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ICT INFRASTRUCTURE

Policy challenges to empower the market

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The information and communication technology (ICT) infrastructure is no longer limited to a single network like telephone, or internet service. The convergence of diverse networks forming the nervous system of the nation is opening the door to new development opportunities. Leveraging ICT infrastructure is no longer a matter of choice but rather an essential requirement, to meet Vision 2021— to achieve high middle-income country status. To

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develop this vital infrastructure, smart policies to empower the market appear to be much more effective than channeling public fund. This whole network was once a vertically integrated state monopoly, and the public fund used to be the sole resource of finance. To pursue a market led reform, this network has been divided into seven main segments, starting from international connectivity to cloud facility. The development and operation of each of these segments is crucial for the functioning of essential activities, starting from

financial services to healthcare and commerce. For effective and efficient development and operation of this infrastructure, opting for smart policies to empower the market has been a growing challenge.

The international connectivity (IC) is the conduit linking Bangladesh with the rest of the world. The IC segment comprises of three major links: (i) submarine cable connectivity; (ii) international terrestrial cables (ITCs); and (iii) satellites. The submarine cable segment is still a state monopoly—Bangladesh Submarine Cable Company Limited (BSCCL). The lone cable of BSCCL, SEA-ME-WE-4, which landed on the shores of Cox's Bazar in 2006, is being complemented with SEA-ME-WE-5 at the cost of USD 70 million, addressing the redundancy as well as capacity issue. Once the SEA-ME-WE-5 connection gets up and running, it will add bandwidth capacity of more than 1,300 gigabits per second (Gbps) in addition to 200 Gbps bandwidth of the existing SEA-ME-WE-4 link. Moreover, regional connectivity projects like South Asia Subregional Economic Cooperation (SASEC) Program are also expected to address the international connectivity issue further. The monopoly of BSCCL has been partially addressed through the entry of six ITCs, connecting Bangladesh through terrestrial cables to submarine cables landed in Chennai, India. The advent of ITCs has introduced competition in international connectivity, reducing the bandwidth price from BDT 28,000 to BDT 625 per Mbps over a span of five years, while grabbing more than two-thirds of the market share. The satellite connection

is mainly used as backup to submarine cable connections. At a cost of BDT 30 billion, the maiden satellite project of Bangladesh is progressing with the launch target of December 2017—to replace existing satellite connectivity, provided by foreign satellites through VSATs (very small aperture terminals).

The second building block of the ICT infrastructure is international gateways. Two types of gateways are in operation— internet gateway (IGW) for handling voice calls and international internet gateway (IIG) for internet connectivity. The gateway segment appears to be highly competitive having 25 IGW and 37 IIG license holders. The interconnection exchanges (ICXs) comprising of 26 operators form the third segment of the infrastructure provide interconnection among voice service providers, including all mobile and landline network operators. This building block reduces the entry and expansion barrier for new entrants.

The fourth segment is the nationwide telecommunication transmission network (NTTN). Although NTTN license was issued by BTRC in 2008 to address the dangling cable issues of Dhaka city, this segment has grown to be the vital block of the nation's ICT infrastructure. This segment comprises of two private operators and a state-owned one—Bangladesh Telecommunication Company Ltd (BTCL). NTTN operators provide fibre optics based nationwide transmission facility connecting all other building blocks such as ITCs, submarine cables, IIG, IGW, ICX and access networks. On one hand, NTTN has the potential to reduce the entry and expansion barrier of access network, and on the other hand, inadequate

development of NTTN limits the expansion of the ICT services, particularly at the rural level. It has been reported that so far 54,228 km of fibre optic cable has been laid in Bangladesh, by private NTTN operators, BTCL, mobile companies, Power Grid Company of Bangladesh and Bangladesh Railway. Despite expansion of the NTTN network, most of the unions are yet to be connected to provide wire line broadband services in rural areas. The government has been increasing the supply of funds to address the issue of connecting all union parishads (UPs) with fibre optic cables. Once all the planned government financed projects are completed, all 4,600 UPs will be connected to the nationwide fibre optics network, likely by 2020.

The most visible building block of the nation's ICT infrastructure is the fifth segment: the access network operators. There are four major categories of access network operators: (i) mobile network operators (MNOs); (ii) internet service providers (ISPs); (iii) landline telephone service providers, known as PSTN (public switched telecom network) operators; and (iv) broadband wireless access (BWA) network service providers. With the recent merger of two MNOs, Bangladesh now has five operators providing mobile voice and data services. Among the five operators, lone CDMA (code division multiple access) technology based operator has been struggling to stay afloat. In the PSTN segment, although a large number of licenses were issued to private operators, BTCL appears to be the lone functional operator. In the wire line internet service segment, there are more than 50 ISPs. Although

internet subscriber base in Bangladesh has jumped over 60 million, the wire line internet subscription has been hovering at around one million for a long time. The BWA segment, commonly known as Wimax, comprises of mainly two operators, with shrinking customer base reaching less than 500,000.

There are two emerging segments in the ICT infrastructure of the nation: the cloud (the sixth segment) and the disaster recovery (the seventh segment) facilities. Despite the growing demand among both individual and corporate customers, cloud infrastructure growth within the nation is virtually absent. As a result, for all categories of customers, accessing cloud service from foreign providers over the internet has become a norm—increasing the data vulnerability of the nation. Although there have been both private and public initiatives acceptance of these is either inadequate, or non-attractive. For disaster recovery, there have been initiatives, but developing the market of disaster recovery so as to benefit from both the scale and scope is yet to take place. The government has been also working in developing two facilities, one in the high-tech park at Kaliakoir (in Gazipur) and another at Jessore, to address the deficiency of these two vital segments.

Over the last 20 years, Bangladesh has made progress in developing her ICT infrastructure. Telephone penetration has increased from less than one percent to above 70 percent. The internet subscription has grown above 60 million, with the rapid jump of internet bandwidth consumption from