

FIAIFM: A MODEL TOWARDS BRIDGING THE DIGITAL DIVIDE

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ABSTRACT

The size of the economic transformation brought about by the ICT revolution is not evenly distributed across the globe and the expected benefits will therefore not be equally shared unless urgent action is embarked on to change existing trends. The “Digital Divide” (DD) is an issue that has recently caught the attention of policymakers around the world, both at the national and international levels. There is a clear consensus that there are large differences in access to information and communication technologies (ICTs) between the developing and developed countries as well as within countries.

A large number of initiatives are being launched to address the digital divide issue but there is little agreement as to how it would be possible to bridge the digital divide (DD). The level of complexity of the DD problem guided this research towards an in-depth literature review to study the DD phenomenon, and identify the reasons behind it, the successes and failures aiming to provide suggestions and mechanisms for reducing the gap. In this context, this investigation is an opportunity to take a step back and review the arguments, assumptions and solutions being put forward by various actors within the international development community and different developing countries.

The purpose of this research is to study the DD issue, investigate its causes with relation to the developing world, and propose a structured approach towards understanding and the causes of the DD. For this purpose three surveys were conducted in Egypt, which in this case represents one of the developing countries that strives to meet its technological needs. The aim of these surveys was to find out who uses technology, why some people still do not use it, how much they know about it and the reasons behind the DD. In addition, an evaluation of the state initiatives is included to establish whether the government has helped in stimulating people’s usage to ICT or not.

The FIAIFM (Feasibility for Initiatives Adoption, Implementation, Feedback, Modification) model was developed together with guidelines which can be used to help reduce the divided. FIAIFM provides the mechanism for identifying areas needing improvement and provides guidelines that could be followed at national, regional and organisational level.

Keywords

Digital Divide; State Initiatives; Social Integration

INTRODUCTION

The “Digital Divide” is a term that refers to the gap that exists in the opportunities to access information and communication technologies between geographic areas or by individuals at different socio-economic levels (Xavier, 2001).

Despite the many efforts to help developing countries break into the global economy via computers, information poverty is still a reality in these countries. While the developed economies are enjoying the prosperity of technology, the majority of the developing countries still suffer from lack of basic needs: food, jobs, homes, health care and reliable water sources. Insufficient, and in cases inadequate telecommunications services is a hardship almost as severe as these other deprivations. The digital divide is one of the biggest obstacles to development.

People from the advanced economies the US ex-Vice President Al Gore enthused about the impact of the Internet as a tool that offers an "electronic agora" and "online democracy". However, more than 80% of people in the world have never even heard a dial tone, let alone surfed the Web. And the gap between the information haves and have-nots is widening.

Kofi Anan, the ex- United Nations Secretary General, warned of the danger of excluding the world's poor from the information revolution. "People lack many things: jobs, shelter, food, have never even heard a dial tone, let alone surfed the Web. And the gap between the information haves and have-nots is widening." Anan warned of the danger of excluding the world's poor from the information revolution (Anan, K, 2007).

What intensifies the problem is the fact that the gap is getting wider due to the growing momentum of the information economy advancements coupled with the almost-stagnant third world status (Gharib, n.d.). In the last decade, international agencies like the World Bank, United Nations Development Program and International Telecommunications Unions have expressed concern that the Internet and the information revolution may leave many societies far behind, producing clashes between the advanced industrialised and the developing world. They are now stressing the need for government, non-profit and corporate initiatives to bridge the digital divide and make technology instead help in social integration.

REASONS BEHIND THE DIGITAL DIVIDE

I. Social Stratification and Internet Access

The reasons for the occurrence of the digital divide phenomenon are often assumed to lie in certain characteristics of this new technology, such as the need for computing skills and affordable online connections. The policy solutions created to reduce this divide usually concentrate on certain fixes, such as wiring schools and classrooms, training teachers, and providing community access in poor neighborhoods. Of course, this will be useful; however, are these initiatives enough for diversifying the online population or for stimulating more people to get online, which eventually will reduce the digital gap and create more social integration? The results of this analysis investigation suggest that unfortunately it is not enough. "The policy fixes are too specific, the problem of social inequalities too endemic" (Norris, 2001). Therefore, the conclusions of this research show that a big portion of the problem lies in the patterns of social stratification, which "shape not just access to the virtual world, but also full participation in other common forms of information and communication technologies" (Norris, 2001).

The analysis results suggest different explanations for social stratification, some is poor, like the gender gap and that women have 'computer-phobia' attitudes towards computer and others are strong. Even in advanced prosperous societies, poorer families lack common consumer durables such as TV, VCRs and vehicles, and they are more likely to lack Internet access as well (Norris, 2001).

In the long run, technological and economic developments may change the market for Internet access as costs should be reduced and technical skills should be simplified which will stimulate more users. Generational trends could be very useful in terms of analysing long term patterns of use, as young groups eventually replace the older groups. State initiatives such as connecting schools help in improving some of the major differences in computing skills and knowledge. However, these initiatives usually do not deal with the long term patterns established of social stratification, which as suggested is a more endemic problem. The Digital Divide is not only dealing with access, but it is a multilayered problem, consisting of access and usage.

State initiatives are still vital in reducing the digital divide. Internet access vary substantially, as people living in poor districts surf the Web only from public libraries, schools and cyber cafes, which is not the same as surfing via high speed connections at home and the office through personal computers, digital assistants or even cellular phones. Internet technology is developing fast as the market demand increases. The developing world needs to catch up fast.

An investigation was carried out in Egypt to find out who is online, why some people still do not use technology and how they can be stimulated to use IT and therefore take some steps towards decreasing the digital gap and taking a small step towards social integration.

2. Summary of Investigation Results

Three surveys were conducted aiming to find out the following:

Survey One: Why some people still do not use technology

For this survey, it was obvious from the analysis of the results that there were two main reasons behind people not using technology, costs and skills. However, costs outweighed any other factors.

There was another reason which is the “motive” to use such technology. If the motive was there, the will to gain skills and search for cheaper ways to gain access for that technology would be created.

It was also found that 88% of the respondents have access to a computer at work or school. This shows that the Egyptian society now is aware of the importance of computer use.

A very interesting finding too was that people who surf the Internet use English or English and Arabic languages to surf. None of the respondents use the Arabic language alone. This shows that people are aware that they need language to be able to surf the Internet, which could be a discouraging reason for other groups as they might not know any other languages than Arabic. Therefore, they think that they cannot use the Internet or they have tried with the Arabic language and did not find enough material in Arabic so decided not to use it again.

When they were asked what could encourage them more to have a computer, most of the answers were around better offers and cost reductions, as well as creating Internet awareness and motivation (1st Table).

1st Table: Suggestions from Respondents to encourage them to own PC

What could be done to encourage you more to own a PC?
Reduce costs/ Make it cheaper
Make Expected benefits clearer
Increase Internet awareness
Make better offers for families and children
Reduce Internet Provider costs

Another question was asked at the end of the questionnaire about the different technologies. All respondents (100%) had telephones, 98% had T.V. sets, 97% had satellite dish(es), and 93% had mobile phones. This could raise a question that was raised as to whether we are witnessing “digital divide” or “digital delay”? From these responses, it can be seen that technology eventually diffuses. . However, since the digital technology and particularly the Internet, needs specialised skills, it might take longer time to diffuse in and to urge people to learn and use it.

Survey Two: Evaluation of MCIT Initiatives (State initiatives – Ministry of Communications and Information Technology)

This survey was to evaluate the state initiatives to stimulate people’s use of technology which should help in bridging the digital divide. It was found out that there is no awareness about the state initiatives whatsoever. Only a very small percentage knows about any of the initiatives that the government is adopting. Therefore, good publicity is required for people to make use of those initiatives and to encourage them more to use ICTs.

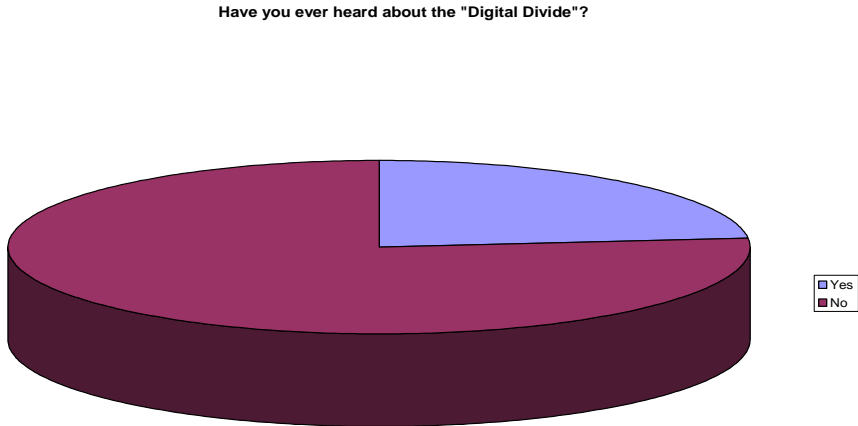
One of the questions was asked about taking computer courses. 54% took computer courses. As for the 46% remaining who did not, 32% didn’t need to take such courses and are familiar with computer usage, 28% are not interested, 20% had no time for such courses, and finally 16% because it was expensive. It can be seen from this that if a good motivation was created (the WHY) and people became more aware of the benefits of such technology, 28% would have taken such courses.

Survey Three: The awareness of the Digital Divide Problem and what people in Egypt think about it

The last survey was about the awareness of the Digital Divide problem and what people in Egypt think about it. It produced really unexpected results, as it turned out that a very small percentage even among the online, professional, educated users heard about the “Digital Divide” or even heard about what the MCIT is trying to achieve. In addition, most of the respondents did not have an opinion about the subject which reflects their ignorance about the problem.

First, a brief definition of the term “Digital Divide” was provided. Then the first question in this survey was whether they have heard about it or not. 77% said they did not hear about it before which is a very large percentage especially among professionals and educated respondents (1st Figure).

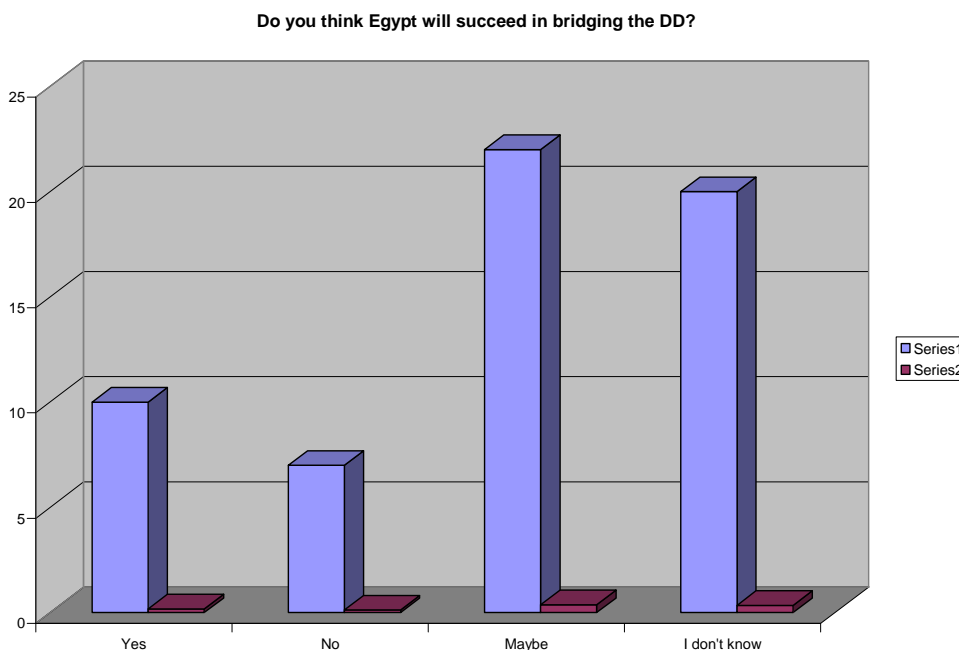
1st Figure: Have you ever heard about the “Digital Divide”?



Those who heard about it, 38% had heard it from the media, 31% from colleagues, 23% from government, another 23% from school, while the remaining 23% from reading of books and magazines.

Another question was about people’s opinion as to whether Egypt will succeed in bridging the digital divide. This is why a definition of the problem at the beginning of this survey so that people can interact with the researcher and express their opinions even if it was the first time for them to hear such term. Although the term might be new for most respondents, they can feel and understand the problem.

2nd Figure: Do you think Egypt will succeed in bridging the DD?



37% said maybe, 34% said they don't know. 17% said yes Egypt can succeed, while 12% said no it cannot (2nd Figure). The larger percentages are among the "maybe" and "I don't know" answers, which shows that most of the people do not have an exact opinion about the subject especially that most of them did not hear the term before. People need to be more aware of Egypt's challenges.

2nd Table: Suggestions from Respondents for the state to bridge the DD

What more do you think should be done by the government or private sector or any other sector?
Illiteracy affects 42% of Egyptians. They cannot read or write. This needs to be addressed first, they need to learn reading and writing to be able to use the digital media.
The Egyptian population suffers from poverty adding to a lack of knowledge even for those who use technology, a large part use it to do un-useful things, PC learning must be in schools from early stages and the importance of technology must be explained.
Invest more in the primary education.
Giving more importance to computer teaching in schools
Overcoming the DD will not happen in Egypt until we come to truly value information, which we currently do not.
Government should have a sustained management system to deal with the problem, and not to be changed whenever the manager or the responsible person change. Also to have strict punishment system for those who do not follow that system.

Answers to that question were mainly about describing the benefits of using digital technology from an early stage at schools, knowledge should be appreciated, illiteracy should be fought, and sustainable management systems should be applied (2nd Table). Most of the models and policies that aim to bridge the digital divide revolve around these points too.

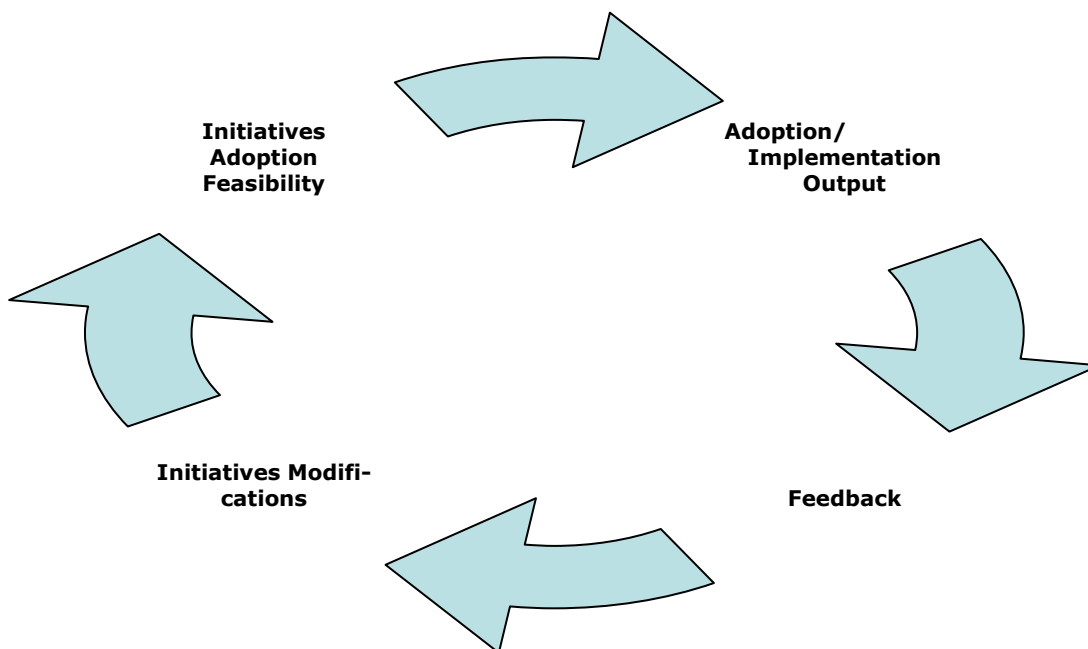
Finally as we were conducting the surveys, although we had not included specific questions in the surveys, we noticed that both the lower and upper middle class are getting more and more familiar with the new technol-

ogy and its advantages but still cannot afford to have such technology at home with good connection that makes them maximise the benefits from it. This is a large sector of the society. Initiatives like the ADSL connection with better offers are essential to address this problem.

FIAIFM: A MODEL TOWARDS BRIDGING THE DIGITAL DIVIDE

It can be concluded that technology can reduce the gap between the developed and the developing countries but it must be used in the right place. As a result of this investigation, the FIAIFM (Feasibility for Initiatives Adoption, Implementation, Feedback, Modification) model (3rd Figure) is proposed, the use of which aims to help reduce the digital divide. The model provides the mechanism for identifying areas needing improvement and provides guidelines that could be followed.

3rd Figure: The FIAIFM Model - Lifecycle for Introducing Initiatives



I. Initiatives

Any initiative or project adopted must be monitored to check its results and collect feedback. Modifications and amendments could be applied to ensure the success of these initiatives. Successful initiatives should be expanded or extended. For example the “PC for Every Home” initiative adopted in Egypt in 2002 was a success; therefore, it was extended to become a national programme called “Egypt PC 2010 – Nation Online”.

2. Affordability

Since ICT is not a necessity in the life of the poor, it shouldn't consume more than 10% maximum of their income, including obtaining hardware, software, connectivity, education, etc. based on Tongia model to stimulate the poor to use it and experience its positive potentials (2006).

Affordability of ICT contains two main areas; affordability of computers and affordability of telecommunications and Internet accounts.

- **Computers:** Computer prices have fallen a lot recently. However, the government and private sectors are needed in this respect to unite and provide PCs for the public with reasonable prices and special offers. The "PC for Every Home" initiative adopted by the Egyptian MCIT government was a success, as it provided PCs in cooperation with the private sector, with special prices and small installments. This encouraged many of the low income families to obtain PCs.
- **Telecommunications:** The telecommunications sector contains two core issues to enable connectivity. First is that the telecommunication infrastructure should reach the whole country and second is making telecommunication services and Internet accounts affordable to everyone.

3. Connectivity

Although mobile phones are spreading worldwide, still PC connectivity is considered expensive and limited in rural areas due to the limited telecommunications infrastructure discussed before. Therefore, special emphasis should be given to expanding the telecommunications infrastructure.

4. Guidance

The population must be educated about the benefits and dangers of the technology before they can use it. Students can drop out of schools just to go play games with computers as happened in "the Hole in the Wall" experiment, which was a complete failure, as students left their school work and instead spent the time playing with the computers embedded in the walls in the street. Therefore, they did not benefit from the technology.

Teenagers spend hours just chatting on the net, instead of doing something useful with their time or researching through the net about something that could be beneficial to them. In a poor district or in a poor country which is trying to develop and catch up with the rest of the world, this will hinder all their efforts as their youth are not developing as planned.

Access to technology is part of the problem, but the know-how of using such technology so they can benefit from it, is more important, as not to have drawbacks from the use of this technology. Students dropping out of schools will lead to more poverty instead of further development. Therefore, technology and its use need guidance.

5. Accessibility

Access problems come next. Ensuring availability of computers with access to the Internet must not forget supervision. Different sectors again need to unite at that stage to provide such access and availability. Physical access depends on several things, such as the ability to buy, rent or utilize a device, lack of good telecommunications infrastructure with sufficient reliable band-width for Internet connections, and finally reasonable costs.

Affordable access is a must to bridge the digital divide. Access does not mean PC ownership. However, land line telephone access is essential for Internet access, which is not available in many poor and rural districts in developing countries.

PCs are expensive for the majority of people living in the developing world; therefore, other alternatives should be provided. Such as the following:

- **Public Access Centres:** In developing countries, only a small percentage of the population can afford to have personal computers and access to Internet. Therefore, public access centers in many areas are not considered a secondary method to access the Internet but the main method. This is why great attention has to be given into their design, implementation, and evaluation. In addition, guidance and incentives to use such centers should be provided. IT Clubs or what are known as “Community Computer Centers” are a success in different models. Therefore, clear objectives should be created for such clubs again with the publicity to raise awareness of their existence. In the case of Egypt, it was very rare to find anyone who heard about the IT Clubs established by the government. Most of the lower income class people used Internet Cafés to access the Internet, which is again not useful as there is no guidance offered at these Cafés, and therefore people spend most of their time engaging in non-useful and/or harmful activities. This is why not only awareness of the existence of such clubs is essential but also that they are used with minimal costs, much lower costs than those for Internet Cafés, will encourage people to such clubs. In addition, there is a need to increase the services offered by these clubs such as computer usage, Internet surfing, typing skills training and to advertise well these services. Only then will be people be stimulated to go there and benefit from such services.
- **Mobile IT Clubs:** Another very good initiative is Mobile IT Clubs. Most developing countries will take a lot of time to have the proper infrastructure for this technology. Waiting is not an option or they might wait forever. Again an easy and smart solution exists namely taking this technology to them namely well equipped vans with instructors moving around all remote areas. An example of successful use of this concept can be seen in Daknet: Rethinking Connectivity in Developing Nations (http://www.firstmilesolutions.com/documents/DakNet_IEEE_Computer.pdf).

Ensuring access for all to information technology is a task beyond the scope of any one institution. All stakeholders, such as governments, international agencies, private sector, universities and organizations should all unite in pursue for “access for all”.

6. ICT Skills

In order to be able to use ICT, unlike any other technology, certain skills are essential. This factor prevents many people from using the Internet and digital technology. These skills revolve around three points namely low level of computing, lack of technology skills and literacy skills. People in business or professional occupations acquire skills as part of their employment, manual workers and the unemployed are less likely to be ex-

posed to such opportunities. Young people who do not go to any form of education are equally disadvantaged.

Communities acquire skills if they are seen to have value. Therefore, people in poor communities can acquire those skills if they are valued and the positive potential for learning those skills is recognised. This could be achieved by creating the motive as will be discussed later on.

Cost, low educational achievement, culture, age, gender are all factors that contribute to the know how of ICT skills. Therefore, educational programmes should intend to teach these skills to poor communities and disadvantaged groups of people as a step to overcome a wide scope of barriers for using technology.

7. Education

Illiteracy could be a major obstacle for dealing with the DD problem. Illiteracy rates are very high in developing countries. Illiteracy must be dealt with before people can use the Internet or get connected. It is important to figure out that allocation of government spending in literacy programs is a must, if they care to develop in the near future.

But is it wise to wait until more people are literate than start introducing such technology? Waiting means losing time that the rest of the world is using to develop more and more. It is a race. Therefore, waiting should not be an option here. Some scientists say that we should call it digital delay instead, as technology needs time to diffuse. But again they argue that time is an important factor that could not be ignored for such technology particularly as technology develops fast. Easy portals should be created for such groups, portals that have double purpose, to educate people, reading and writing with very primitive ways and at the same time making people more familiar with using the technology. An example of that is the Kenana Online portal in Egypt (<http://www.kenanaonline.com>). Although it is still not a known initiative, we believe that it is a very good and smart initiative/model one that could be applied in many developing countries. The idea is to create a community development portal, which aims to enable groups of citizens in cities and rural areas to use IT tools to obtain the knowledge necessary to improve their lives. Content is provided by communities, including NGOs, research institutions and local companies, to address local needs (Kenanaonline, n.d.).

8. Human Capacity

People need to be aware, literate and smart enough to grasp the ICT benefits. They should be stimulated to use ICT either by the government or by their surrounding society. Therefore, what urges people to use ICT is policy, business models and regulations.

9. Empowerment

Empowering men and women to utilize new technologies and apply their knowledge and abilities could leapfrog stages of development and thereby close the income and human development gap that today separates the developing from the developed world. Empowerment remains one of the main development challenges. The “Egyptian Olympiad in Informatics” as well as the “Professional Trainings of MCIT” are two projects to

employ more people in the IT sector and develop their ICT skills. In this way, IT empowerment could be a tool for development and bridging the gap.

10. Attitudes

Attitudes towards technology from the low income and poor societies could be astonishing. Poor people think that computers are for smart intellectual people only, or for males, or for the young, or very difficult to use, or even belongs to certain class of society.

For cultural and/or religious reasons, women and children could be excluded from using technology, as concerns about unsuitable material available on the net arise. Therefore, confidence must be created to attract those users. Filtering systems are essential especially for those societies to avoid offensive content and gain their trust to use digital technology.

11. Content

There are two main issues related to the content on the Internet that drives people away from using technology. First, the content language on the internet is mainly in English. The dominance of the English language on the net is considered an obstacle for many people. This means for people to be able to navigate through the net, they need not only to be literate but English-language literate.

Developing countries need to create their own content with their own language. The e-Content initiatives in Egypt are good steps to deal with such issue. China has started this initiative earlier and succeeded in raising the number of Internet users tremendously.

Second, the internet content may not be relevant or interesting to some groups of people, especially the elderly. However, if the elderly knew the services that could be offered by the Internet and how much it can facilitate their daily activities such as the paying of bills, they would have become interested in learning to use it.

Another final problem with content is that to be able to post rich content, multimedia is used, which requires broadband connectivity. Unfortunately, the number of broadband users in the developing countries is still very low. Initiatives like the broadband initiative launched in Egypt, in September 2007 (<http://www.broadband.com.eg>), could address such problem and encourage people's usage to broadband and better connectivity. However, as the investigation showed, such initiatives need to be studied carefully to be successful and achieve their aims.

Government initiatives are needed to reduce costs as much as possible for lower income classes to be encouraged to use technology.

12. Awareness

Awareness is a very essential step for bridging this divide, and for the developing societies to reap the benefits of the new technology. People should be familiar with the uses of ICT; they must also be flexible and open to using digital technology.

MOTIVE

Different kinds of ICT have spread without any obvious efforts, although some of these technologies could be seen as a luxury and not necessary, like the mobile phones or the satellite dish. Although there might be pressure on people to have such ICTs, they are convinced it is part of development and that is why they use them. For the Internet and computers, skills are needed; therefore, the motivation to learn and devote effort to gaining such skills is of great importance for the spread of such technology.

The motive answers the “WHY” question. Why should people care about technology especially when they have a lot of other needs to care about and must fulfill?

The motive could be created as part of awareness campaigns. People should be aware of the benefits of technology, should be stimulated to use technology by giving them motives to do so. Otherwise, the “WHY” would they use it or learn the skills to use it” question will remain unanswered.

I. Benefits of Technology

Using technology efficiently, could help in many aspects of poverty:

- Again e-health could improve health care services with minimum efforts leaving citizens thinking of other creative things to do.
- The e-government services could reduce a lot of time spent by citizens paying bills or renewing car licenses, etc. which should be equal to more hours producing instead of queuing.
- Allocation of job vacancies could be much easier on the net. This will lead to higher rates of employment, which will lead to more income, which could raise up the level of the whole family.
- Digital technology helps scientists and researchers to start from what the developed world has ended or at least to use their findings in our developing process. This again should aid in reducing the gap between the developed and the developing world.
- Educating yourself by searching and reading on different topics is another advantage for people in remote areas who do not have access to libraries, schools or universities.

Thus, technology could be a means to reduce the DD gap and improve the socioeconomic lives of people. However, careful planning is essential to introducing the technology to certain low income and low educational level communities which are prevalent in the developing countries.

People in such communities could be fascinated with the technology that they will use it wrongly or else they will be afraid of it and avoid it (as people tend to resist change). Creating incentives for them to learn this new technology is vital at the initial stages.

ACCESS TECHNOLOGIES

Although ICT is considered an essential tool for development for many countries and particularly the developing world, investments are considered relatively modest when compared to any other sector that needs development, for example, electrification..

Many debates considered the question “Is modest/little connectivity good enough in developing countries or broadband is needed despite the much higher cost?” Eventually, limited backbones become saturated as users grow and applications drift upwards in bandwidth. Also a new divide could be created between those who have broadband and those who are online via dial-up, for example, the city vs. rural areas. It is wise to deploy solutions that will last for generations and not just few years; therefore, investing in infrastructure is a wise thing to do.

Another debate that such poor countries face is “why build a network if you are not sure there will be users?” You cannot guarantee that people get connected as they might not afford to have PCs in the first place. Even if they did, they might not afford to get online. This is a serious challenge. There is an increasing number of PCs in many schools, hospitals, government offices, universities, public libraries, etc. However, they might find connectivity beyond their budget. Eventually people will have to use technology or else they will be left behind.

INVESTMENT IN ICT

Throughout this study it was shown that a large percentage of ICT discrepancies depend mainly on income levels, as well as other social factors like literacy, occupation, gender and age. Therefore, costs in the ICT sector affect the digital divide. Lowering costs would definitely improve infrastructure and connectivity.

Mechanisms need to be developed that can plan investments in ICT in a structured manner and in parallel sectors. Investments are essential not only in basic infrastructure but in human resource development as well.

Availability of finance, especially venture capital is needed to overcome financial constraints to be able to develop. Therefore, initiatives for partnership are essential to overcome those financial constraints. However, a more concerted and comprehensive effort is essential to involve companies in the technology and financial sectors in the drive for access-for-all to ICT and services.

GUIDELINES FOR A NATIONAL ACTION PLAN

The following are some guidelines that should be included in any national action plan of ICT for development. For each and every point, several initiatives should be adopted and a model such as FIAIFM needs to be implemented to ensure the success of such initiatives.

- Recognize the right of universal access to ICT and knowledge;
- Share best practices and experiences to promote access and connectivity for all;
- Ask for assistance, support and advice from International Institutions especially those related to ICT like the ITU;
- Address concerns about security and privacy, about language barriers, and about the social impact of the new economy and provide a sense of trust and the rules to protect the users from technology misuse;
- Encourage the use of information and communications technologies that can improve people's lives, such as online employment, distance learning, finding niche markets, improvements in productivity, and better health services;
- Seek advice from International Institutions or from similar developing countries that had success stories to avoid misinvestment and to maximize benefits;
- Encourage local content in local language on the Internet depending on the local news and native knowledge;
- Promote global partnerships to encourage knowledge flow for development and mobilisation of resources. Knowledge flow could be from North to South or from South to South if there are any success stories there that could be taken as a model;
- Encourage reduction in the costs of the Internet access and other ICT connections and services;
- Promote utilisation of the benefits of e-government, e-commerce, e-health and e-learning;
- Support collaboration between government, organisations, private sector and civil society to face current challenges and any other new challenges.

CONCLUSION

Advancements in knowledge and learning capacity will enhance development, and not just investments in the information infrastructure, which are the means to an end.

All stakeholders such as governments, international organisations, the private sector and civil society, are needed to support national efforts and maximize potential ICT benefits.

Different time lags occur in any country to grasp the outcome of launching national ICT programme for development. However, this should not provide an excuse for inaction or a “wait and see” attitude. Developing countries are advised to join the ICT revolution now.

The digital divide can and should be bridged, but delayed action to overcome this divide will only make it wider and more difficult to close.

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