

ANNUAL REPORT

JULY 2018-JUNE 2019

Department of Information Technology and Telecom
Ministry of Information and Communications
Royal government of Bhutan

Message from Director

The technology revolution has profoundly affected all of us. It has not only changed the way we communicate but also provided limitless opportunities and disruptions in every sphere of our working and social lives. The Internet of Things (IoT), Big data, Artificial Intelligence (AI), Blockchain, Augmented Reality/Virtual Reality (AR/VR), Cloud Computing, 5G, and Space and Satellite technologies are at the forefront of this change.

His Majesty the King said “Among many countries in the world, those which prepare for this change and build the foundations to take advantage of such technological advancements will prosper and develop. Those who are not able to do so will invariably be left behind.” The Royal Government of Bhutan, inspired by His Majesty, recognizes the tremendous opportunities that technologies’ have for our economic and social well-being.

The Department of Information Technology & Telecom (DITT) strives to create the necessary conditions to optimally leverage these opportunities by SMARTLY adopting technologies to enhance public service delivery, encouraging and supporting the development of sustainable niche Industries and creating a safe online space for everyone.

This report takes note of the activities completed in the last fiscal year recording the progress towards our ultimate agenda of an ICT enabled Government that enables an ICT driven sustainable socio-economy for an ICT empowered knowledge society.

I, on behalf of the department, am pleased to present the ICT Annual Report for the year 2018-2019. This is a culmination of the hard work and dedication of the ICT fraternity and the continued selfless collaboration and support of all our partners.

Thanking you,



(Jigme Tenzing)
Director

Acknowledgment

Stakeholder engagement is a vital component of any plan as it involves changes in the way they are going to operate in the future. The department would like to earnestly express our appreciation and gratitude to the following organizations for the support extended to enable the department to achieve its vision and take a step closer to becoming an ICT enabled knowledge society. We would also like to apologize if we have missed out on any of our partners. All of your contributions are extremely valuable and any absence here only reflects our oversight.

- › Completion of the South Asia Satellite (SAS) Ground Station- Government of India, Embassy of India in Bhutan and ISRO, Bhutan Broadcasting Service Corporation (BBSC) & Bhutan InfoComm and Media Authority (BICMA)
- › SAS VSAT deployment- Government of India and ISRO, Bhutan Broadcasting Service Corporation (BBSC), 20 Dzongkhag Administrations, Bhutan InfoComm and Media Authority (BICMA)
- › Launch and tracking of BHUTAN-1 Satellite- Kyushu Institute of Technology, Royal Civil Service Commission (RCSC)
- › STEM engagement of youths - Ministry of Education, Royal Tutorial Project
- › ICT heads meeting- all ministries and agencies in Thimphu
- › ICT cluster implementation- All ministries and agencies in Thimphu, Dzongkhag management
- › ICT capacity development- TTPL, RIM & btNOG6 Coordination and Programme Committee
- › Talent Management System Implemented- All Agencies, Ministries, and Dzongkhags
- › Bhutan IT certification System preliminary work- Educational Institutes under RUB and International accreditation body.
- › Skilled Development Framework Developed- All Agencies, Ministries, and Dzongkhags.
- › ICT Industry Development- BICTTA, MoLHR, DoI/DoT/MoEA, MoF, Thimphu TechPark Ltd. (TTPL), BITC, World Bank, DoI/MoHCA, GNHC, FDI companies in TTPL, ISPs and Techstars
- › G Suite (formerly Google Apps) for Government: ICT Officials of all the government agencies.

- › National Website Competition- All Ministries, Agencies and Dzongkhags, Bhutan Telecom and TashiCell.
- › Establishment of Information exchange platform: Data owners
- › Bhutan Internet Exchange (btIX) Board and its members
- › Druk Research and Education Network (DrukREN)- National Knowledge Network (NKN), TEIN*CC, European Union, Asi@Connect Project and Network Startup Resource Center (NSRC)
- › All our past leaders for their visions and guidance in bringing this department to this stage

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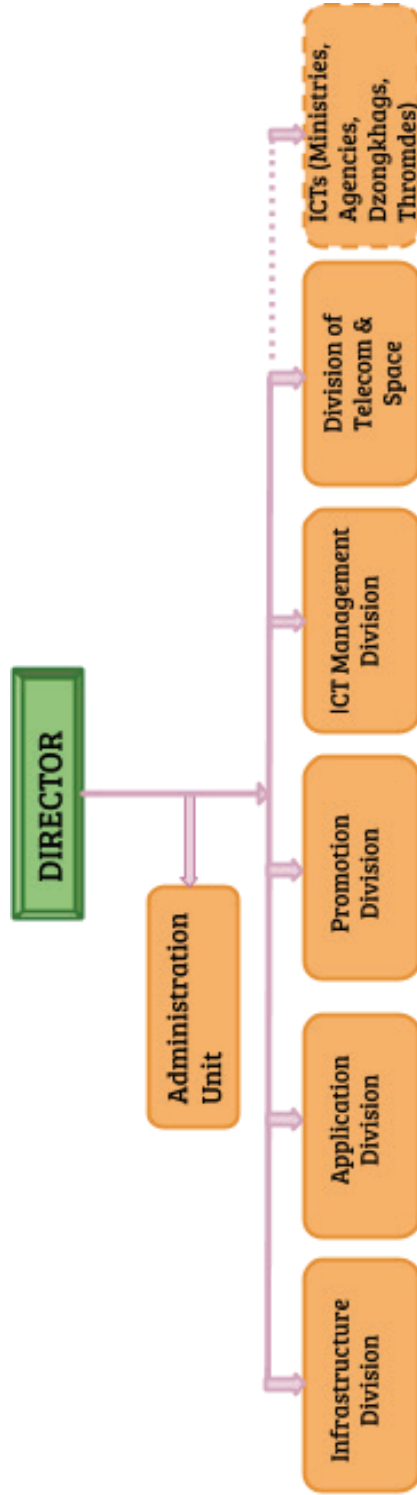
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Background

The Department of Information Technology and Telecom (DITT), under the Ministry of Information and Communications (MoIC), Royal Government of Bhutan is the lead department promoting and developing information and communication technology (ICT) in the country. The department does this by creating an enabling environment for the ICT sector through the following initiatives:

- › Facilitating the promotion of good governance and shared national consciousness through the use of ICT
- › Formulation of legislations, policies, and strategies for a conducive ICT environment
- › Establishment and improvement of ICT infrastructure throughout the country
- › Development of sustainable and affordable ICT facilities and services for all residents.
- › Improvement of the business environment for ICT industry growth and attracting investment into the country
- › Advancement of capacity and capability of ICT professionals focusing on growth and enhancement
- › Inculcating continuous learning culture enabled by ICT
- › Determining appropriate technologies and systems suitable for our unique conditions

Organogram



There are 53 officials in the department headed by the Director. The department has 5 divisions led by Chiefs/Heads. Table 1 presents the division of staff in the department.

Table 1. Division of staff in the Department.

Sl. No	Division/Section	Strength	
		Regular	Contract
1	Administration Unit	7	0
2	Application	7	5
3	Infrastructure	13	0
4	Promotion	3	1
5	ICT Management	4	2
6	Division of Telecom & Space	11	0
TOTAL		45	8

The department is also the parent agency of all ICT professionals working under various Ministries/Agencies/Dzongkhag/Thromde as approved by the RCSC in 2012. The ICT Officials provides various ICT services such as networking and security services, administration of websites, and system development whenever necessary. They are the backbone for delivering efficient and effective public services across the country, as ICT is increasingly regarded as an important platform for service delivery efforts in the government. The Dzongkhag ICTs has been working closely with the Department in ensuring that connectivity reaches Dzongkhag, Dunkhag, Community centers, Schools, Gewog offices, and any other government institutions whenever required, with the support from the Dzongkhag Administration.

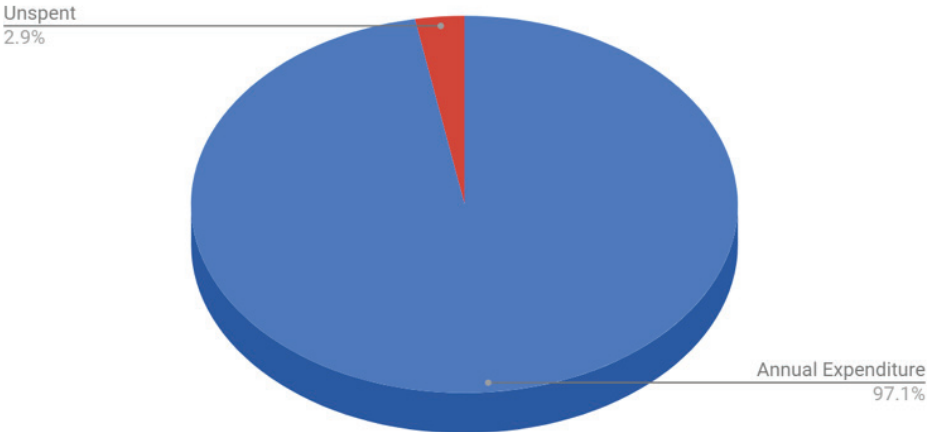
Table 2: ICT Professionals in RGoB

Sl. No	Agencies	Strength	
		Regular	Contract
7	10 Ministries	93	1
8	Autonomous Agencies	85	1
9	Dzongkhags	40	0
10	Thromdes	23	0
11	Regional Offices	13	0
TOTAL		254	2

Progress of DITT for the year July 2018-June 2019

Budget Allocation Nu. 168.331 M (capital and current budget)
Annual spending Nu. 165.966 M (capital and current budget)

Figure 1. Budget allocation and spending for the year July 2018-June 2019



ICT infrastructure

- › Implemented Lhengye Dhensa network
- › New govt. offices connected to Government Network (GovNET) with Dzongkhags:
- › **27** numbers of BHUs
- › **38** numbers of RNRs
- › **14** numbers of Schools
- › In total there are **759** offices connected to GovNET
- › **8** research & education institutions connected to DrukREN
- › Connected DrukREN with National Knowledge Network (NKN)
- › Connected GovNET & DrukREN to Bhutan Internet Exchange (btIX)
- › More than **90** government systems and **47** government websites hosted in GDC.
- › Government Data Center Backup System successfully operationalized.
- › VSATs installed in National Emergency Operation Center (NEOC), Thimphu and **20** Dzongkhag Emergency Operation Centres (DEOC)
- › Installation of VSATs in **18** Gewog Centres completed

Major Projects

The Table presents major projects of the department along with funding details.

Table 3. Details of the major projects

Sl. No	Project Title	Funding Source	Amount (Nu. in million)
1	G Suite (formerly Google Apps) for Government	RGOB	19.700
2	Government Data Hub Platform	RGOB EIF	8.197 20.8
3	Website Competition and ICT Champion	RGOB	1.2
4	Government Data Center	RGOB	6.500
5	ICT Industry Development	RGOB	1.133
6	Bhutan National Startup Weekend	RGOB	2.733
8	Strengthening ICT Capability and Capacity	RGOB	5.09
9	South Asia Satellite (SAS) VSAT deployment	RGOB	4.000
10	Formation of btIX (in collaboration with Network Operators in Bhutan)	RGOB	0.203
11	Druk Research and Education Network (DrukREN)	RGOB	5.101
12	Operation and Management of Government Network (GovNET)	RGOB	2.450
13	Connectivity to Dungkhang and Gewog Admin Offices	RGOB	5.030

Achievements

1. INFRASTRUCTURE SERVICES

Government Network (GovNET)

- › Internet demand aggregation for whole-of-the-government implemented bringing down the cost of bandwidth from Nu. 8000 to Nu. 1350 per Mbps
- › Built campus network for Lhengye Dhensa which also aggregates Internet demand and easing operation & management.
- › Co-located the staging & training electronic procurement systems in GovNET gateway building
- › To strengthen and enforce the e-GIF standard network and security assessment of the Dzongkhag network and three thromde WANs carried out.
- › Software-based video conferencing sessions were implemented in Ministries, Dzongkhags, Gewogs, NLCS, RCSC, DRC, and RBP.
- › First-ever APA signing- HPM with 11 Dzongkhags namely Bumthang, Chukha, Gasa, Haa, Lhuntse, Pemagatshel, Samdrup Jongkhar, Trahsigang, Trongsa, Wangduephodrang and Zhemgang, and two Thromdes namely Gelephu and Phuentsholing was done over video conference on 25th March 2019.

Government Data Center

- › GDC Storage increased by 67% to existing storage capacity.
- › Interconnected to Bhutan Internet Exchange Infrastructure which will route local Internet traffic locally and subsequently help improve latency.
- › A single window support system implemented to handle and expedite rectification of issues.
- › Among several security measures further strengthened which saw a significant reduction in a brute-force attacks.
- › Network traffic engineering was carried out to intelligently route and create efficient Internet traffic routes.
- › SSL Certificate was successfully configured in **10** government websites.
- › GDC backup site maintains backup of all the critical systems hosted.

2. TELECOMMUNICATIONS AND SPACE SERVICES

- › Completion of the South Asia Satellite (SAS) Ground Station
- › Installation of **7.5** metres antenna and control room set up for SAS at BBSC.

- › Test and Evaluation of SAS hub/earth station carried out.
- › The hub is now operational.
- › Uplink of two BBS TV channels, two BBS radio channels, and two Kuzoo FM channels.

SAS Very Small Aperture Terminal (VSAT) deployment

- › Officials trained on installation and operation of VSATs
- › Roll out of 40 Very Small Aperture Terminals (VSATs) for Emergency Communications

Meeting with the Department of School Education (DSE) for STEM engagement of students

- › DITT had a meeting with DSE to explore the STEM engagement of students. The two departments agreed on working collaboratively on a number of initiatives.

Awareness programme in collaboration with Royal Tutorial Project

- › One of the space engineers was involved with Royal Tutorial Project for a tutorial video covering Bhutan's first satellite, BHUTAN-1.

Safeguarding orbital slots

- › Officials now capable of identifying satellite networks affecting Bhutan's orbital slots and responding accordingly.

Inauguration of Druk Research and Education Network

- › DITT has established a high-speed National Research & Education Network called Druk Research & Education Network (DrukREN). DITT has connected **23** institutes including higher education institutes and hospitals to DrukREN. DITT officially launched DrukREN on 17th May 2019 coinciding with the World Telecommunications and Information Society Day.

Formation of btIX

- › The department in collaboration with Network Operators in Bhutan has established Bhutan Internet Exchange (btIX) in Thimphu. btIX is a membership-based, members funded, and non-profit association of Internet Service Providers (ISPs) and Network Operators in Bhutan. While the groundwork for the establishment btIX has been going on for the past few years, the btIX was formally established on 22 October 2018 with all its members endorsing Memorandum & Articles of Association of btIX. btIX was formally launched on 8 January 2019.

Launch and operation of BHUTAN-1

- › BHUTAN-1, a 1U CubeSat, is the first satellite of the country. The satellite was built as part of the BIRDS-2 project hosted at Kyushu Institute of Technology, Japan. Four engineers from DITT underwent a Masters course and as part of the studies, built the satellite. The satellite was released into orbit from the International Space Station on 10 August, 2018. Subsequently, the satellite tracking was done through a ground station in DITT and also other members of the BIRDS Ground Station Network.

Establishment of Ground station for BHUTAN-1

- › To track the BHUTAN-1 satellite, a VHF/UHF amateur radio ground station was built on the premises of DITT. The ground station is being used to track the BHUTAN-1 satellite and other CubeSats released as part of the BIRDS-2 project. The ground station at DITT is also part of the BIRDS Ground Station Network which has currently around 15 member countries spread across the world. As part of the network, DITT ground station is also being used to track the recently launched BIRDS-3 CubeSats.

3. APPLICATION SERVICES

Online Collaborative Suite (GSuite Implementation)

- › G Suite has been implemented in all the government agencies since 2014. G Suite helped the government agencies to increase efficiency and improve effective communications. Currently, 97.8% of the total users are actively using the suite. As of today, Email is used extensively (100% usage) by all the active users.
- › To further increase the adoption, refresher courses were conducted to agencies with low adoption (**10** agencies in Thimphu and **4** Dzongkhags).
- › This year, over 4.5 million online collaborations were made within the government agencies.

Datahub

- › DITT has initiated a datahub project with the objective to seamlessly share the most common availed data among RGoB information systems through a common data sharing infrastructure. This will ultimately pave the way for integrated service delivery within the government and ease service delivery for citizens.
- › Under the initiative, we have enhanced security for a number of integration points using a single sign on (SSO) feature. This feature will further ease citizen access to services wherein citizens will have to register only once for a digital identity and then have the ability to avail all other public services

linked to that authentication mechanism. This will make accessing services across government for citizens that much easier while not undermining security of critical databases in the government.

- › **35** Application Programming Interface (APIs) were developed. Of which, **9** APIs are pushed to production environment and **25** APIs are still in a staging environment to be tested by respective consuming agencies.
- › People and Land data hubs operationalized with **6** agencies (NLCS, RCSC, RMA, MoF, NCWC and Thimphu Thromde) consuming live data from datahub platform through API subscriptions.

National Website Competition

- › National Website competition has been institutionalized as an annual event to encourage agencies to use the website as a primary mode of information dissemination and as a platform for enhanced public service delivery. More than **134** websites were evaluated and the best websites were recognized.
- › The quality of websites improved nationwide and ICTOs are encouraged and agencies are encouraged to make it one of the primary sources of information and services for citizens

Recognition of ICT Champions

- › Every year the Ministry of Information and Communications (MoIC) marks World Telecommunication Information Society Day on 17th May by recognizing and awarding prizes to ICT Champions. This year the CST Prayer Book, Dzongkha Spelling Game and Learners Aid applications were awarded the certification of Recognition under the Application category.

e-Gov PMU

- › Reviewed more than **200** ICT Activities for Budget recommendations for FY 2019-20.
- › The review was categorised into Network and Infrastructure, System Development and Enhancement, Capacity Development and Regular Maintenance and operation.
- › The PMU recommended Nu. 299 million from Nu. 1313 million initially proposed by budgetary bodies for regular ICT activities to The Department of National Budget.

Support for other agencies:

- › Tender Evaluations (Technical): MobileApps (Bhutan Postal Corporation), Bhutan Integrated Taxation System (MoF), electronic Custom Management System, electronic Patient Information System

- › Other Technical Supports: Draft eCommerce Guideline (DoT, MoEA), ePayment SLA Development (PSGRD, Cabinet Secretariat), National Plan of Action on Child Protection & Development of strategy on child wellbeing and protection (NCWC), Guidance for Website Development (BCSEA)

4. ICT AWARENESS AND PROMOTION

- › Workshops organised for government executives and the business community to educate them on the usage of social media and how to better leverage the platform to achieve organizational goals. The workshops were conducted by Facebook experts from India focusing on their community standards and services. The event was organised to complement the department's effort to foster a digitally literate society and to enhance ICT adoption.
- › The cybersecurity simulation exercise was conducted in collaboration with the International Telecommunication Union (ITU) targeting high officials involved in the critical decision-making process and formulation of policies. The exercise was exclusively designed to assist top policymakers in obtaining more clarity on all facets and concerns around cybersecurity. The event was attended by ministers, CEOs, and heads of agencies.

5. ICT INDUSTRY ECOSYSTEM

Startup Weekend organized in six colleges

- › Conducted Startup Weekend in 6 colleges (Sherubtse college, JNEC, Gedu college of business studies, CNR, CLCS, and CST)

Bhutan National Techstars Startup Weekend

- › Conducted third Bhutan National Techstars Startup Weekend 2019 from 26th-28th April 2019 at the Swimming Pool complex and was based on 5 themes (IoT, FinTech, HealthTech, AR/ VR, EduTech).

Open consultative meeting with the ICT industry

- › The meeting was intended to be an open forum for discussion on challenges and issues faced by both government and the private sector in the delivery of ICT projects and the growth of the ICT industry. The meeting helped to gather information from ICT firms on the skills gaps in the industry. This will help to enhance the quality of products and services of the domestic firms. We hope the firms will eventually export services and products to the region and internationally.

Industry Talk Session for intern college students

- › The department organized a talk session with interns and students on OJT (On the Job Training) for a week. The speakers and experts from various fields such as Programers, Startups and young entrepreneurs, Business accelerators and relevant government officials were invited to share their knowledge and experience. The main objective of the program was to share real-world experiences, to motivate them to pursue their interests
- › Provide insights into the job opportunities in the market, touching on the skills in demand in the market.

Establishment of new FDI Companies in Bhutan

- › 314e US-based IT/ITES company started the pilot operation from IT Park. They have employed **30** people and their FDI registration is under process.
- › imerit US-based ITES company started a pilot operation from the IT Park employing **100** Bhutanese. The FDI registration is under process.
- › Krome Photo: US-based BPO has already shown interest to start their business in Bhutan.

6. STRENGTHENING ICT CAPABILITY AND CAPACITY

ICT heads meeting

- › Conducted **4** quarterly ICT heads meeting comprising of all ICT heads of various ministries/agencies including representatives from Dzongkhags. This meeting is an important forum for communication and coordination and plays a vital role in ensuring that work carried out by various agencies are better coordinated and aligned. The department also initiated remote participation through videoconferencing to the meetings.

ICT cluster implementation

- › ICT cluster implemented in Samdrup Jongkhar and Phuentsholing Thromde.
- › ICT from regional offices pooled together under the Thromde office.
- › ICT cluster concept familiarisation in **6** Dzongkhags: Wangdue, Trongsa, Bumthang, Trashigang, Paro, and Chukka.

ICT capacity development

- › **10** ICT professionals trained in Ethical hacking
- › **18** ICT professionals trained in DevOps

- › **20** ICT professionals trained in Network Monitoring and Management, and Routing and Switching at btNOG6
- › **59** participants attended the Information and network security workshop conducted in collaboration with APNIC and APT
- › Vulnerability management workshop conducted for **41** website owners
- › **266** incidents handled and resolved
- › Published **8** security alerts and advisories on BtCIRT website and Facebook page
- › Network and Information Security assessment carried out for Samdrup Jongkhar, Phuntsholing and Gelephu Thromdes and Mongar clusterLab set up and

Skills Development Framework Developed

- › Revised Skilled Development Framework in line with parenting competency framework.
- › The framework will be used to train and build the competency of the ICT professionals

Challenges

Below lays down a few key challenges that the department has faced during the implementation of various ICT projects.

INFRASTRUCTURE SERVICES

- › Exhaustion of optical fiber in Thimphu/Gewog/Dungkhag
- › Lack of a common utility duct
- › Frequent fiber breakage due to ad hoc development activities
- › Meeting increasing infrastructure facility requirements (space and computing power) for agencies
- › Support for multiple platforms on GDC built system
- › Skillset gap because of emerging technologies in networking, system development and management
- › Limited technical capability and capacity

TELECOMMUNICATIONS AND SPACE SERVICES

- › Lack of adequate expertise and human resources
- › Lack of appropriate infrastructure
- › Frequent breakages of National Fibers caused by constructions, wild animals and natural disasters.
- › Limited awareness of space science & technology and its applications

APPLICATION SERVICES

- › Difficulty onboarding officials with monitoring roles (who are on-site mostly) for G Suite
- › Issues with the management of GSuite Accounts for separated/Resigned/superannuated officials
- › Increase adoption of licensed GSuite over Microsoft office (could be unlicensed)
- › Difficulty in getting active participation of ICT officials from the agencies for website competition.
- › The development of initial requirements are not clearly defined for application development

- › Lack of consultation with DITT at the initial phase of the RFP document.
- › Frequent changes in datahub details by data owners.

DIGITAL LITERACY

- › Changing the mindset of the people and building trust in technology usage.
- › Affordability

ICT INDUSTRY ECOSYSTEM

- › Creating employment in the IT/ITES sector when the expansion of the industry is limited.
- › Bridging the gap between skills developed by universities and skills demanded by the industry

ICT HR MANAGEMENT SERVICES

- › 100% participation of ICT heads is difficult as some are not relieved from office.
- › Resistance from the agencies in relieving ICT Officials under Cluster services.
- › Limited budget to train as per the competency development framework of the parenting manual.

OVERVIEW OF ICT DEVELOPMENT IN BHUTAN

1. ISP (INTERNET SERVICE PROVIDERS)¹

Table 4. Number of ISPs

Sl.No	Name of the ISPs	Coverage
1	Bhutan Telecom Limited	Nationwide
2	Tashi InfoComm Limited	Nationwide
3	Nano	Thimphu, Paro, and Phuentsholing
4	Supernet InfoComm	Phuentsholing
5	BitCom Systems	Thimphu
6	Datanet Wifi	Phuentsholing
7	DrukCom Pvt. Ltd	Thimphu & Phuentsholing
8	Drangdhen Tshonglay	Bumthang

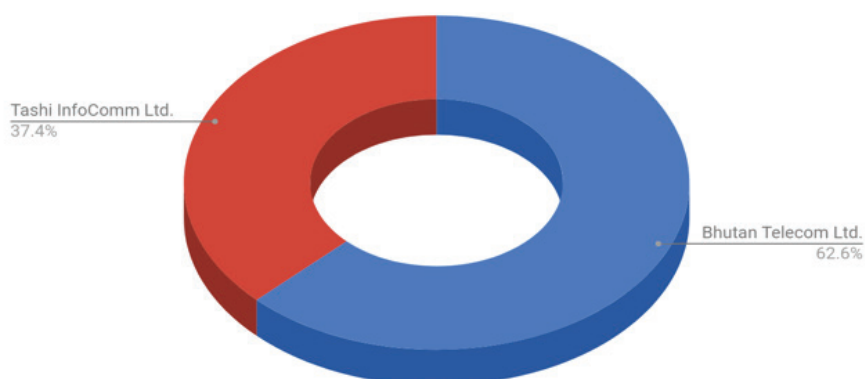
2. INTERNATIONAL BANDWIDTH IMPORT²

Table 5. Total Gbps

Sl. No.	ISPs	Bandwidth
1	Bhutan Telecom Limited	21.2 Gbps (Plan to increase 30 Gbps by the end of 2019)
2	Tashi InfoComm Limited	12 Gbps (Plan to increase 20 Gbps by the end of 2019)
3	Nano	310 Mbps
Total		33.51 Gbps

3. MOBILE SUBSCRIBERS³

No. of subscribers between Service Providers



As of 31st July 2019, the number of subscribers in Bhutan Telecom Ltd. is 448,082 and number of subscribers in Tashi InfoComm Ltd. 267,790

1 Source: Source: BICMA

2 Source: Data collected from Bhutan Telecom, Tashi Infocomm Ltd, NANO

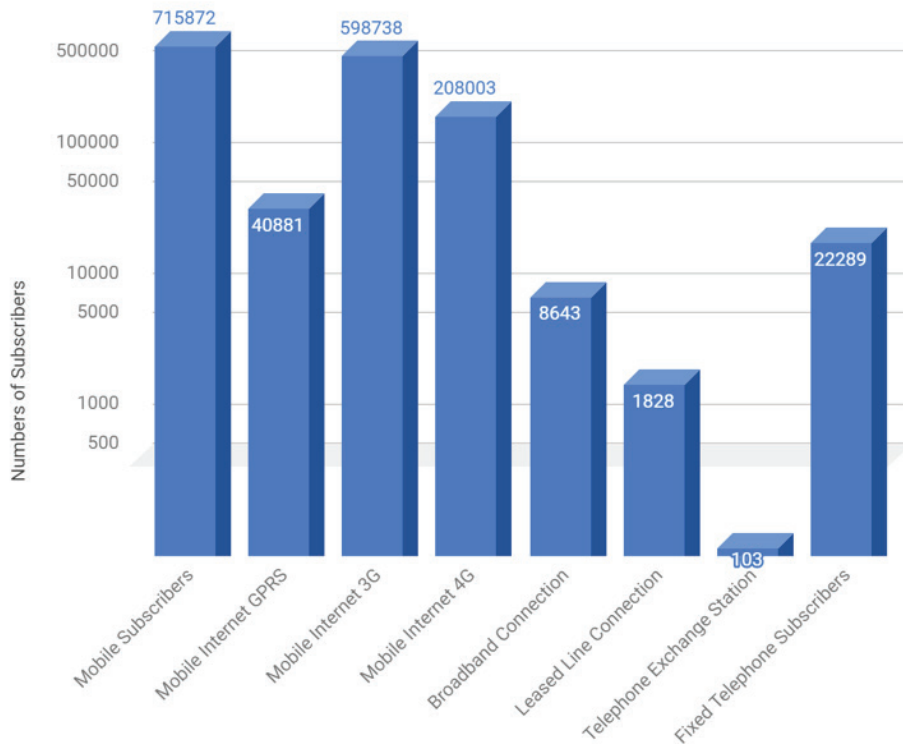
3 Source: BICMA

4. INTERNET USERS⁴

Table 6. The number of Internet users

Sl. No.	Indicators	Bhutan Telecom	Tashi InfoComm	Druk Comm	Supernet InfoComm	Bitcom Systems	Datanet Wifi	Nano	Dranghen Tshonglay
1	Mobile Internet								
(a)	Edge/GPRS	38,826	2,055	–	–	–	–	–	–
(b)	3G	448,082	150,656	–	–	–	–	–	–
(c)	4G	128,614	79,389	–	–	–	–	–	–
2	Fixed Internet								
(a)	Broadband Connection	8195	–	139	30	–	279	–	–
(b)	Leased Line Connection	890	695	3	60	10	22	143	5

5. TELECOMMUNICATION STATISTICS FOR 2019⁵

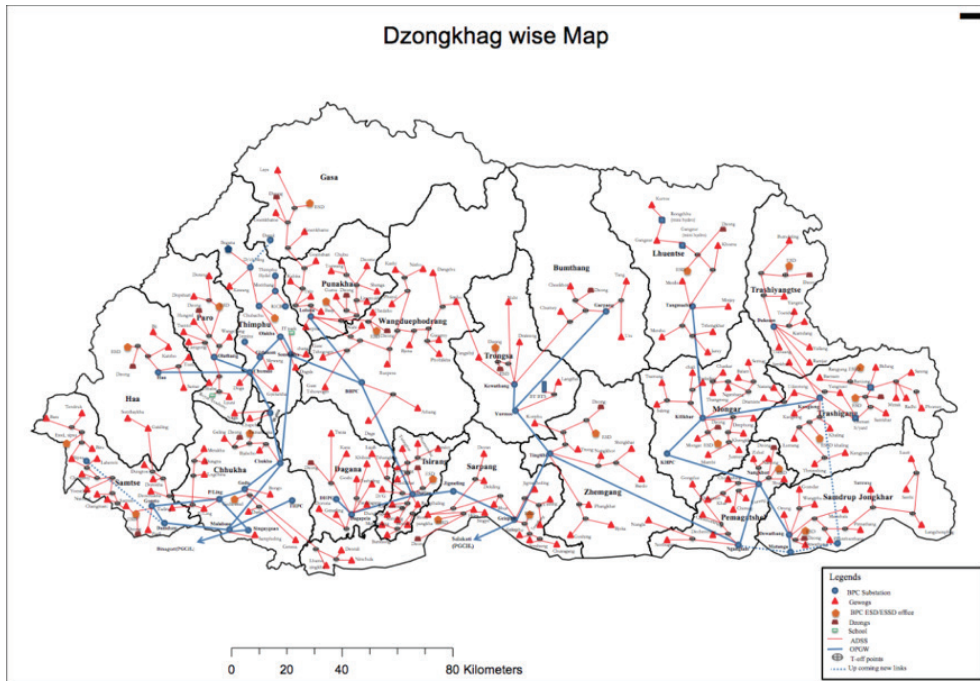


⁴ Statistics as of 31st July 2019

⁵ Source: BICMA(as of 31st July 2019)

6. NATIONAL FIBER NETWORK MAP

- › Rolled out 3500 km of Fiber connecting 20 Districts (Dzongkhag) and 201 subdistricts (Gewogs)



7. SPACE SERVICES

BHUTAN-1, the First Satellite of Bhutan

BHUTAN-1 is the first satellite of Bhutan developed at the Kyushu Institute of Technology in Japan by 4 Bhutanese space engineers as part of the BIRDS-2 CubeSat Project. The country's maiden satellite was launched to the International Space Station on 29th June 2018 using Space X's Falcon 9 rocket and thereafter deployed into space on 10th August 2018 from the JEM module.

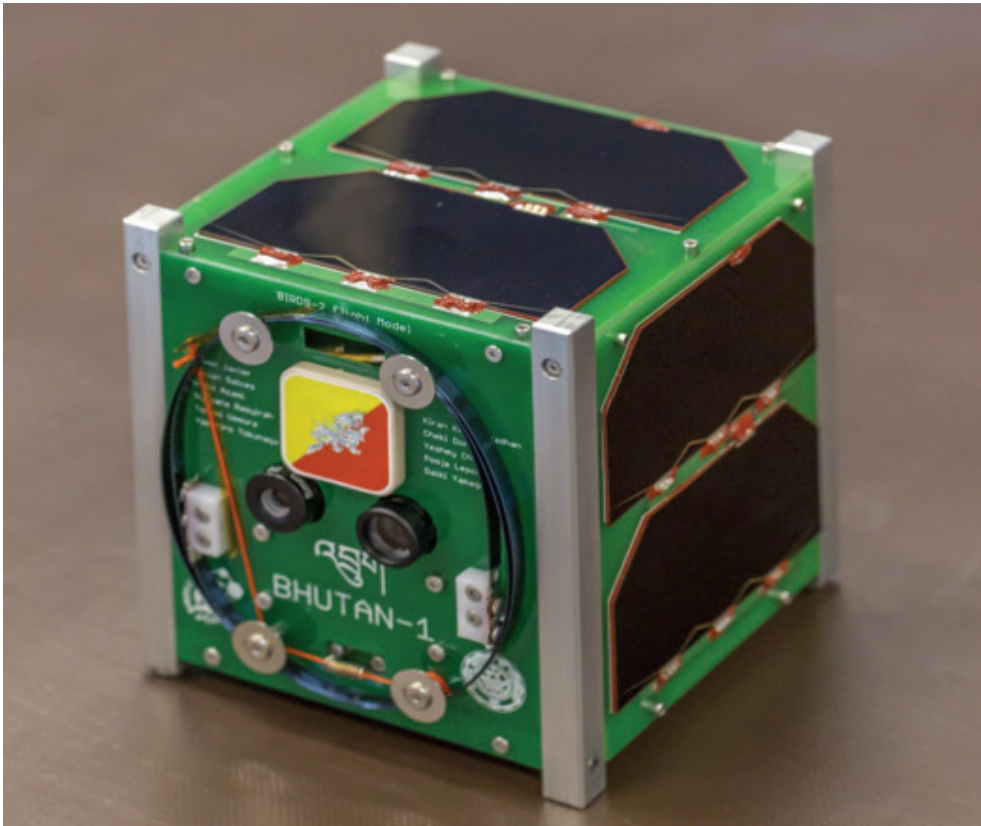


Photo courtesy of JAXA

BHUTAN-1 satellite captured before launch



BHUTAN-1 Ground Station Antenna.

It supports satellite communications in the UHF and VHF frequency bands.



Ground Station Operation room of BHUTAN-1

This ground station has been able to track BIRDS-2 satellites (BHUTAN-1, MAYA-1 & UiTMSAT-1) and also BIRDS-3 satellites (NEPALISAT-1, UGUISU & RAVANA-1).

SOUTH ASIA SATELLITE (SAS)

SAS was launched by the Government of India on 5th May 2017. A transponder each has been provided for interested SAARC member countries.



South Asia Satellite (SAS) Ground Station Antenna

SAS Ground Station Antenna is capable of radio communications in the Ku-band.



SAS Ground Station Operation room

SAS Ground Station Operation room is located at the Bhutan Broadcasting Services Co. (BBSC) premises. The SAS is used to migrate two BBS channels, provide emergency communications during disasters, provide backup communications links for Telcos (both for domestic and international links) and provide connectivity to off-grid gewogs.

8. IT PARK

Bhutan's first IT Park was operational in 2012. It is 58,000 sq.ft world-class IT Park built on 5 acres of government land. It has two core space, i) Commercial Space; attracting and facilitating FDI companies ii) managing Bhutan Innovation Technology Center which houses Data Center, Shared Technology Center and Incubation Center. It was built to increase productive employment in Bhutan through the promotion of enterprise development in the IT/ITES sector. Currently, IT Park has four domestic companies and eight International (IT/ITES) companies (FDI) with the employment of more than 618 people.



IT Park building

9. IT SOFTWARE COMPANIES IN BHUTAN⁹

Table 7. Number of IT Software companies

Sl. No.	Software Companies
1	Athang Pvt. Ltd.
2	aBit Private Limited
3	Druk Accounting Solutions
4	DrukSmart
5	Data Networks
6	iTechnologies
7	M/s Dot Com Enterprise
8	New Edge Technologies Pvt. Ltd
9	NGN Technologies Private Limited
10	Sparkle Technologies
11	Yangkhor IT Solutions
12	Zealous System

10. IT TRAINING INSTITUTE IN BHUTAN¹⁰

Table 8. No. of IT training Institute

Sl. No.	IT Training Institutes
1	Athang Training, Software & Animation Service
2	G.PY Computer Training Institute
3	iBest Institute
4	Niche Institute of Management and Technology
5	Padmakara Training Institute
6	Rigsum Institute of IT & Management
7	Royal Institute of Management
8	Thimphu Institute of Management

11. FDI (IT) COMPANIES IN BHUTAN¹¹

Table 9. No. of FDI companies

Sl.No.	Organization
1	Advantage Outsourced Solutions(AOS)
2	Bhutan Data Scientist
3	MultiRational Bhutan Pvt. Ltd.
4	SELISE
5	ScanCafe Pvt. Ltd.
6	South Tech Bhutan Pvt.Ltd.
7	Zoop KG Pvt. Ltd.

9 Source: BICTTA

10 Source: BICTTA

11 Source: TTPL

12. EMPLOYMENT IN THE IT SECTOR

Table 10. Employment in the ICT Sector

Sl. No	Ministries/Agencies/Organizations	No. of Employees in ICT
12.1	Civil Service	309
12.2	Corporations	1220
12.3	RUB	109
12.4	Private firms	360
12.5	IT Park	618
Total		2,616

Highlights



17 May 2019

The Department of IT and Telecom under MoIC joined the rest of the world in celebrating “World Telecommunications and Information Society Day (WTISD) 2019”. The celebration was graced by the Hon’ble Minister for Economic Affairs, representatives from Asian Development Bank (ADB), the industry - Tashi InfoComm, NANO, DrukCom and the ICT officials of Government agencies. The theme for this year’s celebration was “Bridging Standardization Gap”. As a part of the program, DrukREN was launched. The launch was also followed by a series of awards to ICT Champions.



13- 14 May 2019

The two days WSO2 workshop was graced and opened by the Hon’ble Minister of MoIC. The event was divided into 2 parts where the first day was mainly for the executives, where CEOs from local IT firms and executives from government agencies attended, followed by a technical session on the 2nd day to the ICT officials in the government, the corporate and private agencies.



25 April 2019

The Department of Information Technology and Telecom marked the Girls in ICT Day with a Multimedia training for selected female students from schools in Thimphu.



25-28 April 2019

The National Techstar Startup Weekend was organized at the Swimming Pool Complex, Thimphu. A total of six colleges from across the country participated in the event. The Urban Sprout was recognised as the best idea. Whereas, Dragon Treasure and Dragon Wine won the second and third prize. Home tech bagged the fourth position, while iSchool won the honourable mention award.



7-19 April 2019

Cluster Familiarization and Monitoring

The objective of the tour was to introduce the ICT cluster concept to regional offices and the Dzongkhag administration i.e. Wangdue, Trongsa, Bumthang and Trashigang. The team also visited the ICT Cluster in Mongar Dzongkhag and Samdrupjongkhar Thromde to review their progress.



25 March 2019

The Department of Information Technology and Telecom, MoIC family congratulated Mr. Jigme Tenzing on his appointment as the new director for the department. Formal khadar ceremony was held at the Department of IT and Telecom.



21 March 2019

The department in collaboration with the ICT heads from the ministries/agencies conducted quarterly ICT head meeting. The ICT heads meeting is an important forum for communication and coordination and plays a vital role in ensuring that work carried out by various agencies are better coordinated and aligned. Update from Phuentsholing Thromde cluster, Systems presentation, and discussion by MoLHR, NCWC, BICMA and an exercise to come up with solutions for improving ICT services are some of the important agenda items of the meeting.



27 November 2018

The Department of Information Technology and Telecom, Ministry of Information and Communications conducted a “Cyber Incident Simulation” exercise with the support of the International Telecommunication Union (ITU). The exercise was designed exclusively for heads of government, policymakers and other high ranking figures to increase awareness on cybersecurity and preparedness to make critical decisions in response to attacks.



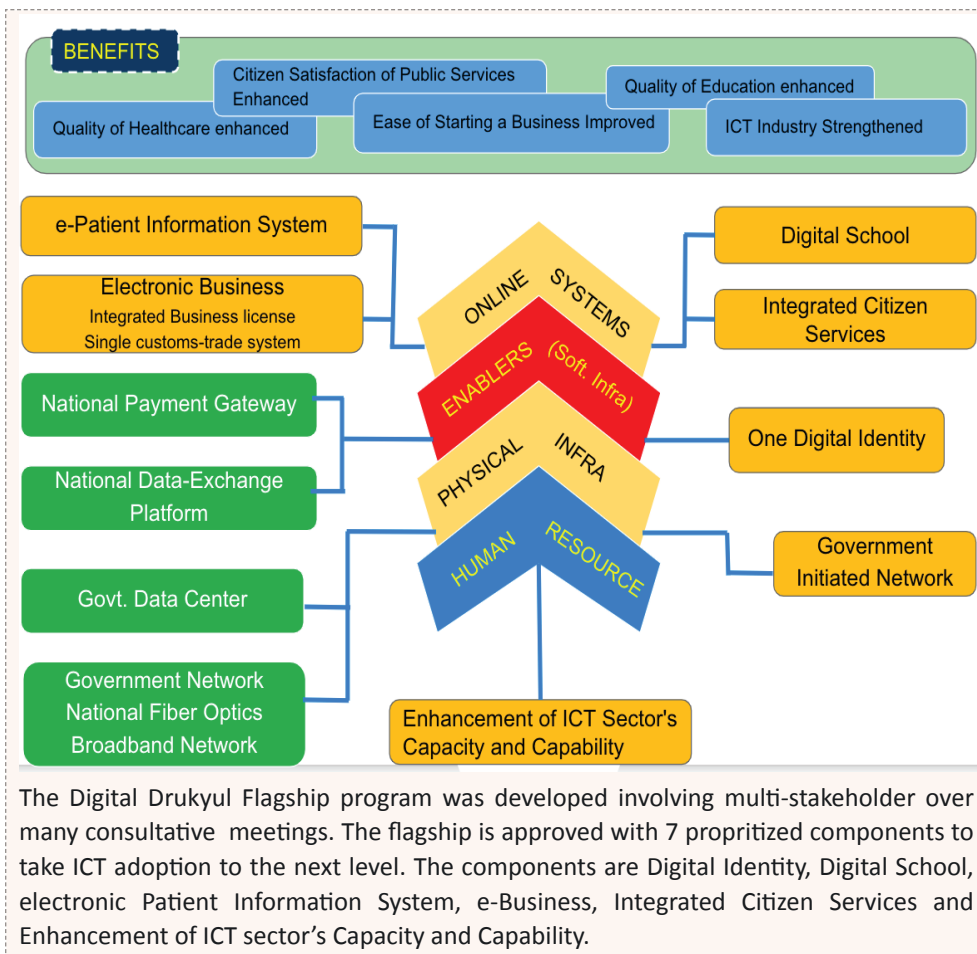
7 November 2018

His Majesty the King conferred Dakyen to Lyonpo Karma Donnen Wangdi, who has joined the Ministry of Information and Communications as the Minister.



10 August 2018

The Department of Information Technology and Telecom (DITT), Ministry of Information and Communications (MoIC) would like to share that BHUTAN-1 along with MAYA-1 and UiTMSAT-1 have been successfully deployed in orbit after its launch to the International Space Station (ISS) on 29th June 2018. The Department organized a deployment viewing event and launched BHUTAN-1 stamps to commemorate its deployment from ISS.



Year Ahead

Workplaces today are complex and demands a different kind of approach to continuous improvement. As we look forward to the year 2019-2020, the department will continue to strategize towards leveraging the infrastructure and the ecosystem created so far for enhanced efficient and effective public service delivery. The Department will continue to focus on driving change and will continue to encourage innovation through the use of Technology. The future is driven by technology and we must take steps to be actively involved in the driving seat making conscious collaborated decisions.

Annexure

ANNEXURE 1: DETAILS OF CAPACITY BUILDING INITIATIVES

Table 11. Capacity Development for the year 2018-2019

Sl. No.	Training Title	No. of ICT professional trained	Training Dates (Duration)	Institute/Location	Outcome
1	Certified Ethical Hacker's Training	10	15-19 April 2019	Thimphu Techpark	- ICT skills upgraded
2	DevOps Training	18	22 April - 3rd May 2019	Thimphu Techpark	- Improved
3	BTNoG - Routing, and Switching	5	3-7 June 2019	BTNoG team / Paro	ICT services in Ministries/ Agencies
4	BTNoG - Network Monitoring and Management	14	3-7 June 2019	BTNoG team / Paro	
5	BTNoG - Network Security with packet analysis	1	3-7 June 2019	BTNoG team / Paro	
	Total	48			

ANNEXURE 2: EMPLOYMENT IN IT

Table 12. IT employment in Civil Servant

Civil Servant	No. of IT Employees
10 Ministries	94
Agencies	86
Thromde	23
Dzongkhags	40
Regional Offices	13
DITT	53
Total	309

Table 13. IT employment in Corporation^{12.2}

Organization	Number of IT Employees
RSEB	2
STCB	2
Bhutan Post	3
Green Bhutan Corp. Ltd	1
BPC	14
BT	671
Tashi Cell	325
RICBL	18
NRDCL	2
Druk Green	25
FCB	8
Kuensel	3
BBS	10
Redcl	1
BOB	41
BNB	25
NPPF	7
BDBL	7
T Bank Ltd.	8
PNB	8
FITI	1
RIM	9
RMA	10
SMCL	1
Druk Air	5
Tashi Air	3
DCCL	4
NHDCL	2
Bhutan Agro	1
BCCI	1
DHI	3
Total	1220

12.2 Source: Figures collected from each corporation

Table 14. IT employment in Royal University of Bhutan^{12.3}

Royal University of Bhutan	No. of IT Employees
Sherubtse	10
CLCS	9
JNEC	11
CST	19
CNR	6
Gedu	10
PCE	5
SCE	6
Norbuling Rigter College	4
RTC	10
GCIT	19
Total	109

12.3 Source: Figures collected from each college

Table 15. IT Employment in Private Firm^{12.4}

Sl. No	Name of Firm	No. of Employee	Contact No.
1	Zealous Systems Pvt Ltd	14	17125802
2	Drukcom Pvt Ltd	21	2334041
3	Abit Pvt Ltd	10	77101884
4	Empire House International	7	2330759
5	Padmakara Training Institute	13	17565536/ 77118910
6	Thimphu Institute of Management	7	17856739
7	Niche Institute of Management and Technology	4	17115554
8	Bhutan Informatics	5	17601014
9	Ms. IT Plaza	5	
10	G.PY Computer Training Institute	8	17560848
11	Office Automation System	17	2325123
12	Sat Enterprise	16	17114 87
13	Komputer Palace	5	2332190
14	Netware Solution	7	2333483
15	BITCOM Bhutan	11	17608451
16	Chorten Sales and Services	6	2337080
17	CPz Enterprise	4	2324005
18	Dot Com Enterprise	7	2328384
19	NGN Technologies Pvt Ltd	44	2350333
20	Himalayan Infotech	4	2-332746/17918143
21	Panglung Enterprise	7	2327901
22	Lamla Sales and Services	21	17110257
23	B.D. Commercial	7	2329 142
24	Nana Enterprise	6	
25	Yangkhor IT	20	2335378
26	New Edge Technologies Pvt Ltd	17	2337191
27	iBest Technologies	20	2339607
28	Rigsum Institute of IT and Management	9	2321467
29	Dransindra Technology Pvt Ltd	8	2322550
30	Athang Pvt. Ltd	20	17110989/ 77766993
31	Druk Smart	6	17604875
32	Sparkle Technologies	4	17607385
Total		360	

12.4 Source: BICTTA

Table 16. IT Employment in IT Park^{12.5}

Sl. No.	Organization	No. of Employees
1	Thimphu TechPark	18
2	ScanCafe Pvt. Ltd.	443
3	SELISE	32
4	MultiRational Bhutan Pvt. Ltd.	26
5	Zoop KG Pvt. Ltd.	2
6	South Tech Bhutan Pvt.Ltd.	29
7	Bhutan Data Scientist	2
8	AOS	6
9	Housing.bt	14
10	Dr. Toilet	15
11	IT Freelancer	2
12	Inno Home	4
13	Data Centre Services	8
14	Sunjab	2
15	Retna Infotech and Enterprise	2
16	Dragon Coders	2
17	Tingkharr Journeys	2
18	NANO	9
Total		618

12.5 Source: TTPL