software company Waze (which was acquired by Google in 2013) quietly released a new app called Car-Pool that converts its 50-plus million users into drivers and allows users to commute to work together for a fee. Waymo (formerly the Google self-driving car project) recently reached 5 million miles driven on public roads.

The next industry disrupted by artificial intelligence is the criminal justice system. Advancements in facial recognition are making the fingerprint obsolete. Tech start-ups are using AI to automate legal work. Meanwhile, some courts are already using AI to sentence criminals and determine parole eligibility.

AI is going to take targeted/personalized advertising to a whole other level. If you think the Facebook Cambridge Analytica scandal was bad, then you have no idea what's in store in the next decade. Advertisers are already able to predict what types of ads emotionally impact your purchasing behaviour. As time goes on, ads are going to continue to become more tailored to the individual.

IV. IMPACT OF SOCIAL MEDIA IN RURAL DEVELOPMENT

New Technologies have also been put to serious use for development communication. New technologies like mobile, website and internet are interactive in nature

The researcher tries to portray, social networking sites such as Facebook, MySpace and Twitter are gaining popularity with the pace of time and due to their attractive features of today's generation is fascinated towards them. The study argues against the notion claiming that due to the rapid popularity of social networking sites the youth tends to distract themselves from their studies and professions but on the contrary is also developing friendly and social ties with the world that revolves around them [11].

Mobile Technology: This technology plays an important role in connecting people or even it may not seem wrong to

say that introduction of mobile technology has lion's share in bringing the nation to an outstanding level of progress.

Mobile Banking: The main transaction, i.e., banking transaction has partly changed from paper to mobile banking or internet banking. It also benefits the environment in saving the trees. The most noticeable thing is that the users using this facility of technology are also increasing. The user can not only view his balance, he can create his own account, apply for loan, etc. that is he can do all banking transactions with the help of mobile banking. Also now there is facility of ATM in the villages.

So, there is development in banking sector also. Mobile Banking has two advantages over the traditional forms of banking. First, it is available 24 hours a day and therefore meets clients' banking needs at any time. Second, it is possible wherever mobile internet is available and thus saves clients trips to banks.

Agriculture: The farmers are given proper guidance about the use of fertilizers, the amount in which the fertilizer should be added, etc. to the nature of the soil, for which crop the soil is more beneficial. The technology is too beneficial in the increment of yield of crops due to which farmers will be in profit.

Developers are increasingly making use of new technology trends to develop and deliver such m-services, complementing existing mobile technologies such as SMS and voice calls. Latest change: "KISAN TV" channel introduction.

Recent developments in GIS, GPS, remote sensing, web-services and location-based services and technologies can support innovative solutions for management, governance and citizen participation practices compliant with Smart Village objectives.

Geo-spatial data and Geographic Information System (GIS) are essential components for building smart villages in a basic way that maps the physical world into virtual environment. GIS-based planning and support systems allow planners and village community to efficiently create and visualize alternative scenarios and determine their possible impacts on future land use patterns and associated population with employment trends [12].

V. STUDY FINDINGS

A „Smart Village/Ward“ encompasses sustainable and inclusive development of all sections of its Community, so. The 100 per cent achievement of the following basic amenities, they enjoy a high standard of living.

1. Homes for all – with access to toilet, safe-drinking water, and regular power

2. Skills and Village Enterprise development with bank and market linkages gave more flexible access to youth.
3. Has functional solid/liquid waste management system.
4. End all preventable maternal deaths and infant deaths.
5. Zero school drop outs of boys and girls up to 12th class.
6. Functional toilet, potable water, electricity available in Anganwadi Centres, schools.
7. Malnutrition free (children below 9 years of age).
8. No girl-child marriages (girls below 18 years of age).
9. Every village household has a functional bank account/PM Jan Dhan Bank Account.
10. Every GP/Ward has green trees plantations all over its geographic boundaries.
11. Every GP/Ward has functional water conservation and harvesting structures.
12. Every GP/Ward has functional Information Centre, Computer Lab, and Mee-Seva Centre.
13. Homes for all – with access to toilet, safe-drinking water, and regular power
14. Skills and Village Enterprise development with bank and market linkages gave more flexible access to youth.
15. Has functional solid/liquid waste management system

MAJOR PROGRAMS IN AGRICULTURE

- National Agricultural Development Program
- Bank loans, Free Electricity
- Accelerated Irrigation Benefit Program
- Fertilizer Subsidy

MAJOR PROGRAMS TO IMPROVE EMPLOYMENT

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

MAJOR PROGRAMS & PARTNERSHIPS TO IMPROVE NUTRITION SECURITY

- Mid-Day Meal Scheme
- Annapurna Scheme (Ministry of Rural Development) for senior citizens
- Integrated Child Development Scheme (ICDS)
- Emergency feeding program (in eight districts in Orissa)*
- The Nutritional Program for Adolescent Girls*
- GP** – Gram Panchayat

It is high-time for NGOs and governments, to leverage AI's true potential 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 localized solutions and applications.

Medical AI technology not only could improve physicians' efficiency and quality of medical services, but other health workers could also be trained to use this technique to

compensate for the lack of physicians, thereby improving the availability of healthcare access and medical service quality. This article proposes a multilevel medical AI service network, including a frontline medical AI system (basic level), regional medical AI support centers (middle levels), and a national medical AI development center.

This review has identified limited evidence on the adoption and diffusion of AI, though it has been noted that neither AI or other forms of digital technology appear to have led to significant productivity improvements in recent years. However, frontier economics 7 surveys of business leaders and predictions consider the following drivers of business adoption of AI: 1

The profitability of investing in AI: technical feasibility will be a necessary condition, but AI will only be adopted when the expected revenues exceed the costs from adoption; 1

□ The ability to re-shape organisations and processes in the ways needed to take advantage of the new technology; 1

□ Regulatory enablers and constraints: adopting AI in a way that would ensure compliance with relevant regulations may not be possible; vice versa, regulation may enable adoption, for example by setting necessary standards; 1

□ Social attitudes and preferences over the role of machines. In many settings, people may require interaction with a human even where a cheaper automated alternative could be available. This could be the case, for example, in the case of health and social care work.

VI. CONCLUSION

Smart Villages are the need of the hour as development is needed for both rural and urban areas for better livelihood and Information technology will offer effective solution. There are successful technologies available, which have been implemented in urban areas. There is tremendous pressure on urban landscapes due to migration of rural people for livelihood. Smart Villages will not only reduce this migration but also irrigate the population flow from urban to rural area. ICT/ IT and GIS are the unbreakable pillars to support the whole process of village development.

The following Point need to be looked into for development of rural areas:

□ First of all, there is a great need to make a policy for promoting IT in rural Areas. There should be a strong infrastructure for IT.

□ Broadband facility is still non-existent for rural people.

□ There should be a Proper Monitoring team to monitor E-Governance Project in Rural areas.

□ Agriculture is the main source of Rural Areas So Govt. Should to start E-Business Scheme in Rural areas .For

example ITC introduced e-Choupal Scheme (Internet-based interventions in rural Farmers)

□ Licensed software is not cost effective. Without heavy funding, we cannot provide facilities of IT to rural areas. Even maintenance of hardware and software is not easy and cost effective. So need big budget for rural Areas.

□ Lack of knowledge of English is also a big obstacle in Rural Areas. So Need Professional Teacher.

□ Connecting the unconnected Panchayat & villages with Urban area and to improve the quality of State highways & district roads.

□ Improve the quality of IT education. In rural areas, primary education is still vital.

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