
UNIT 28 ROLE OF ICTs

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Learning Objectives

After going through this unit the learner will be able to:

- Define what ICT is and its importance in today's world;
- Explain how people of different strata can be empowered through the use of ICT;
- Identify routes and means by which ICT reaches people;
- Examine the utility of ICT; and
- Critically think and analyse the usage of ICT by different groups, communities etc.

28.1 INTRODUCTION

Since 1980s the kind of changes that have come about in the social, economic and other realms due to the introduction of information and communication technology (ICT) has been revolutionary. It has not only brought in tremendous changes in the way communication and information has been made to be available to the individuals at the press a button on a mobile and computer. It has also changed the way information pertaining to learning has been drastically altered in such a way that education and training has now become a virtual reality. The physical distances have been shrunk through the use of mobile technology. Digital technology has opened opportunities to people to improve their abilities and knowledge, thereby offering them opportunity to improve their chances of social mobility.

We need to understand that information, and the ability to communicate that information, are an indispensable part of a society. All people must have not simply access to information, but also the means to obtain it. In addition, people should have the right to freedom of speech, which means the right to search for and acquire information as well

as an ability to express that information through any form of media, irrespective of national boundaries or other potential limits.

Information and communication technologies (ICTs) are broad collection of technology and tools that can be used by people use to receive, collect and share information by communicating with each other using a variety of networks, including computers and mobile phones.

Chris Nicol (2003) in his book 'ICT Policy: A Beginner's Handbook' arranges the ICTs into three categories:

1. **Information technology:** Primarily computers, along with other devices that assisting in the processing of data.
2. **Telecommunications technologies:** Devices used for communication, through satellites or other mediums. Some examples are telephone, fax, radio and television.
3. **Networking technologies:** Comprised of much of the technology related to mobile phones, as well as voice over IP (VOIP) technology.

These different forms of ICTs affect many aspects of our lives, including the distribution of knowledge, business and economic uses, politics, education, media, health and medicine as well as relationships and social interaction. Increasingly, there is much overlap to be found between these once distinct categories of ICTs, as new technologies combine communication, information and media. Such a drastic change is transforming the way we process and communicate and changing our society into one dependent on ICTs for information and knowledge (Ramilo and Villanueva, 2001).

The last few decades witness the potential of ICTs to advance economic and social development. Such examples include new jobs and business opportunities, improved health knowledge and health-care, and a greater platform for networking and advocacy. In some cases, ICTs have introduced increased transparency and accountability in interactions between a government and its citizens. More traditional forms of ICTs, such as radio and television, have used the power of internet webcasting to create more opportunities of delivery of content. ICTs have undoubtedly become an integral part of our social fabric today. It remains to be seen if they are, as some claim, a technological watershed leading to vastly improved lives.

To better understand the potential power of ICTs, first it must be understood what makes them unique. ICTs are a form of general-purpose technologies (GPTs) which have generic uses throughout a variety of activities and industries. Some examples of GPTs are the steam engine and electricity. When such technologies are adopted by a large section of society, they will often disrupt current social systems and reconstitute new ones. For example, the invention and widespread adoption of the steam engine and electricity resulted in the modern factory system and industrial revolution. This resulted in widespread changes through many facets of society, personnel, professional, political, etc. Another example is developments in agriculture that allowed many populations to shift from pastoral livelihood to an agrarian one and the multitude of social changes that subsequently occurred. In addition to GTPs, many sociologists and anthropologists observe that information and communication technologies – development of language, writing, printing press and radio to name a few – have similar widespread social effects as GTPs. What makes ICTs so unique is they are often comprised of

GTPs combined with information and communication technology, making their potential impact on society wider and deeper than either aspect alone.

In a way, ICT has opened new vistas to people who could use the opportunities created by it to improve their status and also empowers them in many ways. It has added to their social capital by way of networking and use of social media. Governments have brought in policy changes to benefit the lower caste classes in part because of the increased accountability and transparency ICTs provide to average citizens. ICT has changed the way education can be reached to a large section of people who hitherto could not access higher education. It has empowered the weaker sections, including women. Mobile technology has ushered in new modes of imparting learning. It has made learning more interesting and larger amount of information is made available to everyone without any discrimination.

28.2 ICT AND EMPOWERMENT

It is useful to look at the ways in which ICTs can directly or indirectly empower people and communities. Many ICTs, in the hands of someone with basic skills, can open up a world of potential information and communication that was unthinkable a generation ago. In the past, telegrams and trunk calls were an expensive and difficult way of relaying information, letters were less expensive but took longer (and required literacy). Now people on the opposite sides of the world can call each other over the internet. Emails can be sent containing pictures, documents and large volumes of information even when the receiver doesn't have internet connectivity on their device (known as asynchronous communication). The nearly immediate digital processing of information helps activists and organisation to raise money, organise rallies and launch campaigns with a new speed and efficiency. As these technologies become less expensive and easier to use, their marginal cost to benefit ratio drops and, as a result, many more people start using them.

Mobile phones are one of the best examples of how ICTs can open up new social networks and provide increased economic opportunities, or even create new ones. This is especially true of people working in the marginal or informal economy. For example, farmers and fisherman no longer need to work through a middle man to deliver their product to a city, then can contact stores and distributors directly. Self-employed skilled workers such as plumbers, electricians and beauticians can build client networks and schedule appointments simply by using a mobile phone. An increase of affordable access to such technologies can have large and far reaching effects on people's livelihoods and economic opportunities.

28.3 ICT AND SOCIAL EMBEDDEDNESS

The many functions of ICTs can obscure the fact that technologies are social constructs, shaped by the needs of a society and in particular those in powerful positions. Therefore, many technologies are unavailable to people from economically weaker sections as they may lack either the means or the training to use them. Despite the common refrain that technology can be the great equaliser, markets tend to develop technologies keeping in mind the needs and preferences of higher economic classes. Therefore, the rapid and widespread acceptance of mobile telephone technology is the exception, not the rule, and it is difficult to replicate such a success with other ICTs.

Even for mobile telephones and the related ICTs, it must be interrogated as to whether these technologies empower populations or not. Many ICTs – software, applications, content, or networking systems to name a few – require specific hardware and training to use, making them inaccessible to certain populations. For example, using a desktop computer requires a consistent power system, the computer CPU and monitor, mouse, keyboard, and a router. The cost of all of this will be prohibitive to most, and in addition requires specific technical knowledge to set up and use. Another way that markets prioritise the creation of ICTs for certain populations can also be seen on a global scale. There may not be as strong an economic incentive to develop ICTs for countries or population that are seen to lack “paying capacity” or “market potential”. Certain ICTs are developed keeping the knowledge and need of the dominant classes in mind, those same ICTs are simply offered to the marginalised groups. Developers of such technologies strive to create a demand for their products by providing a variety of options that may or may not be wanted to be useful to all consumers. For example, an average mobile phone comes pre-loaded with many different applications, regardless of who the user is or what they need.

Such a wide range of products and services can seem enticing, even empowering. While certainly such ICTs can give opportunities, there are also potentially negative consequences to the economy and society. Such attractive products that are designed by large companies to seem insensible can create cultural dependencies. Therefore, the aspects of ICTs both as a set of utilities and product must be carefully observed and understood before claims can be made as to their empowering nature in a society.

28.4 EMPOWERING POSSIBILITIES OF ICTS

Clearly there is a great potential for the use of ICTs to empower and assist many populations. Much research has been done as to the ways such technologies have helped lead to large-scale social transformation. It is useful to take a brief look at some of the ways ICTs have made this possible. These general categories are meant to enlighten but are not in-depth or complete analysis of particular situations.

Community information centre

A community information centre may use ICTs, often in the form of internet-enabled computers, to gather, organise and make available a wide variety of information. This can be information about the community itself, the rest of the world, or even lists of public services or other economic opportunities. Such a vast availability of information can change not only behaviour in a community, such as people choosing internet searches to find information over more traditional forms of gaining information, but can change people’s expectations around the availability of information in the society. Over time, these changes in both behaviours and expectations can strengthen the design and reach of such an information centre, what is referred to as a “virtuous spiral”. There are many possibilities to weave these new modes of community knowledge with traditional or local knowledge forms. For example, a community with a strong knowledge of medicinal plants could use the ICTs at a community information centre to share that knowledge with community members living far away or even people outside of the community. Although community information centres clearly offer much public good, they are often limited in their economic success without additional revenue, either in the form of other projects generating money or outside donations.

Community generated information

User-generated content can be images, videos, text or audio that is created by an individual and posted online for others to purchase or use, is a deceptively simple concept which plays an increasingly large role in most societies. Access to specific data or statistics about a given community or area, also more widely available thanks to the internet, plays a vital role in demanding individual entitlements or increasing group power in a state. A well-known example is an open-source mapping application, wherein users can edit or add to existing online maps, which was used by residents of the largest slum in Nairobi, Kenya to create a user-generated map of their area. In the Philippines, some tribal communities have successfully petitioned the government over usurped lands based on community-generated maps from collective memories. Across the world household surveys and census are increasingly employing the use of mobile phones both for their Geographical Information Systems (GIS) and ease to connect with people. Of course, the benefits of such use, as well as their potential to empower communities, largely rest on how the data is collected, what data is collected and what is done with that data. For every success story from the tribes of the Philippines or the slums of Nairobi, there are stories of companies using this information to sell products or support their agenda, often at the cost of vulnerable communities. Similarly, while some governments use this information to help and connect with their citizens, others may use it to punish dissenting voices or minority groups. Therefore, the benefit of such ICTs must be interrogated with regards to the intentions of all parties involved.

Local media/ public sphere

ICTs have the potential to strength local media and make it more accessible. It is cheaper to produce audio and video material and online radio and TV are becoming more common. There are also more opportunities for a vibrant public information network through the use of mobile phones through both short message service (SMS) information systems as well as other interactive possibilities through data or wireless networks. This provides opportunities for marginalised communities whose issues are rarely covered by mainstream media, as well as other groups who have not had access to traditional mediums, like radio, newspaper and television. However, it remains to be seen if this new generation of news will be inexpensive and neutral or if it will be dominated by a handful of media companies, in the same manner as traditional media often is. Without diligent oversight, digital technologies tend to end up consolidated in the hands of a few powerful companies, such as Facebook purchasing WhatsApp and Instagram. Big media and technologies may prioritise certain content that fits their message or is commercially successful, even at the risk of quashing local community content by providing corporate content at a lower price. As the power of mobile technologies and other ICTs continues to grow, it remains to be seen if they will empower or disempower marginalised communities.

SMSs for information, participation and accountability

Local mobile networks, often in the form of SMS services, can be used to provide information to citizens that have pre-registered numbers. This means that customer must register their numbers ahead of time with the appropriate authority to receive such information on their mobile phones. SMS alerts in India have been used to track public service information, for example, alerting customers to a gas cylinder refill or a package delivery. However, in some Western countries, SMS networks are used to alert an entire city to an abducted child or a major weather event, without any need for

preregistration. Mass SMS can also be used to collect information from a large group of individuals, known as crowd-sourcing. From there companies or government can use that information to create maps or other informatics, as mentioned above, to alert a community to useful information. For example, users can provide information about sexual harassment in order to judge which places in a city are most unsafe for women or citizens can report on incidents of electoral violence or voter suppression. Specific individuals may also benefit, like a new mother who receives regular SMS alerts to immunise her child or a farmer may be informed the correct time to apply fertilisers to the fields. As with other ICTs, a robust examination of who holds the power and whose interests are being served is required here.

28.5 INCREASED ACCESS TO OUTSIDE INSTITUTIONS

It has been argued here that increased access to ICTs can help communities obtain opportunities and connect with institutions outside of their traditional sphere of influence. New methods of providing public services are devised and revised, making it easier for populations to avail themselves of government assistance. New access to outside markets creates economic opportunities that were unheard of a generation ago and help create new methods of banking and loans that have the possibility to empower marginalised communities. It is sometimes claimed, however, that simply providing access to ICTs will immediately result in such benefits as listed above. Here the “distance” of such opportunities and services is often seen as the greatest barrier and once it is torn down by the utilisation of ICTs, then empowerment will quickly follow. It is rarely so simple. Implementers of ICTs and related technology must ensure accessibility to the same within a community. Traditional power dynamics and prejudices can come into play and sometimes ICTs can end up being a weapon of disempowerment—the opposite of what is intended. Therefore, the early stages of development for any project must consciously take into consideration these dynamics and the understanding of existing institutions, if they hope to implement ICTs as a tool of empowerment.

General ICT Community Centres

As mentioned above, there is a need to train communities to use ICTs, taking into account existing power structures and cultures. One common method is Community ICT Centres, which allow individuals or groups, such as families, to learn about and use ICTs for a variety of tasks. This also requires creativity and a willingness to think about the needs of the community. For example, one study in India found lower usage numbers than they were hoping for at a centre for training village-level elected officials. They began to let officials take net books home (loaned using a library model) and saw the usage numbers grow dramatically. Women representatives, who were not always comfortable spending long hours at the centres, could watch educational videos and use the technology at their leisure. With tablets becoming increasingly less expensive (some models for as low as USD \$100), encouraging the use of such technology in the home seemed a smart move for these village community ICT centres. Many scholars have observed that the importance of basic technology skills is as important now as literacy was for the last century. Therefore, a focused public campaign is necessary to ensure that marginalised and poorer communities are not left behind in this regard. Basic skills in using ICTs are as important an empowering tool for the emerging society as literacy was in the last few centuries. Focused public effort needs to go into making

people and communities ICT-literate, initial training but also continuous training and upgrading is the only way to ensure that such communities are truly able to benefit from ICTs.

The table below from the article ‘ICTs for empowerment and social transformation: A brief exploration of the field from the viewpoint of organisational action’ lists some potential ICT-enabled community empowerment possibilities, using a ‘capabilities framework’. It shows how appropriate application of ICTs can strengthen so many basic community processes, potentially resulting in a while range of positive outcomes.

Indicators for Community Empowerment (through ICT use) - Social Capabilities strengthened vis –a-vis Social Mobility¹

Dimension	Objective	Outcome indicator
Informational	<i>To improve access to information and informational capabilities</i>	<ul style="list-style-type: none"> • <i>traditional information system strengthened</i> • <i>information flows within community improve</i> • <i>horizontal knowledge exchanges with other communities strengthened vertical knowledge exchanges with the state, donors, NGOs strengthened</i>
Organisational	<i>To strengthen organisational capabilities</i>	<ul style="list-style-type: none"> • <i>transparent selection of leaders</i> • <i>increased efficiency</i> • <i>improved information flows</i> • <i>better coordination among different organisations</i> • <i>networks with other indigenous organisations strengthened</i>
Social Development	<i>To improve access to basic social services</i>	<ul style="list-style-type: none"> • <i>improved access to formal and non-formal education (i.e. e-learning)</i> • <i>improved access to health services (improved knowledge about health practices and traditional medicine)</i> • <i>improved knowledge and access social programs of the government (e - government services)</i>
Economic Development	<i>To promote economic opportunities</i>	<ul style="list-style-type: none"> • <i>improved access to markets and commercialisation of products</i> • <i>improve productive activities through enhanced knowledge (i.e. better knowledge about agricultural practices)</i> • <i>enhanced capacity mobilises resources from outside donors</i> • <i>improved access to remittances through improved communication with migrant workers</i>
Political Participation	<i>To improve participation in the political system</i> <i>To enhance transparency within community</i> <i>To improve</i>	<ul style="list-style-type: none"> • <i>improved ‘voice’ and participation in development process</i> • <i>improved transparency of political community institutions (e-government)</i> • <i>enhance decision-making power in political system political process</i> • <i>better coordination of political activities community enhanced transparency of</i>

	<i>participation in the political system To enhance transparency within community</i>	<i>information flows within community</i> <ul style="list-style-type: none"> • <i>direct participation in international policy dialogue (UN permanent forum)</i>
Cultural Identity	<i>To strengthen the community's cultural identity</i>	<ul style="list-style-type: none"> • <i>indigenous languages strengthened</i> • <i>indigenous knowledge strengthened</i> • <i>improved dissemination of communities' own culture</i>

Information and Communications Technology (ICT) offers us the possibility to acquire information and to connect with other people at a speed and across distances unprecedented in history. For those without access to ICT, the knowledge and resources gap can grow exponentially. This gap, often referred to as a “digital divide,” is usually caused by poverty and lack of infrastructure.

However, ICTs provide opportunities for dialogue between government servants and the people. Across the world, this often appears in the form of increased access, such as disgruntled citizens communicating with government leaders through Twitter. In North America and Western Europe, these ICTs have coincided with a push towards more open and transparent government, such as hearings and deliberations being streamed online free of cost. Citizens can request and access information through the internet, processes that used to require visiting particular government offices and long wait times.

Within communities, ICTs can be used to support initiatives and groups in coordinating their actions. For example, through mobile technology and social networks, activists can organise protests from a network of groups throughout a city, or even a country. Similarly, these ICTs have the power to connect organisations doing similar work across national boundaries, for example connecting indigenous communities fighting deforestations in Brazil and Indonesia. Such wide availability of knowledge and information can help individuals to broaden their perspectives, voice their opinions and connect with others.

The same ICTs are being used by some governments to monitor and stifle the free flow of information and the participation of civil society. Increased surveillance and tracking citizens through their mobile devices are two examples. Policymakers are consistently torn between using ICTs to protect citizens while also encouraging debate, dissent and a free flow of information. ICTs in governance work most efficiently when governments use them to connect with citizens, gather information and encourage participation and input in civil society.

28.6 POTENTIAL USES OF ICTS

It is useful to look at the many different potential uses of ICTs, both in public and private spheres of society. Below is a brief summary of some of its more promising uses.

ICTs in Development

Today individuals can link themselves through the unique identification card called Aadhar to many government welfare programmes and employment guarantee schemes that

provide livelihood opportunities to the individuals or families. Aadhar is linked to the bank accounts of the beneficiaries of the government schemes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme, Jan Dhan, etc., that can help in transferring the monies directly into the accounts of the beneficiaries towards pensions, insurance, etc. Aadhar is also linked to availing bank loans, scholarships to the students from the weaker sections and such other benefits. These offer opportunities or upward social mobility.

ICTs in Government Administration

ICTs can be used to reorganise internal government processes, cutting down on red tape, providing more specialised or alternative services and reducing costs. Governments have successfully used ICTs to help organise and track development programmes in both urban and rural areas. For example, government can use ICTs to conduct surveys about needs in a particular area, communicate details of a particular development scheme and monitor the implementation and progress of a programme. ICTs are also used in governments providing transportation services, such as GPS technology to improve road safety and increase efficiency in transport and delivery services. ICTs have also been used to help governments become more environmentally conscious, such as tracking pollution (such as monitoring of AQI levels), reducing consumption and the creation of smart public transport technology.

ICTs in Health Care

Electronic health records make it easy for patients to travel with their health information and for doctors to share data, saving both time and money. Clear standardised health records are easier to transfer between hospital, easier for medical staff to read and reduce misunderstandings and mistakes in patient care. Inexpensive access to the internet through mobile networks can be used to educate rural health workers and provide health information to the general public. Some countries with a lack of rural doctors use ICTs to allow doctors in urban areas to communicate with patients over video calls. ICTs can allow the disabled and elderly achieve independent lifestyles, not simply by giving them greater access to home care but allowing them to, for example, order groceries on a mobile application and have them delivered to their home. ICTs have also offered people with disabilities to access information and new training tools, allowing them to live more independent lives.

ICTs in Environment

ICTs can provide environmental information for citizens, government workers and the private sector. This can include air and water monitoring (such as the AQI tracking mentioned above), warning system of natural disasters, emergency management for floods, fires or other hazards, in addition to providing public information about environmental issues in a given region. Private citizens, especially children, have used a variety of ICTs to organise and execute information campaigns and protests around clean air and water, pollution and host of other important issues. These same technologies can also be used for agriculture, to collect information on soil, rainfall as well as track development programs for agricultural workers.

ICTs for Manufacturing

These new technologies can increase the efficiencies of automation and planning to speed up process chains or eliminate them. Although increased automation may be the

most obvious and common use, ICTs are also used in manufacturing for their design and market capabilities, using computer design and interactive graphics. The competitiveness of manufacturing and industrial sectors in a given country are often dependent on their ability to do good quality research and transform that research into products, supply chains or designs that can be sold. Examining this process reveals a number of ICTs in use along the way.

ICTs for Knowledge Sharing

All the above examples share a common theme, the use of ICTs to develop new sources of knowledge and new methods of sharing it. This can be academic knowledge, such as digital libraries that allow scholars to access books or articles in another country, or the preservation and digitalisation of traditional or indigenous knowledge. People can now share this knowledge through video and audio presentation or through social networks. So-called crowd-sourcing ICTs have made it easier to translate audio, video and written work thus increasing its potential reach. In countries where these technologies have existed for some time, citizens have an easier time using them and accessing this knowledge. Deliberate effort must be made to make available and train people from less development countries on these ICTs and the many benefits they offer. The role of ICT in e-education and e-learning is gaining prominence in different areas of the country. Learners can access educational content in various subjects to widen their knowledge horizon.

28.7 SUMMARY

ICT has completely altered the way people are engaged in different activities, be they social, economic, cultural, governance and any other spheres of activities. This has also affected the chances of social mobility through their empowerment and increasing networks, thereby helping them to strengthening their social capital. It has also opened up myriad opportunities for bettering the chances of improving their social status. It has also empowered them to acquire knowledge and skills so that they can improve their livelihood opportunities. It has minimised, if not eliminated, the discriminations and helped people to organise themselves against any such acts. Digital learning has democratised the way information could be accessed through open sources. In a way, ICT has brought in basic changes in the way of ensuring benefits to people and work management.

References

Chris Nicol (ed.) 2003. *ICT Policy: A Beginner's Handbook*. Johannesburg: STE Publishers https://www.apc.org/sites/default/files/policy_handbook_EN.pdf. Accessed on 24-12-2017

Ramilo, Concepcion and Pi Villanueva. 2001. "Issues, Policies and Outcomes: Are ICT Policies Addressing Gender Equality?" *United Nations ESCAP Expert Group Meeting*. 6. Online. <http://www.unescap.org/esid/GAD/Publication/Issues.pdf>

Suggested Readings

Chris Nicol (ed.) 2003. *ICT Policy: A Beginner's Handbook*. Johannesburg: STE Publishers https://www.apc.org/sites/default/files/policy_handbook_EN.pdf. Accessed on 24-12-2017

Ramilo, Concepcion and Pi Villanueva. 2001. "Issues, Policies and Outcomes: Are ICT Policies Addressing Gender Equality?" *United Nations ESCAP Expert Group Meeting*. 6. Online. <http://www.unescap.org/esid/GAD/Publication/Issues.pdf>

Sample Questions

1. How has ICT impacted the learning opportunities and, thereby, the social mobility chances?
2. Discuss the role of ICT in the empowerment of people, especially the weaker sections?
3. Delineate how ICT impacted the lives of people?
4. What are the potential uses of ICT and its relevance to social mobility studies?

