

**Ministry of Information and Communications
Royal Government of Bhutan, Thimphu**

[Draft]

**Information and Communications Technology
(ICT) for Bhutan**

A White Paper

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Information and Communications Technology (ICT) for Bhutan – A White Paper

“An inclusive information and communications for all Bhutanese, Dzongkhags and Geogs by 2007”

1 Background

Information and Communications Technology (ICT) may not be able to replace safe drinking water, shelter and food. But, it is indispensable, as an instrument (a tool and an enabler) and as an industry, for sustainable socio-economic development. Affordable and usable ICT can indeed transform the way societies work, entertain, study, govern and live – at the individual, organizational, sector, vocational and national levels. ICT cuts across all other sectors of the economy, and thus can be used as an important tool for accelerating social growth and economic development. As an industry, ICT represents a growing economic sector covering hardware, software, telecommunications, media and consulting services.

With a visionary Royal initiative, Bhutan is in the process of gradual decentralization and democratization of power. As Bhutan moves towards a people-centered Geog (block) based development approach and empowers people at the grass root level to make their own decisions on issues affecting their community, information becomes crucial to them so that they can make “informed decisions.” But it is a tremendous challenge to deliver information to the Bhutanese people given our rugged terrain and geographical barriers. However, there is good news. ICTs can help us to disseminate information.

To this end, Bhutan 2020 visions that ICT should make it possible for us “*to access the ‘information superhighway’ that will provide us with access to the same information and data as those residing in the most technologically advanced nations.*” “*The enormous opportunities that exist in the IT and related field should be encouraged and promoted*” (Bhutan 2020, Part II, Chapter 4, p. 63).

The Royal Government recognizes the role that ICTs can play in transitioning Bhutan towards an information and knowledge-based economy, and that, in the new emerging economic order, information and knowledge is the fundamental basis for wealth creation, for intellectual and spiritual growth, and for national prosperity. ICT offers the opportunity to leapfrog the key stages of industrialization and transform the agrarian Bhutanese society into an information society.

2 Information and communications scenario

The Royal Government initiated the first telecommunication network in 1963, during the First Five Year Plan (1961–1966), to support road construction services. Modern telecommunication network development process began only in the early 1990s. A fully digital national telecommunication network, interconnecting all the 20 Dzongkhag

headquarters and major towns, was established by 1998. Internet services were introduced in June 1999 with the establishment of DrukNet, the first and only Internet Service Provider (ISP) so far.

The 77th Session of the National Assembly passed the Bhutan Telecommunications Act 1999. The Government also undertook a major restructuring exercise in November 1999. Subsequently, the Division of Information Technology (DIT) was established to promote IT development in the country, and Bhutan Telecommunications Authority (BTA) to regulate the telecom sector. The erstwhile Department of Telecom was transformed into a wholly government-owned corporation, Bhutan Telecom (BT), in July 2000. The former Ministry of Communications has been bifurcated into two ministries in June 2003 – Ministry of Works and Human Settlements, and Ministry of Information and Communications (MoIC) – taking into account the dual nature and distinct characteristics of the construction and ICT industries.

Bhutan Telecom is the sole provider of all telecommunications services in the country. Current national teledensity stands at about 3.25 per 100 inhabitants. However, rural teledensity is very low (about 0.01%), as about 79% of our people still live in rural areas, with only 76 of the 201 Geogs connected to the national network. In the fourth year of its establishment, DrukNet has about 2,000 customers in a population of approximately 700,000. There are about 7,000 computers nationwide. At the most 5,000 people must be accessing the Internet, which is less than 1 per 100 inhabitants. Literacy, in general, is 54%. Computer and ICT literacy is very low.

DIT has regularized computer hardware purchases, initiated IT awareness campaigns in schools, and is in the process of developing system development guidelines. DIT catalyzes private sector participation in ICT activities, and fosters capacity building. DIT has also developed a Government web portal, www.bhutan.gov.bt, as a step forward towards e-governance.

3 ICT Vision 2007

The Ministry of Information and Communications is fully committed to facilitating and enabling access to ICT for all Bhutanese, and promoting its use to achieving Gross National Happiness (GNH).

The MoIC envisions “**An inclusive information and communications for all Bhutanese, Dzongkhags (districts) and Geogs (blocks) by 2007**”. The key elements of the ICT Vision 2007 are:

- 3.1 Establishing secure, sustainable, affordable and appropriate ICT access network connecting all the Dzongkhags and Geogs, educational institutions, and hospitals to the global information infrastructure;**
- 3.2 Ensuring adequate development of human capacity, in particular, professional ICT human resources, and promotion of private sector participation, to harness the vast untapped potential of ICT;**
- 3.3 Facilitating development of appropriate and user-friendly applications (for e-governance, e-education, e-health and e-business) and local content.**

4 Key challenges

Key challenges that the Bhutanese information and communications industry faces include:

- 4.1 **High capital investment and low teledensity**, due to rugged geographical terrain and dispersed settlement pattern;
- 4.2 **High hardware and software cost**, due to the country being landlocked;
- 4.3 **Very low computer and ICT literacy**, due to very slow proliferation of ICT into institutions, schools, communities and villages;
- 4.4 **High Internet access cost**, due to high operation and maintenance costs and less number of customers;
- 4.5 **Limited appropriate applications and lack of local content**, due to limited number of ICT professionals and lack of *Dzongkha* (National language) unicode¹;
- 4.6 **Lack of ICT skills and capacity**, due to lack of a comprehensive and forward-looking e-strategy to respond to new human capacity needs;
- 4.7 **Lack of awareness, in general**, due to lack of public awareness campaigns, and very limited and closed consultative processes;
- 4.8 **High telecom tariffs**, due to geo-demographic constraints and monopoly market conditions;
- 4.9 **Lack of coordination between and among stakeholders**, due to lack of awareness and participatory initiatives;
- 4.10 **Lack of network security measures**, due to lack of awareness among users and lack of security, authentication, privacy and consumer protection frameworks;
- 4.11 **Limited policy, legislative and regulatory frameworks**, due to varying specificities of the sectors that comprise the information and communications industry, and very limited ICT human capacity;
- 4.12 **Limited private sector participation in ICT activities**, due to lack of a coherent transparent investment policy and R & D initiatives; and
- 4.13 **Challenges posed by the WTO (World Trade Organization) accession process**, due to limited local expertise and lack of coordination across the relevant sectors of the economy.

5 Future directions

Despite the challenges, Bhutan is characterized by a unique environment for development of an ICT-based society: stable and vibrant government; small population; widespread knowledge of English language; good telecom network in much of the urban areas; favourable conditions for adoption of new (and open) standards; manageable amount of data; and, the Government's commitment to adopting ICT as a development tool.

With the implementation of the Rural Telecom Master Plan during the Ninth Five Year Plan (2002 – 2007), each Geog in the country will be provided with 10 telephone connections, and the Thimphu–Trashigang 34 Mbps PDH (plesiochronous digital hierarchy) backbone link will be upgraded to a 155 Mbps SDH (synchronous digital hierarchy) link. Cellular mobile services would be introduced in the country towards the

¹ Unicode is a standard code table that provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language (www.unicode.org).

end of 2003; plans are underway to link Thimphu, Phuentsholing and Paro deploying optical fiber technology on the existing power infrastructure.

The Ministry of Information and Communications (MoIC), through the DIT, has embarked on the formulation of a draft ICT Policy and a draft ICT Act. The draft ICT Act will subsume the Bhutan Telecommunications Act 1999 and integrate the planned Media Act, to ultimately draw up a single converged and comprehensive information and communications legislation for Bhutan.

Future directions to meet the ICT Vision 2007 include:

- 5.1 Reinforcing political commitment and seeking highest national priority;
- 5.2 Formulating a national e-strategy vis-à-vis supportive and predictable policy, legal and regulatory frameworks;
- 5.3 Facilitating universal, ubiquitous, and affordable information and communications services;
- 5.4 Conducting vigorous information and communications awareness campaigns;
- 5.5 Facilitating equitable access to information, knowledge and ideas;
- 5.6 Fostering partnerships among all stakeholders, in particular, public-private partnerships;
- 5.7 Coordinating ICT development and usage across all sectors of the economy;
- 5.8 Building confidence, trust and security in the use of ICTs; and
- 5.9 Enabling local and foreign investments to support SMEs (small and medium-sized enterprises) and other businesses.

ICT offers great potential for preserving our national identity, tradition and rich cultural heritage, in promoting accountability, transparency and efficiency through e-governance, and in enabling e-education (and life-long learning), e-health, e-business, e-employment, and e-environment. Timely access to information services and markets can create real opportunities for poverty alleviation and wealth creation.

ICT is not an end in itself, but is a means of supplying and presenting information and content. Without the widespread and innovative use of ICT, the concept of GNH may not be realized to the optimum and the UN Millennium Development Goals may prove impossible to attain.
