Youth towards Building an ICT based Socioeconomic Structure and Bridging Digital Divide in Bangladesh

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The concept of well being of people is different depending on the country in context. In developed countries with quality socioeconomic condition, security, safety, infrastructure and communication facility, people have the opportunity to crave for the self actualization and esteem part in the hierarchy of needs [1]. But in developing and underdeveloped nations, struggle for the basic physiological and safety needs is more prevalent, mostly due to an unbalanced and weak socioeconomic structure. As a consequence, their prime concern is to upgrade the economy to a sustainable well condition, increase literacy, ensure safety, health-care, develop proactive strategies against natural calamities that may hamper the growth, and establishment of required infrastructure. This is an acceleration period, when high tech in its original form is not always useful for third world, rather use of appropriate technologies [3] designed with special consideration to the environmental, ethical, cultural, social and economical aspects of the community is better in most of cases, because they require fewer resources, are easier to maintain and have lower overall cost.

Bangladesh, despite several efforts to improve economic prospects, remains a developing nation. Per capita income [4] in 2006 was US$ 2300 (adjusted), while world average was US$ 10,400. Key challenge here is to develop the economy so that people can have a standard living on average, meeting the basic criteria of well being. But to achieve this primary target, several obstacles are to be addressed, which are depicted in the fishbone diagram below (Fig-1)

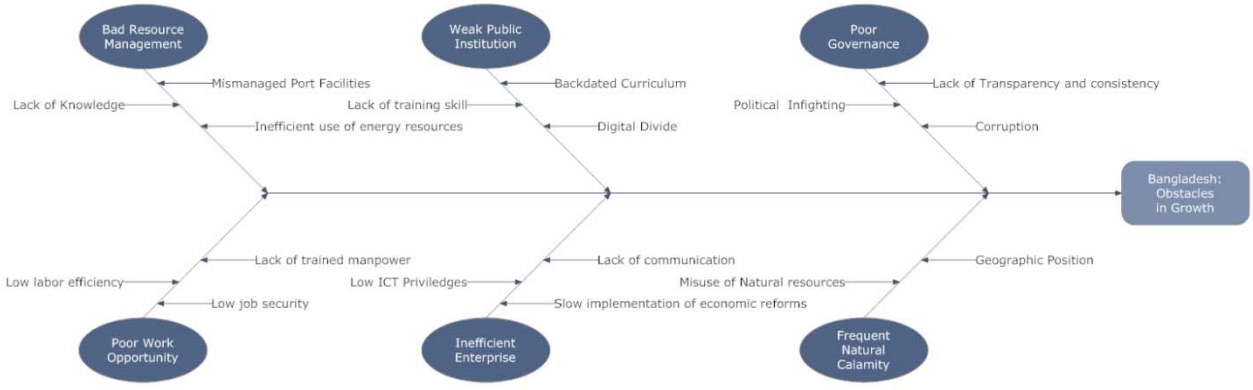

Fig 1 Obstacles in Economic Growth of Bangladesh

To aim the obstacles efficiently and expedite the development process, Information and Communication Technology (ICT) is a paramount tool. Utilizing information technology creates channel for transparency, productivity, collaboration and knowledge dissemination. But While the developed world is experiencing an accelerated metamorphosis of the twentieth century's industrial age to the twenty-first century's information age, we are experiencing only a digital divide. Digital Opportunity Index (DOI) of Bangladesh as of 2005/06 was 0.25, and ICT Opportunity Index was 31.56 (Rank – 157) [2]. This shows a great extent of Digital Divide [2] here.

This global digital divide is widening the gap in economic divisions around the world. Countries with a wide availability of internet access can advance the economics on a local and global scale. In today's society, jobs and education are directly related to the internet. In countries where the internet and other technologies are not accessible, education is suffering, and uneducated people cannot compete in the global economy. This leads to poor countries suffering greater economic downfall and richer countries advancing their education and economy.

And inside Bangladesh, increasing disparity between rich and poor or between age groups is widening this digital gap even more. Mobile and internet technology already introduced is well beyond the capacity and capability of many.

Hence, to accelerate the development process and create prolonged opportunity, computing and communications is a paramount tool. Fig 2 depicts how a development model, based on ICT can help the community bridge this digital divide [5].

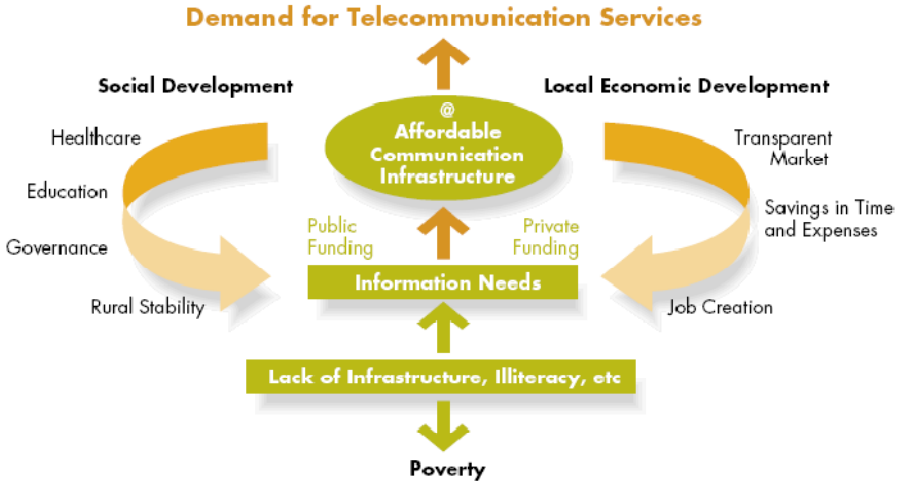

Fig 2 Development model based on ICT

This model shows lack of infrastructure and illiteracy are two prime causes of sustained poverty. Economically, ICT will help to create local, more transparent marketing channels, so

limiting speculation and the risk of artificial shortages and improving the distribution of margins between the various links in the value chain of each sector, from producer through to consumer. On the other hand, In the areas of education and social science, the Internet has the potential to improve communication between public authorities and local people, as well as between central authorities and local authorities. It will facilitate greater transparency institutions management and administration, moving towards the objective of good governance.

Thus it is proved that, turning digital divide into digital opportunity for all is a strategy for growth now. But how to achieve this bridge? United Nations is and several welfare organizations are already working for it. By a United Nations General Assembly resolution, following the 2005 World Summit on the Information Society in Tunis, World Information Society Day was proclaimed to be on 17 May, to help reduce digital divide and raise global awareness of society changes brought by the Internet and new technologies.

Thus the world is now conscious about bridging digital divide, as the perceived consequences of worldwide unbalanced economy and differing facility not only hampers development of a country, but also opposes interoperable business among nations, globalization, information and technology access.

But how to bridge the local digital divide? Support and coordination from government as well as companies and welfare organizations is vital, As we are an emerging ICT nation, the contributors among the stakeholders are the young people.

Inclusion of ICT studies: Inclusion of ICT studies from almost an initial level of education can be an effective way to train up the mass youth. Part of ICT educated youth will enrich themselves with the help of government centers and will create a countrywide low cost support and maintenance network. As a byproduct, a lot of students will find themselves as ICT professionals, a further opportunity to enrich the economy.

Software localization: Young students can participate in software localization tasks performed by the community. Localizations like adaption and translation is necessary to involve elderly, low literacy and illiterate portion of the society. We cannot ignore their participation.

Help Raise Fund and refurbish used Cell phones, Desktops and Laptops: Young generation can create their nationwide movement to a nonprofit organization. They can help in raising funds or collect used/old computers and cell phones and refurbish them for the use in rural areas, where information access is more necessary than computational power.

Training Support: Only low cost computing devices and free software are not enough. The community needs training for two reasons. Firstly, they should have at least a working

knowledge of the devices. This training is provided for the general users. Secondly, we should take the opportunity to convert portion of our huge population into trained IT professionals. Young university students can provide low cost training support for them.

Countrywide educational program : The youth can build a countrywide educational forum, based on Internet. This will include E-learning for underprivileged students. Privileged portion of the community can help the underprivileged society maintain the education quality at low cost.

"Appropriate Technology" Research: Prospective university students can involve in appropriate technology research. Low cost solutions to many ICT applications are possible. For connectivity, wireless and radio solutions can be developed for rural regions. The facility of wireless can be integrated in numerous appliances; students can find the opportunities for improvement. As developed locally, R&D costs and profit margins are expected to be minimal. In this way lots of students can master the technology and also get a view about their nationwide necessities. On the other hand, these free technologies can be shared worldwide to help other nations and also to get help from others.

ICT and Local youth Employment: Expansion of ICT can create new work facility for youth students. While they will offer service at low cost, it will create an employment for them also. For example:

> ***Rural call center Management:*** Low cost VoIP service can be provided both on dedicated data network and Packet radio service on operator/cellular networks. Rural call centers can be established, maintained and supported by youth forum. The point here is availability of technology aware personnel for rural call center. It is hard for low literacy/not so technology aware rural people to work there, but it is easily maintainable by local students.
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> ***Community supported health monitoring service:*** Bangladesh has around 3800 patients per doctor. It is not an easy task for a doctor to support this huge number. To help reduce the problem, low cost Tele medicine can be established and the youth has some service to offer here too.
>
> ***Rural Wireless Networking:*** Wi-Fi services can be extended to add support for rural areas. Low cost Wi-Fi device can be used to create completely community managed rural wireless networks. To support for very low cost voice communication (for example 802.11phone and data services. Youth can have shifting duty for the maintenance tasks of these networks. Example of such network is "Meghadoot" Architecture [7].

Thus, a large part of huge population previously shrinking everyone's quota of resources will effectively expand it.

Raise Awareness: The youth can easily help raise awareness and consciousness about ICT among underprivileged people.

Usability Support: E-governance is expected to be an ultimate answer to lack of transparency in governance. On the other hand E-commerce and M-Commerce is the key to ICT based business activities. A lot of these sites and portals need to be accessible to low literacy users. Study reveals the poor usability index of these sites to low literacy users. This is due to complex formatting and presentation of required information. Young generation can design the HCI (Human Computer Interaction) portion of these sites according to the usability guidelines or redesign existing sites. The extra benefit here is the involvement of integrated ethnographic approach.

Exploiting the full power of information technology creates prolonged opportunity. Young people's vigilant approach to support a digitally aware nation will help a lot to bridge both the global and local digital divide. And certainly this promises to render a strong socioeconomic structure for Bangladesh in near future.

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