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## UNIT 13 DIGITAL DIVIDE

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### 13.1 INTRODUCTION

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Information and communication technologies (ICT) can offer vast advantages to the whole mankind. ICT could bring information and many services to those who have been hitherto denied of them. The opportunities for social and economic development which can not be availed by the people because of inaccessibility and lack of information will now be available to all. This information could be used for trade, online education, telemedicine, e-government and many other applications that solve vital problems in the developing countries. It could open up new possibilities for more transparent and efficient public administration/governance everywhere. It could distribute knowledge and expertise in the areas of education and public health from the centers of expertise to the remote corners of our country. But the advantages of ICT are not reaching to the people who need it most. Its benefit is going mostly to those who are already well placed. It has given birth to a new kind of division not only at international even at national level. This division is between those who have access to ICT and those who don't have. This division is popularly referred as 'Digital Divide'.

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## 13.2 OBJECTIVES

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After studying this unit, you should be able to:

- explain what is Digital Divide;
- state the reasons for the existence of digital divide;
- describe the different dimensions of the digital divide;
- list the problems created by the divide;
- explain the possible measures to bridge the divide; and
- describe the challenges posed by the digital divide and the responses of the government of India.

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## 13.3 CONCEPT OF DIGITAL DIVIDE

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As evident, the term 'Digital Divide' combines two words in itself: 'Digital' & 'Divide'. The term 'Digital' here refers to Information & Communication Technology (ICT) while 'Divide' means differences, disparity or gap. In general, the digital divide is a phenomenon wherein those who have access to ICT are benefited by the use of it. Their economic well being is ensured in the form of highly paid jobs and more business opportunities, while those who do not have the access to ICT remain aloof of these benefits and hence comparatively they are in a disadvantageous position. The divide does not affect only economically but socially as well. Hence the digital divide is the socio-economic difference between peoples in their access to ICT. The term also refers to gaps between groups in their ability to use ICTs due to varying literacy and technical skills, and the gap in availability of quality, useful digital content. The divide is seen as a socio-economic problem.

The term was used for the first time in the mid-1990s in reference to the disparity in Internet access between rural and urban United States of America. The idea of the digital divide, as put by some scholars, echoes of reservations against claims of the revolutionary power of the ICT. It is commonly suggested that the ICT is transforming society by bridging the distance or gap. Against this the skeptics have pointed out that ICT is forming a new kind of gap and this gap is known as digital divide. Their argument is based on a hypothesis found in Communications Studies i.e. 'the knowledge gap hypothesis'.

### 13.3.1 Knowledge Gap Hypothesis

The knowledge-gap hypothesis suggests that each new medium of information increases the gap between the informed class and the uninformed class in the society. Those who have access to the new medium will get more information than their counterparts. It was first proposed by Phillip J. Tichenor and his colleagues. However this hypothesis is applicable more in case of print medium than in non-print medium because in case of print medium illiteracy also plays a role to widen the gap. The gap was thought to decrease as television replaces newspaper as a source of knowledge. Because as compared to newspapers, television requires less literacy. But with the advent of the ICT, in particular the internet, it is feared that the gap may widen, since it is predominantly a text medium.

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## 13.4 REASONS FOR EXISTENCE OF DIGITAL DIVIDE

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There are many reasons which are responsible for the existence of the divide:

First is the non availability of a reliable ICT infrastructure to access the internet. The ICT infrastructure of a country is determined through a number of measures like number of PCs, tele-density etc. ICT is highly advanced technology and it is available with select countries. Hence other countries have to import the necessary structure. There is lack of resources to invest in information infrastructure, and research and development in most of the developing countries.

Secondly there are problems in accessing the internet regularly. There is the problem of connectivity i.e. availability of a fast, reliable and cost effective internet connection. Then there is the cost of accessing the internet which includes telephone tariff and line rental and cost of Internet Service Provider (ISP). To this may be added the replacement cost of computer. Cost of Internet access may be prohibitive for many low-income households. The quality of service provided by ISP is also important. Because of poor quality of services available due to backward technology it becomes difficult to exploit benefits of ICT.

Thirdly education is one of the major factors hampering diffusion of ICT amongst masses. Only those who are not only literates but computer literates can really benefit from ICT. In developing countries where Governments are still trying to universalize elementary education computer literacy is a far cry. Hence the divide is bound to exist.

Fourth reason is the availability of relevant material in one's own language. The most important benefit of the internet is that it is the vast reservoir of knowledge & information. However this knowledge should be comprehensible to those who actually require it i.e. there must be availability of web content in the language of the user. Another challenge for the user is to find the information. The absence of relevant content may act as a barrier to Internet access.

Fifth is the digital capacity of the society i.e., e-readiness. E-readiness is the capacity of the society to incorporate ICT in all its pursuits. The e-readiness of the society primarily depends upon availability of skilled human resource that is capable of using, improving, innovating and adapting the new technologies. The different segments of the society viz the households, business, the government etc. should be willing to accept and absorb ICT. The government must provide a regulatory framework by making necessary laws & rules to govern the use of ICT in different sectors of the society. Lesser the readiness, wider the divide and vice-versa.

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## 13.5 DIMENSIONS OF THE DIVIDE

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The concept of digital divide as presented above may give an impression that it is a clear single gap which divides a society into two groups: information haves & information havenots, but the gap is much complex than this simple formulation. In the initial stage the debate on digital divide was focussed on the issue of availability of ICT to all at an affordable cost. But now many new dimensions have been added to this debate. An overview of the dimensions of the divide can be presented in following manner :

### **13.5.1 Global Dimensions of Digital Divide**

The global digital divide, refers to differences in availability of the ICT between countries which is reflective of existing economic realities in the world. The developed nations with the resources to invest in and develop ICT Infrastructure are reaping enormous benefits from the information age, while developing nations are trailing along at a much slower pace. This difference in rates of technological progress is widening the economic disparity between the most developed nations of the world (primarily Canada, the United States, Japan, and Western Europe) and the underdeveloped and developing ones (primarily Latin America, Africa, and Southeast Asia), thus creating digital divide. Between countries, the divide's features have common characteristics. The level of national income is strongly related to ICT diffusion and is clearly the distinguishing feature of the divide between industrialized and developing countries. The cost and availability of telecommunications determines the extent to which the Internet is used, and per capita access costs are most often higher in poorer countries. According to the latest UN Human Development Report, industrialized countries, with only 15% of the world's population, are home to 88% of all Internet users. Barely 6 per cent of the world's people have ever logged onto the Internet and 85 to 90 per cent of them are in the industrialized countries. Less than 1% of people in South Asia are online even though one-fifth of the world's population lives here. The situation is even worse in Africa. There are only 1 million Internet users on the entire continent of billion plus people. In the early 21<sup>st</sup> century; residents of developed countries enjoy many Internet services which are not available in developing & under-developed countries, including widespread internet access, e-commerce, online education etc.

### **13.5.2 National Dimensions of Digital Divide**

Within countries, the digital divide often has common characteristics. Use of the internet is more common among young generation than older one, men than women, the well educated than the lesser ones, urban rather than rural population, and those with higher incomes. In our country some states are ahead of others so far as availability of ICT is concerned. The states like Maharashtra, Karnataka, Andhra Pradesh etc. are more advanced in ICT as compared to states like Uttar Pradesh, Bihar, Orissa etc. Further ICT is seldom available in villages where it is needed most. Income level is an important factor since like every other technology ICT has also got a cost and its benefits can be reaped by those who can pay for it. A study has concluded that the penetration rate of ICT for the highest income groups is approximately 7 times larger than that for the lowest income groups. Hence the poor are largely left out of the ICT. Another significant factor is the level of education, as ICT is basically a print medium. The impact of education will be discussed below while discussing the reasons for the existence of the divide. The gender disparity is also visible in case of use of ICT and in most of the countries the per centage of females is less than one-third of the population on-line. According to the Human Development Report 1999, the average age of the internet user is in between 30-40 years. However there is a clear increase in all age groups in the world as for as use of ICT is concerned.

### **13.5.3 Connectivity Based Divide**

This is an emerging dimension of the divide which has come up due to technological innovations in the field of ICT. A new kind of digital divide based on the usage of more sophisticated, advanced telecommunication technologies — that include broadband,

WLANs, PDAs and other new information and telecommunication technologies are emerging. So while developing countries are still in the process of implementing basic telephony services, advanced countries are focused on rolling out wire line and wireless broadband services.

Please answer the following Self Assessment Question.

### Self Assessment Question 1

*Spend 3 Min.*

Whether digital divide is a simple divide between the haves & havenots ?

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## 13.6 IMPACT OF DIGITAL DIVIDE

In this section we are going to discuss the effect of digital divide. There should not be any kind of divide in the society, all should be equal & every benefit should go to all. But it's a distant dream. In fact there are various kinds of divide in the society & digital divide is one of them. Greater the divide, greater is bound to be the tension between people and in the society. Due to the impact of the ICT the world is becoming a global village. The marketing strategies is adopted by the producers with the help of improved communications technology opposed both rich and poor, equally to the better quality of life, better consumer goods and so on and thus, they aspire for the same. If those aspirations are not fulfilled it may lead to frustration and possibly anti social behaviour. The divide's impact can be explained as follows:

### 13.6.1 On Employment

In order to understand the impact of the divide on employment we have to see how ICT has changed the work scenario in the economy. By removing the obstacles to communication ICT has made work independent of location. ICT has created a new class of skilled workers who are highly paid. There is huge demand of software professionals. The creation of jobs, the nature, content and quality of work, the location of work, the education & skills required etc. is to be determined by ICT. But the question is: Will the information economy be a jobs economy? The World Employment Report 2001 examines this question and is optimistic. There is evidence that employment ratios are highest in those countries where the use of ICT is most widespread. Use of the technologies is nevertheless associated with new patterns of job creation and job loss. And despite the hopeful signs of employment creation, it is clear that jobs will also be lost through three main channels: obsolescence, automation, and disintermediation. Certain kind of works, for example, manual record keepers will become obsolete. The producers & consumers can directly interact on-line so that there is no longer requirement of channels of distribution. ICT replaces old tasks and occupations through automation,

such as the telephone switchboard operator. But the ICT has also created new jobs such as webpage designers or call-centre workers and a variety of new intermediaries. Hence those who are skilled in ICT are benefited. In such a scenario if there is digital divide, then those who are at the disadvantaged side have lower job prospects.

### 13.6.2 On Development

ICT is associated with productivity improvements. The exploitation of the ICT gives industries of a country a competitive advantage. ICT opens up a whole new avenue of economic activities including development of hardware and software, online services, and many others. ICT offers tools that accelerate development and may become shortcut to economic growth. The countries with the right mix of skills, infrastructure, and policies could become important locations in global markets for ICT products generally. Countries as diverse as Brazil, China, Costa Rica, Israel, Malaysia and Romania have all been able to gain niches in such markets. This benefit of ICT is denied to those countries that stand at the other side of the digital divide. Thus the existing gap between the developing & developed countries keeps on widening. ICT has spread at an astonishing rate. This has created disruptions and divisions in the world. Disruption occurs because of the inadequacies of existing institutions to cope with the rapid change and new demands. Institutions and organizations that do not cope up would, risk loss, irrelevance and closure. Technological changes are favourable to those who are prepared in advance. The world's different speeds of change and different stages of preparedness mean that the existing "digital divides" are certain to widen.

### 13.6.3 On National and Social Interest

Access to the ICT is an important component of civil life. Telephone (including mobile services) is often considered important for security, and in emergencies. Internet is an important source of many vital information regarding career, civic life, safety, etc. In the unit on e-governance we have seen the use of ICT in governmental functions. In that unit we have seen how the use of the ICT would lead to a healthier democracy by increased public participation in election and decision making processes. Many social welfare services are delivered through ICT. ICT improves social mobility by enabling people to remain in touch with others. ICT plays important role in the learning and career. The existing digital divide works unfairly to all those in the lower socio-economic status and all the above mentioned benefits do not accrue. In the ultimate analysis it is national and social interest which suffers.

Please answer the following Self Assessment Question.

<b>Self Assessment Question 2</b>	<i>Spend 3 Min.</i>
What are the harmful effects of the digital divide?	
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## 13.7 MEASURES TO BRIDGE THE DIVIDE

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Those who are on the less favourable side of the **divide** have less opportunity to take part in new ICT based economy, in which more and more jobs are related to computers. They have fewer opportunities to take part in the education, training, shopping, entertainment and communications as compared to those who have access to ICT. Since now more people are regularly making use of ICT, people who lack access to it are at an increasing disadvantage. Therefore increasing the number of people who have access to ICT is of vital importance. So now it is imperative to bridge the divide. The solution lies in the problem itself and ICT is the very tool that can be used to bridge this divide. There are certain steps which can narrow down the divide if not completely close it. These have been mentioned below:

### 1) **Providing internet access at public places**

The first step to be taken in this direction is to solve the problem of non availability of infrastructure. Since it is impossible to give everyone the required infrastructure there can be community approach i.e. all have access to common facilities which are available at public places like schools and libraries. The lack of infrastructure & financial resources in many countries suggests that access at public locations will be a relatively cheaper means for increasing internet access and use. These could either be publicly owned libraries, community centres, etc. or private cyber cafes, internet cabins. Increasing Internet connectivity in public places would effectively improve the internet access and use by those who cannot afford computers.

### 2) **Education matters most of all**

Education is vital for reaping the advantages from the emerging ICT era. The promotion of education and literacy generally, and digital literacy in particular, is a basic step to bridge the divide. Educational differences underlie the different rates of penetration of ICT and Internet usage. Efforts have to be made to provide computer education along with schooling. Providing computer only is insufficient, teachers need to be trained in ICT. Besides the school goers, large part of the existing workforce also needs to be trained in ICT. Training them taking into account their needs is the key to narrow the digital divide.

### 3) **Exploring the various forms of ICT**

Besides the Internet, there are other information and communications technologies which can be helpful. International Telecommunication Union has reported that mobile phones diffuse faster than the Internet. Thus mobile phones can become alternative routes of getting information because they are not as demanding as computers and the PC-based Internet in terms of cost and skills. Even illiterates can use them.

### 4) **Government policies and support**

Enhanced governmental support in the form of budgetary allocations, lower taxes and a regulatory framework are essential for the transition to the ICT society. Besides economic support the presence of an appropriate telecommunication policy is also necessary. The deregulated telecommunications market in the European Union has led to a substantial decline in access cost and a sharp rise in Internet users. Clearly-defined

national strategies promoting the development of the Internet and other ICTs – as in the U.K., Japan, or Korea – accelerate the diffusion of Internet use through government sponsored projects.

5) **Uneven distribution of ICT**

Last but not the least understanding the causes of the uneven distribution of ICT across countries is the most important step in bridging the digital divide. As we have seen that digital divide has got many dimensions. Further there are various factors responsible for the existence of the digital divide, bridging the digital divide is more complicated than merely providing computers and internet connections. Bridging the divide has to promote both broader access to and effective use of, the Internet. It requires cooperation between governments, the private sectors, and non-governmental organizations.

Please answer the following Self Assessment Question.

<b>Self Assessment Question 3</b>	<i>Spend 3 Min.</i>
In what way access to ICT can be provided to those who can not afford it?	
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### **13.8 DIGITAL DIVIDE & INDIAN SCENARIO**

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#### **The Scenario**

According to an Azim Premji Foundation study, the number of personal computers, installed in the country is 7.5 million of which the four metros viz. Delhi, Mumbai, Chennai, and Kolkata accounted for 53 per cent. India has a relatively low tele-density of 3 per cent for landlines and the target for 2008 is to get the number 20 per thousand. However there has been substantial increase in cellular subscribers. After the introduction of the economic reforms in 1991, there has been substantial improvement in connectivity. Landline infrastructure witnessed a growth rate of 33 per cent while 60.3 per cent growth rate has been registered in case of mobile telephony. But still position is not satisfactory and much of the provisions are confined to urban areas while the 70 per cent rural population is gaining access at much slower rate. The Global Information Technology Report 2001-2002 ranks India 54<sup>th</sup> out of a list of 75 countries on a Network Readiness Index.

In order to have the complete picture this data has to be combined with poverty & education data. In India 30 per cent of the population lives below the poverty line and 40 per cent of the population is illiterate. Now the magnitude of the problem can be



visualized. All those reasons which we have discussed as responsible for the divide are multiplied here. For example, in India we have so many languages and to provide the relevant information in everyone's mother tongue becomes a difficult task. Most of our villages are not connected even with roads.

### **Governmental Response**

The Government of India has taken a number of steps to provide access to ICT. On the one hand it has relaxed import restrictions and lowered taxes on the import of hardware so that more people can now afford personal computers. Policies for Electronics and Information Technology Industry which can be accessed at the Department of Information Technology website list a number of measures in this regard. To provide maximum benefit of ICT to masses the Government has embarked on an ambitious plan for E- Governance. It has been discussed in detail in the unit on E-governance. Here those measures which directly aim at solving the problem of digital divide are being mentioned. A number of measures have been taken by the central & state governments to diffuse ICT and its benefits. Computer systems are being provided in aided schools, colleges, universities, libraries and internet kiosks have been set up in villages also. The Akshaya project of Kerala is notable in this regard which aims at providing e-literacy to one member of every household and also to act as ICT dissemination points in each village. The Headstart project in Madhya Pradesh aims at equipping every Middle School with computer. Community Information Centres have been established in North-Eastern states to provide internet access and e-mail, printing and computer training to the public. One of the main objectives of governmental effort is to make the government citizen interface easier and for this purpose efforts have been made to computerise the functions of the government. In Kerala the citizen's interface with the public organizations has been made easier by the project of Fast Reliable Instantaneous Delivery of Services (FRIENDS). Seven departments and organizations were identified and the public who had to pay dues like electricity or water bill, property tax, road tax etc. could, instead of going to the various offices, go to the FRIENDS centre, which was located in the heart of the city and complete their transaction within a very short time. In Andhra Pradesh in the Twins project 34 types of certificates and services which are given by different departments are centralized under the 18 centres of Twins. The E-Praman software developed by NIC Himachal Pradesh is a system, wherein the applicant visiting the Sub-Divisional Magistrate can obtain the desired certificate in a neat, structured and standardised form on the submission of the application along with relevant papers, within minutes. However despite all these efforts the situation is far from satisfactory. Most of the ICT facilities are clustered in few states. As compared to other countries India is lagging behind in terms of technology, infrastructure and investments. In the Broadband Policy 2004 it has been accepted by the government that the current level of Internet and Broadband access in the country is low as compared to many Asian countries. Penetration of Broadband, Internet and Personal Computer (PC) in the country was 0.02%, 0.4% and 0.8% respectively at the end of December, 2003. According to news appeared in The Hindu India stands virtually at the bottom of the world table when it comes to high-speed networking and digital connectivity. India lags at least ten years behind the world leaders, the United States and Western Europe. It is at least three to four years behind countries such as Brazil and China, and only two to three years ahead of the Central Asian Republics and Africa. Therefore we have to go a long way before there is an appreciable decline in the divide.

Please answer the following Self Assessment Question.

**Self Assessment Question 4**

*Spend 3 Min.*

What is the current status of network & connectivity in India?

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Let us now summarize the points covered in this unit.

**13.9 SUMMARY**

- Digital Divide refers to the gap between those who have access to ICT and those who have not.
- The divide is not a unitary concept but a multi-dimensional problem. Some of its dimensions are
  - Global digital divide i.e. the divide between the countries in their capacity to adopt and use ICT.
  - National dimension of digital divide; in a country ICT is not evenly spread in all regions, over all societies. There is also a gender and generation based digital divide.
    - Due to technological innovations like broadband, witi etc there is an emerging connectivity based digital divide.
- The divide exists because of:
  - Non availability of ICT infrastructure;
  - High installation and access cost;
  - Low level of education and e-literacy;
  - Lack of relevant content in mother tongue.
- The divide has adverse impact on
  - Employment
  - Development
  - National and social interest
- Certain measures can be taken to bridge the divide. These are:
  - Making ICT accessible to all

- Universalizing education including computer education
  - Through governmental support
  - Understanding the causes of the divide and remedying them
- In India the position of digital divide is serious both in terms of global and national dimensions of digital divide.
  - Governments have taken certain steps in this direction. Major steps are:
    - Promotion of e-literacy
    - E-governance

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### 13.10 TERMINAL QUESTIONS

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- 1) Explain the concept of digital divide. Whether it is a singular concept?
- 2) What are the reasons responsible for the existence of the digital divide?
- 3) Do you think that the divide can be closed? If yes, how it can be done?
- 4) Do you think that with the present state of infrastructure can India become global software giant?

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### 13.11 ANSWERS AND HINTS

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#### Self Assessment Questions

- 1) Digital divide is primarily the divide between those who have access to ICT and those who have not. But this simple statement does not cover the whole concept of digital divide. The divide has got many dimensions. There is (i) a divide at global level, (ii) a divide at national level, and (iii) connecting bored divide.
- 2) Digital divide harms in many ways. It affects people by restricting employment opportunities and through denial of benefits of ICT. It affects countries by slowing down their economic growth and development.
- 3) Access to ICT can be provided by installing computer systems at public places like Schools, libraries community centre etc. By encouraging private persons to establish internet kiosks will also help in diffusion of ICT.
- 4) According to the latest reports the penetration of broadband, internet and personal computer in the country is 0.02%, 0.04% and 0.08% respectively. India has a tele density of 3 per cent for landlines. The Global Information Technology Report 2001-2002 ranks India 54<sup>th</sup> out of a list of 75 countries on a Network Readiness Index.

#### Terminal Questions

- 1) Refer to section 13.3 & 13.5 of the unit.
- 2) Refer to section 13.4 of the unit.
- 3) Refer to section 13.7 of the unit.
- 4) Refer to section 13.8 of the unit.

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