

Possible Remedies to Promote the Internet in Developing Regions

Advantage of investing in ICT

In the industrial age a pre-requisite was an expensive infrastructure of roads, railways, ports to distribute raw materials and products, plus factories (e.g. steel making, cars etc.). In today's information age help and technical information is readily accessible online, so one person with a computer and an Internet connection can be productive (e.g. outsourcing of help, information services etc.) An Internet connection is a necessary pre-requisite and cheaper to install than a highway. To compete in today's world, investment in ICT and networking is critical to enable opportunity and productivity. It can also help minimize the brain drain by making the country/region more attractive to trained people.

Ten Steps for Improving Internet Performance

It is clear that there are many Digital Divides, by region, country, within countries, age groups, city vs rural etc. How one reduces the Digital Divide varies from country to country, region to region etc. Based on what we have seen for Brazil, Romania, Pakistan and India tackling the Digital Divide typically involves a combination of the following:

1. **Recognize** that it is not possible fix all ills for all people over night.
2. **Identify where to focus** and invest effort. One good area is educating the teachers & students so they can teach others etc. another related area is research to help reverse the brain drain. Hence a focus on education and basic (university) research is a good place to start.
3. **Choose a champion** application (e.g. education, science, telemedicine, video conferencing, distance learning) that will convince decision makers of the value of investing in good Internet facilities.
4. **Find energetic leaders** from the country/region who can communicate the way forward. and the benefits to be gained
5. **Engage policy makers** for science, ICT, research, technology, education and training to raise awareness of the realities of the information era, and help them understand the needs, identify the benefits to their country/region/community of good Internet connectivity and digital literacy in terms of increased productivity. Encourage policy makers to provide inducements for ICT development, networking and Internet adoption, e.g. by addressing funding, taxation, regulation, competition, transparency, education/skills, improved infrastructure (e.g. power, fibre capacity), Internet adoption, creating incentives, and rewarding effort.
6. **Collaborate among institutions** in a region (e.g. create consortium), between leading disciplines, between continents, countries and regions (e.g. for Internet Exchange Points to provide direct connections) to increase influence, provide leadership and strengthen negotiation and collective bargaining positions. Consider forming a consortium of institutions as a basis for collaboration.
7. **Form partnerships with vendors** vendors of equipment, communications infrastructure and services to lead the way, showcase leadership, demonstrate cost effectiveness, drive market penetration and create demand. Establishment of a cyber-infrastructure and good Internet connectivity are long term investments for the future, both for the company and the country/region.
8. **Get support:**
 - a. **statements and cost-benefit** examples from collaborators in other countries and internationally, and from organizations such as IHY, ICTP, ICFA, HEP, and professional societies (national and overseas).
 - b. **funding** from agencies such as NSF, NASA, GEANT, EU, World Bank, Foundations, multinationals, companies.
 - c. **involve** the diaspora.
9. **Utilize** network performance measurements to quantify, explain and support the case for improvement (e.g. ITU, UNDP, PingER, World Bank, CIA ...), to compare with other countries/regions, and to validate the effects of improvements.
10. **Acknowledge** the needs for new business/development models appropriate for the country/region.