

Role of ICT in Overall Development of Panchayati Raj Institution Leaders

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Abstract: *Information and Communication Technology (ICT) plays a pivotal role in enhancing the effectiveness, transparency, and efficiency of Panchayati Raj Institutions (PRIs). As grassroots governance structures in India, PRIs are instrumental in fostering decentralized decision-making, community development, and rural empowerment. ICT tools and applications empower Panchayati Raj Institution leaders by streamlining administrative processes, enabling better communication, and facilitating access to real-time information. This results in informed decision-making, efficient resource allocation, and improved delivery of services to rural communities.*

Through initiatives like e-Panchayat, ICT has transformed traditional governance methods by promoting digital literacy, online grievance redressal systems, and the dissemination of government schemes and programs. Additionally, ICT fosters participatory governance by enabling community members to actively engage in decision-making through platforms like mobile apps and video conferencing. Training and capacity-building programs further equip PRI leaders with the skills to leverage ICT tools effectively, ensuring inclusive and sustainable development.

However, challenges such as digital divide, inadequate infrastructure, and low digital literacy among rural populations need to be addressed. Bridging these gaps will enhance the potential of ICT in empowering PRI leaders, thereby fostering accountability, transparency, and holistic rural development. The integration of ICT with PRIs thus marks a significant step towards strengthening India's democratic framework at the grassroots level.

Keywords: ICT, Panchayati Raj, e-Governance, Education, Learning, Sustainable.

I. INTRODUCTION

“Governance” of a nation is defined as the manner in which power is exercised in the management of a country (Krishnan, 2013). In 21st century, Information and Communication Technology (ICT) is being viewed as a catalyst for rural participation in governance and development which is easily available at decreasing costs, might be useful in facilitating access to development-related information. Developments in ICT have helped governments to transform their operations and service delivery systems.

An ICT based government is broadly termed as e-Government. Many authors like Heeks (1999) have recognized the transformational potential of ICT in government while Sprecher (2000) considers e-government as the way technology is used to help automate transactions between the government and other institutions. e-government has also been defined as the “one-stop non-stop” operation of public services (Lawson, 1998). A far more comprehensive definition of e-government proposes changes in government in two related aspects: (i) transformation of the business of governance, which is, reducing costs, improving service delivery and renewing processes; and (ii) re-examination of the functions and processes of democracy itself (Aicholzer & Schmutzer, 2000). The case for e-government is further



strengthened by the widely prevailing view that there is a need to have a customer centric approach in the provision of public services. (Krishnan C, 2013).

The thrust of e-Governance is clear from its definitions. As the World Bank (2004) puts it rightly, e-Government refers to the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens; improved interactions with business and industry; citizen empowerment through access to information; or more efficient government management. E-Government is “the use of ICTs, and particularly the Internet, as a tool to achieve better government” (OECD, 2003, p. 23). According to the European Union “e-Government is the use of Information and Communication Technologies in public administrations combined with organizational change and new skills in order to improve public services and democratic processes” (European Union, 2004).

The role and potential of e-Governance in local government institutions cannot be over emphasized. Since the current wave of public administration in both developed and developing countries across the world emphasizes the dire need for reform, every tier of government in such countries demands transparent administration and hassle free services to stakeholders. The traditional way of administration has become a bane in the process of development due to its bureaucratic hierarchies and associated problems. Now the citizens expect services of the government at their doorsteps. It is all the more important in situations in which the policies of liberalization and globalization sweep the world. Local, regional and national governments throughout the world are attempting to broaden service delivery and citizen involvement by providing effective e-Services. This reflects a growing acceptance that achieving excellence in customer service is just as critical for the public sector as for the private sector. The introduction of e-service solutions within the public sector has primarily been concerned with moving away from traditional information monopolies and hierarchies.

From the early computerization to the announcement of the National e-Governance Plan (NeGP), the country has passed through different stages in truly embracing ICT as a tool for service delivery and empowerment. In Kerala also, effort in the direction of e-Governance started with the computerization of government offices and also through the enactment of Information Technology policies. Now, the government has accepted in principle that the road to progress and transparency in government operation is e-Governance. This has been showing results even in local self government institutions (LSGIs) in the state. Kerala has 978 Gram Panchayats, 152 Block Panchayats, 14 District Panchayats, 60 Municipalities and 5 Corporations. The three-tier system came into existence in India consequent to the 73rd and 74th amendments to the Constitution. In Kerala, Local Self-Government Institutions have been meaningfully empowered through massive transfer of resources as well as administrative powers. Local self-government institutions have emerged as effective agencies for the implementation of developmental programmes. Developmental programmes are identified and implemented through Gram Sabhas. With the decentralization of power, local administration departments have acquired an important role in the formulation and implementation of developmental works at the grass-root level. Information Kerala Mission (IKM) is the nodal agency for overseeing and implementing e-Governance in LSGIs in the state. In this background, this study has been carried out to examine the status and challenges of e-Governance in LSGIs of Kerala (Krishnan C, 2013).

Therefore, the application of Information and Communication Technology (ICT) for delivering: government services, exchange of information communication transactions and integration of various stand-one systems and services. The use of ICT in PRI governance does not mean proliferation of computers and accessories; it is basically a political decision which calls for discipline, attitudinal change in officers and employees, and massive government process re-engineering. Everyone agrees that the biggest challenge of deploying information and communication technologies (ICT) is not technology but managing change. Change management is in terms of cultural change and also about changing operations and processes workflow that the automated environment will introduce. It is about bringing about a change in the organizational set up and the shift from power to empowering. ICT played a major role in reducing operational inefficiency and improving decision-making in many areas of panchayati raj institutions.



What is Information and Communication Technologies (ICTs)?

Often Information and Communication Technologies (ICTs) are associated with the most sophisticated and expensive computer-based technologies. But ICTs also encompass the more conventional technologies such as radio, television and telephone technology. Although the definitions of ICTs varied, the definition provided by United Nations Development Programme (UNDP) might be useful:

‘ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the ‘old’ ICTs of radio, television and telephone, and the ‘new’ ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our ‘networked world’ – a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe’. (UNDP)

When ICTs refer in general sense, it is not only the latest computer and Internet based technologies, but also refers to a simple audio visual aids such as the transparency and slides, tape and cassette recorders and radio; videocassettes and television; and film. These older and more familiar technologies are referred as “analogue media” while the newer computer and Internet based technologies are called the “digital media”. Nevertheless, in today’s world, with the increased convergence or blending of the engineering designs and with the coming together of the satellite and the computer, the dividing lines between these different media are becoming blurred and consequently, the way people define and refer to ICTs is also getting blurred.

II. ICTS AND EDUCATION

Do the ICTs have a role in education? We can argue both ways. Supporters of the view that ICTs have a role in education, especially adult learning, have many arguments that they put forward and most of these arguments centre on issues of the global and Indian contexts, the changing nature of the learner and demand of education for all, and the reality that the existing educational system cannot cope with the demand for education on the one hand, and the issues of access, equity, and resources on the other.

The context:

Liberalization, privatization, and globalization constitute the current social, economic, technological and political space within which television and all other media have to exist, survive, and function.

Revolutions in information and communication technologies have reduced national boundaries to meaningless lines drawn on maps.

And in the new scenarios, education has been identified as one of the twelve main services, which need to be opened up for free flow of trade between countries. The form of this flow will become clear only when GATS comes into full force after rounds of negotiations among participating countries. Then, more than now, knowledge is expected to become a tradable commodity; and it will be essential that Indian educators keep pace with the change, or else perish in the face of competition from multinational forces in all fields of education and learning, including adult learning. At the same time, changes in the capabilities, needs, and interests of the user; changes in the medium and its content, the close interdependence of the media and the competition of each medium to survive, and changes in the availability and attractiveness of accessible alternatives; interact freely with social, economic and political and technological contexts.

The learner community:

India’s demographic mosaic consists of an increasing demand for education for a population, half of which is below 15 years of age, 75 per cent rural, a literacy rate of about 60 per cent; and a linguistic break-up of 15 different major languages. The demand for education far outstrips the conventional system’s ability to provide it, leaving no alternative



to the use of technology in education. We are at a critical junction, when the new technologies of communication from the individualized computer assisted learning systems to the more mass directed radio and television today offer an unparalleled opportunity to reconsider conventional educational and learning practices and institutions. The notion that teaching and learning can be taken out of the confines of existing schools and colleges, that teaching can be individualized and insensitive to geo-climatic distances is one which has emerged out of the telecommunications revolution sweeping across the world in the 1980s and 1990s. And yet, the urban-rural divide in terms of *access*, *equity*, and *resources* will continue to be the main issues that Indian educators, particularly adult educators will have to address as the needs of the learning community in the new social, economic and political contexts will change. In the new educational system, there are likely to be four levels of learners. The first level will consist of students, who, able to afford the high cost of education, will obtain it from either public or private institutions of higher education. They will be getting the best of the facilities, and will soon form educational elites. The second level of learners will consist of intelligent and competent students, who unable to afford the cost of education, will obtain it from existing public institutions and will soon be competing with the first level for membership in the educational elite. A third level of students will consist of the academically and financially poor students, who will seek access to education from lower quality institutions of higher learning. And the last group of learners would be most of the illiterate and the poor, whom you will be addressing as part of your work. Current ways of imparting adult education use extensive ground work in the field and require both large numbers of trained personnel as well as committed individuals working in a world where access to technology is going to determine the gap between the haves and the have-nots. We no longer have a choice. It is no longer an “if” but “how” to deploy the technologies optimally. Information and communication technology application constitutes an absolute necessity, given huge dispersed populations in a subcontinent; inadequate resources and mind boggling needs. The new technologies offer us the chance to telescope decades of infrastructure building and development activities by providing us with the advantage of high speed delivery with no dilution in quality; wide reach; individualization of learning in a anytime, anywhere situation; and interactivity, a low per unit cost. These technologies and facilities can be equally used for language teaching, for literacy and adult learning. This brings the role of the teachers or educators into focus. The adult educator is a key person in the whole process of learning and transacting education and a gateway to the learner. The responsibilities of the teachers or adult educators are many, and very often they feel threatened and further challenged when told that they have to use ICTs, sometimes even feeling that they may well lose their jobs or be replaced by the ICTs.

Using ICTs in Education

What does using ICTs in education, especially adult learning, mean?

There are three ways in which ICT in education is considered in current thinking. These are ICT education; ICT supported education, and ICT enabled education.

ICT Education:

This is the most common understanding of the field of ICTs in education. Essentially, it refers to the creation of human resource to meet the IT needs of the knowledge economy. In developing countries of Asia, each country is trying to create a pool of manpower to address job opportunities in computers—hardware and software, creating and training people in computer engineering. Very often, an ICT in Education policy of a government describes the steps by which computers will be placed in schools, how teachers and students will be provided the basic computer programming skills to cater to the growing job market in computer based technologies.

ICT Supported Education:

A large number of distance education universities and programmes use ICT to support the print content that they deliver to students. These include broadcast audio and video such as radio and television programmes, audio and video tapes delivered to students as part of a learning kit, and in more recent times, multimedia content such as lessons which



are delivered off line, i.e. on CDs. This is also sometimes called multimedia education, where multiple media are used to support learning.

ICT Enabled Education:

Any educational programme that is purely delivered through ICTs, or with ICT delivered content as the primary backbone of the teaching-learning process, such as online courses through the web, is ICT enabled education. In simple words, this form of education requires ICT access and requires that the learner use ICTs as a primary or basic medium of instruction. When deciding to use ICTs, you must always decide the purpose for which you have made the decision and what you expect to achieve from the content that will be produced. Is it to teach computer skills, to support the learning process, or to instruct through the ICTs itself?

Enhancing Learning through use of ICTs - What We Have Learnt

There are many aspects of ICT use in adult learning in India in which we already have sufficient knowledge, based on experience of using different media for more than forty years for educational and developmental purposes. Let us look at what we know.

The technology works:

Twenty-five years of satellite broadcasting and more than ten years of teleconferencing, and five years of computer-based systems has shown that the technological end is the strongest part of the system in India. The technology works but there is room for improvement. Findings from all the exercises have shown that there is much to be improved in the technical quality. Generally speaking, there are fairly good facilities at the teaching or the provider's end. The same could not be said of the receiving/learner's end where there was inadequate space for viewers, disruptions in power supply, and an undependable telephone line, and a varying reception quality of data, video and audio in transmitted programmes and interaction.

ICTs as Enablers of Social Development

Perhaps the most impressive examples of ICT's potential to promote development have occurred in the context of development projects targeting social inclusion and cohesion – projects that provide excluded communities with greater opportunities to participate in community life. Because many of the challenges facing traditionally underserved communities result at least in part from inadequate access to knowledge and information, ICTs can help surmount these challenges by making it easier and less expensive to collect, analyze, and disseminate information to the people who need it. The Internet in particular is creating nearly endless opportunities for individuals and communities in developing countries to obtain knowledge and communicate with others.

At the same time, it is particularly in the area of ICT-based social development that a healthy dose of pragmatic realism is critical. Particularly when dealing with cutting-edge or novel ICT products, there is always a risk that the choice of technology will drive the proposed solution, rather than the sought-after solution determining the choice of technology. Selecting a "suitable" ICT solution – including, critically, not only one that is affordable, but one with regard to which the surrounding social, economic, and legal context provides sustainable incentives for use on an ongoing basis – must be a principal factor in judging a project's viability. Failure to do so will undermine not only the project's own goals, but may leave the targeted community disillusioned with ICTs generally and less likely to embrace ICTs in the future.

With that cautionary note in mind, ICTs nevertheless have tremendous potential as enablers of social development. Although the multifunctional, flexible nature of ICTs means that they can be applied to virtually any development goal, areas in which ICT has already proven effective include the following:



Healthcare:

ICTs are increasingly being used to deliver health care services in the developing world, especially to patients in remote areas where healthcare services are scarce. Examples include using ICTs for remote consultations between patients and physicians as well as remote diagnosis and even treatment; data collection for both research and diagnostic purposes; “real-time” collaboration between physicians and health researchers in different parts of the world; improving the speed and effectiveness with which nations and organizations respond to epidemics; and streamlining and improving health care services generally. ICTs are also being used to deliver healthcare services to in remote rural areas where more traditional healthcare services are scarce. ICTs are playing a central role in programmes to combat HIV/AIDS, tuberculosis, malaria and other diseases.

Education: Although ICTs cannot replace the vital teacher-student relationship or supplant in-person instruction, ICTs are increasingly being used as a tool to supplement traditional curricula and teaching methods and to open new opportunities for skills training. For instance, ICTs are being used to provide low-cost access to online curricula and other resources; enable distance education for students in remote areas or who for various reasons cannot physically attend school; support research networks; provide technical and vocational training, including “lifelong” training opportunities; and improve and streamline education administration.

Environment / sustainable development:

Many environmental challenges in the developing world are the result of failures to alert policymakers of risks and the inability to quantify the seriousness of environmental hazards until it is too late. ICTs allow researchers and environmental agencies in developing countries to tap into global data networks and information resources, which enables policymakers in these countries to make better and more informed choices. ICTs are being used to monitor environmental conditions and collect and analyze data; coordinate responses to ecological threats; identify polluters who might otherwise go undetected; and help policymakers understand threats and formulate less intrusive agricultural and industrial processes.

Concrete examples of how ICTs are being used to address these and other social development goals are described in greater detail in Part V.

ICTs as Enablers of Good Governance

Like other organizations, governments increasingly are leveraging the power of ICTs to operate more efficiently and effectively. For instance, many governments in both developed and developing countries are working to migrate paper-based documents and records into digital format, and are even beginning to “link up” databases of these records for use between various departments. These efforts are making governments more responsive and making it easier for citizens to access public records, information, and services through the Internet.

The use of ICTs to drive “e-Government” efforts can also provide an important “democratizing” function by giving people a new and powerful way to participate in government and interact with public officials. While these efforts can at times raise important civil liberties issues, particularly to the extent they share personal information without the individual’s knowledge or consent, ICTs can also make government processes more open and transparent to citizens. ICTs can also provide an important oversight function by enable people to understand more clearly how taxpayer money is being used to provide public goods and services.

e-governance for Panchayati Raj Institutions (PRIs) and Challenges

The goal of e-Governance in Panchayati Raj Institutions is not merely to computerize the records; to the contrary, the ultimate goal is to transform the governance. A successful e-Governance is at most 20% technology and at least 80% about people, processes, and organizations. It is important, therefore, to recognize that e-Governance is not an end; it is an enabler. “e-Governance” should eventually disappear as a distinct concept, because “governance” rather than technology is at the core of e-Governance and technology will eventually pervade all governance operations. The key



question, therefore, is whether the integration of governance and technology will serve the interests of the stakeholders. e-Government can transform citizen service, provide access to information to empower citizens, enable their participation in government and enhance citizen economic and social opportunities, so that they can make better lives, for themselves and for the next generation. The effects and wide uses of information and communication technology (ICT) has brought about a major turnaround in the rural context too thus bringing the dream to near fruition in bettering the lot of the rural populace further.

With the ICT-enablement of Panchayati Raj Institutions (PRIs) to completely transform their functioning to make them more transparent, accountable and effective as organs of decentralized self-governing institutions. The intervention of Information and Communication Technologies helps in improving administrative efficiency and improving public services and ultimately Good Governance. Information Technology improves the quality of governance and provides an effective communication link between gram, block, zila panchayat and various other government departments. It also improves transparency in working of government agencies.

The Ministry of Panchayati Raj (MoPR) has undertaken e-Panchayat Mission Mode Project (e-Panchayat MMP) with a view to introduce and strengthen e-Governance in Panchayati Raj Institutions (PRIs) across the country and build associated capacities of the PRIs for effective adoption of the e-Governance initiative. Under this project, Panchayat Enterprise Suite (PES) has been conceptualised which comprises 11 Core Common applications. At present, Panchayat Enterprise Suite has been deployed/operational with 10 Core Common Applications and GIS layer module is under conceptualisation. The operational modules include LGD (Local Government Directory), Area Profiler (Socio-economic & general details), Plan Plus (to strengthen Decentralised & Participatory Planning), Priasoft (Panchayat Accounting), Action Soft (Works/scheme implementation Monitoring System), NAD (National Asset Directory), Service Plus (To facilitate Service Delivery), Social Audit, Training and National Panchayat Portal (Dynamic Website of Panchayats).

III. E- PRI APPLICATIONS

Purpose

(1) Local Government Directory (LGD) : www.panchayat.gov.in

- Provides nationwide, standardized unique codes to all the Panchayats in the country
- delimits Panchayats,
- Links all applications of e-Panchayats.
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(2) PlanPlus: www.panchayat.gov.in/planplus

Purpose

- This software assists in preparation of District plans (bottom up) starting from grass roots level
- Converge the funds from different programs/schemes to ensure effective utilization
- Identifies: fund inflows & Outflows Sources of funding
- The output of this software includes Panchayat-wise Perspective Plan, Draft Plan, Action Plan and head wise estimates of the budget .
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(3) PRIAsoft www.accountingonline.gov.in

Purpose:

To Facilitate better financial management of Panchayati Raj Institutions (PRIs) by bringing about transparency and accountability in the maintenance of accounts thereby leading to better credibility and ultimately strengthening of PRIs.



The software automatically generates the cash book, various registers prescribed by central or state government and Utilization Certificate for various schemes based on the expenditure incurred by the PRIs. Captures the details of receipts and expenditure by PRIs under various account heads and schemes. This software facilitates and puts all Panchayat accounts in public domains.

IV. STRENGTHS AND WEAKNESSES OF INFORMATION & COMMUNICATION TECHNOLOGIES

Unlike all other innovations, ICTs also have strengths and weaknesses and if we have to plan and use them effectively, it becomes essential as well as important to know what they are especially. Some of the strengths of the ICTs include:

1. **Individualization of learning:** people learn as individuals and not as a homogenous group. ICTs allow each individual to relate to the medium and its content.
2. **Interactivity:** Interactivity is the way in which a person can relate to the content, go forward and backward in the content, start at any point depending upon prior knowledge instead of always in a sequential way.
3. **Low per unit cost:** Per person, ICTs reduce the cost of education from very high to very low.
4. **Distance and climate insensitive:** It does not matter where you are, or how the weather is, you can still access and learn from ICTs.
5. **Can serve multiple teaching functions and diverse audiences:** ICTs, especially the computer and Internet based can be useful in drill and practice; to help diagnose and solve problems, for accessing information and knowledge about various related themes.
6. **High speed delivery, wide reach at low cost:** There is instant delivery of information.

If content is well produced and is of good quality, the same quality can be delivered to the rich and the poor, the urban and the rural equally and at the same low cost. But ICTs also have weaknesses which include:

1. **High infrastructure and start up costs:** It costs money to build ICT systems and to maintain them.
2. **Tend toward centralized uniform content in economies of scale:** The larger the numbers, the lower the cost. This means that sometimes we try to reach large numbers so we make content common, not taking into account individual differences.
3. **Are not ideally location and problem sensitive:** Address problems in a general way, but cannot, without special effort, solve local and culturally sensitive problems.
4. **Problems of reach, access, remain:** Not everyone has equal access; so not everyone benefits equally from the use of ICTs.
5. **Tend to create new class of knowledge rich/knowledge poor:** Those who have access and knowledge through the media become richer and those who do not become poorer, widening the “knowledge or digital gap” between rich and poor.



6. **Essentially delivery systems:** A medium is different from the content; and often we forget that we can deliver any content, because ICTs are essentially meant only to deliver content, not to change attitudes or bring about behaviour change.
7. **Hard to assess impact:** Learning from ICT delivered content is difficult to assess since such learning is of a multidimensional and long term kind, rather than from immediate learning assessment as in a classroom test.
8. **Officers, trainers need reorientation and retraining:** Just as people learn to use ICTs, trainers and officers also need training - something they sometimes resent.
9. **Call for attitudinal change to understanding of teaching and learning:** These are different media and have a different way of teaching from what we are accustomed to—therefore, they need different ways of understanding what teaching and learning is all about And so, they are a mixed bag and it is necessary that we recognize both their strengths and weaknesses, before planning to use them in our adult learning setup. It is more important that we recognize because if we use a technology thinking it to be ideal one, but not recognizing its limitations, we are likely to fail in our effort and then to believe that all ICTs are useless and inadequate in education.

V. SOME COMMON MYTHS ABOUT ICTS

1. **Access:** A first myth is that today's ICTs enable us to transcend the barriers of reach and provide access. The reach of any medium is not the same as access. A 100 per cent of reach of radio or a 90 per cent reach of television does not mean that listeners or viewers have access to the medium. For instance, if community radio has a reach of 25 kilometres radio from the station, but there is no FM radio set within the transmission area, there is reach, but no access. Similarly, if the television set is placed in a location that women cannot access, for social and cultural reasons, reach is not the same as access. If the timing of a broadcast is wrong, there is no access. Or, if there is no electricity in a village, there is no access. In addition to the conditions of socio cultural factors, poverty, illiteracy, and time, mobility and relevance are key factors influencing access.
2. **Ownership and Control:** Access is also determined by patterns of ownership and control. A second myth is about people, especially poor, illiterate, rural women, not being able to handle technology - therefore ownership and control cannot be given to them. Ownership and control of the means of communication bring involvement and commitment. They enable people to use the technologies to give voice to their own needs and to create their own materials. And when ownership and control is transferred to the community, the likelihood of change is greater and the ICTs break down barriers when technology is demystified.
3. **Technology driven vs. People driven:** A third myth places the technology first. "The technology worked, but the effort did not yield results" is a common assessment of projects using ICTs. This is because the bulk of investment in any project generally goes toward such overhead costs and few resources are left for project activities. People issues must be addressed first. Choice and use of ICTs depends upon the investment in people first, rather than on the deployment of sophisticated ICT based "solutions" without adequate attention to the people issues.
4. **Content matters:** That content for technology is readily available, and if not it is easy to develop is the fourth misconception about ICTs. A dangerous myth because content is at the heart of the issue. There are two aspects of content development that merit attention. First, much has been said about relevant, timely, local content. There simply is not enough useful and relevant content available; especially content that addresses the



realities and needs of women and girls. Content takes time and costs money to produce. Multimedia content suitable to be used by the new ICTs takes longer and costs more. If we have to deliver knowledge in local languages, in this part of the world, even fonts in local languages are not readily available; and if available, cannot be integrated easily in to existing multimedia packages easily.

5. **Participation:** Who determines what is relevant, timely and local? Unless it is the learner, there is less chance of actual use. Relevant, appropriate, time and problem solving content is critical. This has to be developed in a partnership with the learners; otherwise, it will not be used, because it is not rooted in ground realities.
6. **Appropriate ICTs:** Project managers in many ICT based efforts have yet to determine what is the most appropriate medium to deliver knowledge? Appropriateness of medium and content is related to issues of reach and access; technologies of both hardware and software content relevance, cultural acceptability and usability.
7. **Ground support:** The lessons of history tell us any medium can be used to bring about awareness and to “open a window to the world”. However, without strong ground support, media initiatives can fail to deliver. Ground support includes community mobilization and participation; timely availability of support materials, whether of fertilizers or books or literacy primers. Using a teleconference, as a technology intervention is fine, provided that ground support has ensured that there are learners at the receiving end and that follow through activities are carried out. Otherwise, it is a colossal waste of time and money.

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