

# KNOWLEDGE MANAGEMENT THROUGH DIGITAL TECHNOLOGIES

Dr C. Kathiresan

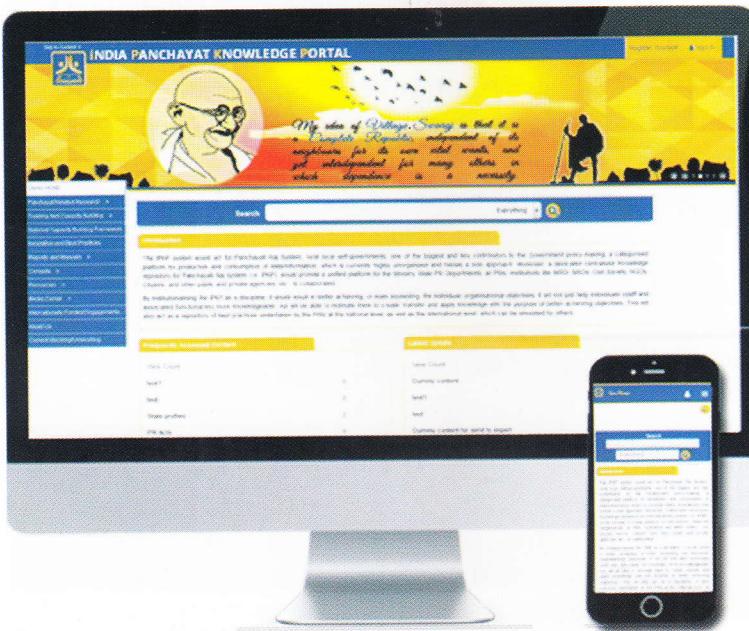
Traditional Knowledge Management systems including classroom teaching and distance mode programs in rural development sector, mostly resulted in 'knowledge push' and very less scope for interactivity. There is a paradigm shift in reaching-out information and knowledge to rural communities, owing to the affordability of internet and mobile phones in rural India. The recent trends in Information and Communication Technology (ICT), including Web Portals, Social Media, Expert Systems, e-Learning, Mobile Apps, Internet of Things (IoT), Digital Videos, Community Radio etc. have made 'Knowledge Sharing' more efficient and timely.

A knowledge based society and knowledge sharing environment can make the development process sustainable and accelerate the process of achieving the development goals. In this era of 'knowledge sharing', making access to the required information and knowledge is the key to empowerment of citizens. Rural Development sector, in terms of financial investment, knowledge and information is expanding dramatically. There has been expertise and rich experiences evolved by many institutions and organisations engaged in the promotion of rural development in India. Reaching-out right knowledge to the right people at right time is always a challenge, owing to various reasons including accessibility and authenticity of information and knowledge from different sources. Adopting a suitable Knowledge Management system or combination of systems and tools is important to reach-out the target audience (84 crores of rural population in 6,50,000 villages) with intended information and knowledge. Before discussing

in detail about various knowledge management systems and tools, it is better to understand the concept of 'Knowledge Management' and its relevance in rural development process.

Knowledge Management (KM), a process of leveraging collective knowledge in a particular domain/institution/organisation, traditionally includes four processes, i.e, knowledge creation, knowledge storage and retrieval, knowledge transfer and knowledge application. Knowledge creation is bringing together new knowledge, useful to solve problems or making decisions which were not possible before. Knowledge storage is the process of making the knowledge persistent in order to allow later access. Knowledge retrieval is used to support efficient access to the stored knowledge. The process of knowledge transfer is needed to deliver the new knowledge to the target group from time to time (e.g. new schemes, policies, technologies etc.), which was only available with organisation/institution before. Knowledge application is needed to gain benefit from the knowledge by solving problems with the help of that knowledge acquired by the community.

Traditional Knowledge Management systems including classroom teaching and distance mode programs in rural development sector, mostly resulted in 'knowledge push' and very less scope for interactivity. These systems are more 'process-centric' rather than 'people-centric'. But, rapid technological developments over the years, have made the knowledge management process more interactive and people centric. There is a paradigm shift in reaching-out information and knowledge to rural communities, owing to the affordability of internet and mobile phones in rural India. The recent trends in Information and Communication



Technology (ICT), including Web Portals, Social Media, Expert Systems, e-Learning, Mobile Apps, Internet of Things (IoT), Digital Videos, Community Radio etc. have made 'Knowledge Sharing' more efficient and timely.

### **Web Portal :A powerful Knowledge Management tool**

The web is a vast source of information and more often it becomes difficult for users to sieve the specific information of interest. In such situations, web portals come in handy. Web portals are specially designed single access points to information collected from diverse sources. The information is arranged in portlets in a uniform way for users to access. Web portals can be classified as horizontal (providing broad range of content for general user) or vertical (targeted offering for niche users), also called vortal. Web portals designed for rural advisory services are generally of the second type. Building portals/knowledge repositories cannot guarantee its application to the target groups including Rural Development functionaries and communities. There should be clear cut knowledge uptake strategies and activities. Such strategies include - understanding KnowledgePathways, developing knowledge products for non-negotiable adoption points, sequencing the knowledge interventions such as capacity building, embedding knowledge with technologies at field level, feedback and sharing among the communities and re-invention of knowledge at field level.

Some of the key web-portals hosting credible information on Rural Development in India, include – Vikaspedia ([www.vikaspedia.in](http://www.vikaspedia.in)), India Panchayat Knowledge Portal ([www.panchayatgyan.gov.in](http://www.panchayatgyan.gov.in)), India Portal ([www.india.gov.in](http://www.india.gov.in)), Ministry of Rural Development Portal ([www.rural.nic.in](http://www.rural.nic.in)), NIRD&PR portal ([www.nird.org.in](http://www.nird.org.in)), Panchayat Enterprise Suite ([www.panchayatonline.gov.in](http://www.panchayatonline.gov.in)), Digital India Portal ([www.digitalindia.gov.in](http://www.digitalindia.gov.in)) and DISHA Portal monitoring 42 National Flagship Schemes ([www.socialcops.com](http://www.socialcops.com)).

In India, most of the websites (76%), particularly Government websites, are available only in English and about 24% of the websites host bilingual content (Hindi/regional language). These websites are largely institute websites that have a greater focus on organization related aspects. The only predominantly available user centric information is that of policies and schemes of that particular institution. Limited scope for the users to share their experiences and knowledge with others and interact with experts or peers.

### **Social Media : A cost effective tool for knowledge sharing**

Rural Development process demands continuous interaction among multiple stakeholders – public, private, and non-profit – and learning to take collective action. These services have been called upon to be less 'top-down' and more interactive, and social media can be a potentially powerful tool in this regard. With increasing reach among rural people, especially the youth, through increasing mobile phone subscriptions and decreasing data tariffs, social media is the best knowledge management tool as on today to reach-out the target group in rural areas in shorter time and more effectively. Social Media includes social networking sites (Facebook, LinkedIn), Messenger Apps (WhatsApp), blogs (Blogger, WordPress), microblogs (Twitter), video sharing tools (YouTube), podcasts, Wikis and many more. The high level of user engagement in social media also makes it one of the most participatory mediums of extension. This makes the sharing of data, information, and knowledge faster, easier, and more cost-effective, while at the same time enabling collaboration and demand-based knowledge delivery.

Most social media platforms are available free of cost. Sustainability depends upon the ability of the members to feed the content, add value to content, and support purposeful online engagement. Social media sustainability depends on the capacity of the stakeholders (individuals, groups, and organisations)

#### **Vikaspedia Knowledge Portal**

Launched in 2008, as part of India Development Gateway initiative of Government of India, Vikaspedia portal ([www.vikaspedia.in](http://www.vikaspedia.in)) is aimed at creating versatile collective knowledge repository and demand driven information in the rural development oriented sectors including Agriculture, Health, Education, Social Welfare, Energy and e-Governance. This **multilingual portal** is serving as a collaborative content creation, knowledge sharing and utilization platform for the stakeholders in these 6 sectors. Currently, Vikaspedia is one of the largest knowledge portal hosting information/knowledge in 22 Indian languages and English, offering information on success stories, best practices, government schemes, technologies and related value added services in development sector.

to address the dynamic information needs of clients and create networking opportunities with peers.

### Smart Phones: Dynamic power house of Knowledge

Strategic reforms in telecommunications sector since 1990's have facilitated strong ICT infrastructure in India, particularly it revolutionised the mobile penetration in rural India. As on 31<sup>st</sup> August 2018, the total number of mobile users in India were 1167 million (91% of total population), including 519 million subscribers from rural areas, as estimated by Telephone Regulatory Authority of India (TRAI). Mobile devices are handy and facilitate content creation, storing, accessing and sharing information anytime, anywhere. Moreover, technology advancement has led the usage of mobile phones from mere 'voice calls' to other useful services like messaging, internet based data services and Apps, making the community more connected and knowledge empowered. Introduction of smart phones, competition among service providers, availability of basket of online services and policy support from Government, has made the mobile phones affordable and acceptable by rural India, in a shorter time than expected.

The success and failure of mobile based services broadly depends on the target group, demand driven content, mode of delivery (SMS, voice, video etc..) and sustainability model. Some of the successful mobile based services implemented in India, is listed below.

- **Rural Development:** DISHA, Gram Samvad, Awaas App (PMAY-G), Mission Antyodaya App, My SHG App
- **Agriculture and allied sectors:** IFFCO Kisan Sanchar Ltd (IKSL), Fisher Friend, mKisan, Reuters

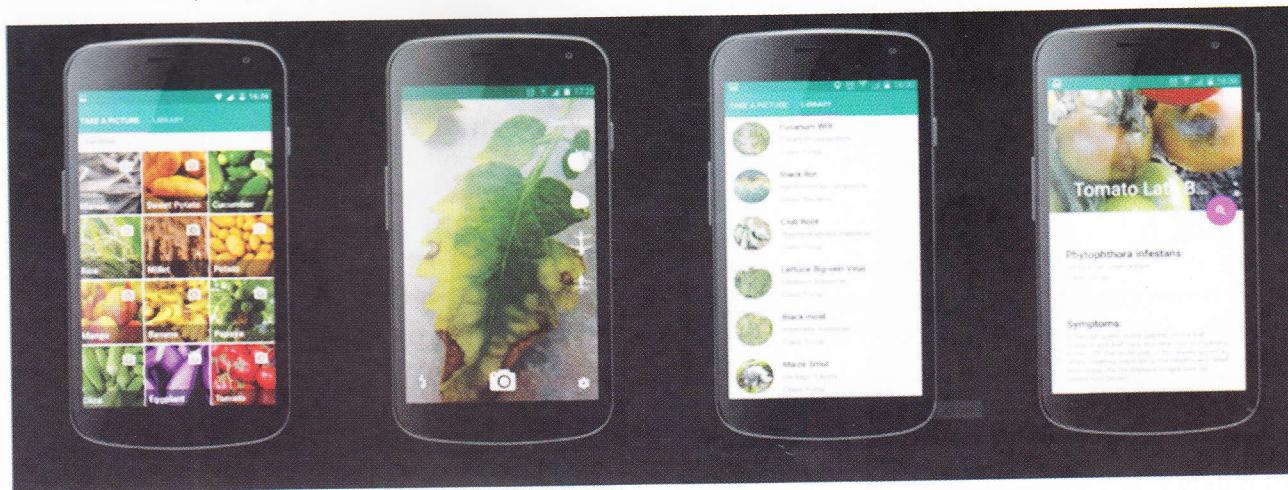
Market Light (RML), mKRISHI, Kisan Call Centre, Annapurna Krishi Prasaar Seva, eNAM

- **Banking:** BHIMApp, PhonePe, PayTm, FreeCharge, Airtel Money, Idea Money
- **Health:** mSWASTHYA, MOTHER, Indian Blood Donors, Blood4India, eMamta, eAushadhi, Sanjeevani, 1mg App, mTIKKA

Understanding the need for promoting mobile based services, Ministry of Electronics and Information Technology, Government of India has launched 'Mobile Seva' initiative for mainstreaming mobile governance in the country. It provides an integrated platform for all Government departments and agencies in the country for delivery of public services to citizens over mobile devices using SMS, USSD, IVRS and mobile applications (Mobile Seva: [www.mgov.gov.in](http://www.mgov.gov.in)).

### Expert System : A virtual expert tool providing solutions for common problems

An Expert System is basically a software application that attempts to reproduce the performance of an expert in a particular domain. Expert system adopts artificial intelligence to solve a particular problem with the help of pre-set conditions in the software application. Mostly these systems are used as offline applications where there is an issue of internet connectivity and non-availability of subject experts to provide solutions in remote areas. There are expert systems available in Agriculture and allied sectors developed by Indian Council of Agricultural Research (ICAR) and are widely used in Krishi Vigyan Kendras (KVKs) and other organisations working in remote villages. 'Plantix' is a mobile based plant disease diagnostic tool getting popular in recent days.



Plantix Mobile App – Plant Disease Diagnosing Tool

## **E-Learning : A solution for large scale capacity building**

Technology Enabled Learning (TEL) including online courses, remote classrooms, video conferencing etc. plays a major role in rural knowledge management. Training and capacity building of rural functionaries is a time-bound and continuous process. E-Learning platforms could be used for offering online courses for focused groups in a convenient and consistent manner, providing opportunity for anytime-anywhere learning for the community. Massive Online Open Courses (MOOCs) are recent trends adopted by many organisations to offer free online courses. Popular MOOC platforms include, SWAYAM (MHRD, Government of India), Coursera, edX, Khan Academy, Udacity and FutureLearn.

**Adopting ICTs for Capacity Building of Panchayati Raj Institutions (PRIs):** There are 2,62,547 Panchayati Raj Institutions functioning in India (as on October 2018), which includes 2,55,576 Gram Panchayats, 6354 Block Panchayats and 617 District Panchayats. The chronic PRIs management problems are compounded by the presence of a large number of Elected Representatives (ERs) across three levels, to the tune of 31.0 lakhs (including 14.39 lakh Elected Women Representatives), coupled with higher attrition rate with every election cycle and low levels of managerial experience/capacities and exposure. Approximately 30 lakh functionaries assist the elected representatives to manage the PRIs. In view of their presence on the scene for just 5 years, and it is likely that new set of elected representatives will be on the stage after every five years, is a major problem in terms of constraints of touching them with capacity building effort by various organisations and enabling them with continued learning. In order to address this issue, National Institute of Rural Development and Panchayati Raj (NIRD&PR), Hyderabad has adopted Information and Communication Technology (ICT) as the best way to reach-out and impart training to the 60 lakh Elected Representatives and Functionaries associated with PRIs. Efforts are underway to launch series of online courses on Panchayati Raj Governance and Rural Development, through customised e-Learning platform which can be accessed through web and mobile platforms.

### **Community Radio:**

Community Radio is a broadcasting system established by the efforts of a specific community,

operated by them for the purpose of the community's welfare. These stations are collectively owned by the community, trust or foundations in that locality. As on today, there are 186 Community Radio stations operational in India, including 40 in rural areas. The 'Sangam Radio' started in 2008, by Deccan Development Society (DDS) in Telangana, is the first NGO operated Community Radio, successfully operated by women's collectives for the past 10 years. Most of the Rural Community Radio Stations focus on creating awareness and providing knowledge on community development problems ranging from culture, rural development, education, hygiene and sanitation, agriculture to local governance. However, unlike other countries, Community Radios are not so successful in India, owing to many reasons including lack of funding, program skills, technology and licencing issues. Government intervention is required to resolve these issues and promote setting-up of more Community Radios in rural areas.

### **Conclusion:**

Adoption of digital technologies in the knowledge management process have brought drastic change in reaching the unreached in rural areas, with credible information, knowledge and services. Modern ICT tools including web-portals, mobile phones, social media and expert systems have made knowledge sharing as 'people centric' rather than 'process centric'. The Mobile and Internet have undoubtedly brought substantial change in access to information, knowledge and services in rural India. At the same time, providing credible content, which are region specific and in local languages, are key factors to be considered while designing any knowledge management and service delivery model for rural communities. Undoubtedly, adopting digital technologies is the only way to reach-out and impart continuous training to the Functionaries and Elected Representatives associated with Rural Development and Panchayati Raj system in India. The Digital India programme of Government of India, is definitely accelerating the rural development process, by creating digital infrastructure at village level, digital awareness to rural communities and offering basket of digital services.

*(The author is Associate Professor, Centre for Panchayati Raj, National Institute of Rural Development and Panchayati Raj (NIRDPR), Hyderabad.)*

*Email: kathireshan.nird@gov.in)*