



ICT sector status and policy in Mongolia

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<http://www.icta.gov.mn>



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Territory: 1,566,000 sq. km

Population: 2,751,314

Density: 1.5 per sq. km

Terrain: Vast semi-desert and desert plains, mountains in the west and southwest, the Gobi Desert in south and southeast.

Climate: Warm summers and cold winters. Average summer temperature +20oC, average winter temperature - 26oC. Winter lasts from November to late April. Spring runs from May through June. Summer is from July through to Sept

Average altitude: 1,580 m above sea-level

Government: Parliamentary republic. Divided administratively into 21 Aimags and a capital city.

Capital: Ulaanbaatar (population approx. 800,000)

Economy: This traditionally is based on agriculture, livestock breeding (camels, bovine, goats, horses and sheep), and also Mining (mainly gold, coal, copper).

Religions: Buddhism (94%), Muslim, Shamanism and Christian

Language: Mongolian. Most Mongols speak Russian as a second language, but many also speak a third language. English, Japanese, German, French are widely spoken in the Ulaanbaatar.

Gobi (extending down into China), with large sand dune areas and canyons in the Eastern Gobi, the so-called “dinosaur graveyard”.

Mongolia is dotted with about 4,000 lakes, of which the most famous is Lake Khuvskhul, which is known as the “dark blue pearl of Mongolia.” The network of rivers connecting these lakes offers abundant fishing. In the lake regions the landscape is both spectacular and immense, with towering snowcapped mountains as a backdrop in the distance.



1. History

Chronological Data of Post and ICT Developments in Mongolia

<p>Initiation - Start of Communication</p>	❖ 1921	<p>Telephony agency “MONTA” of the Temporary Government of Mongolia was established. Long distance telephone and telegraph was linked to Setsen Khan Khuree (present Undurkhaan City).</p>
	❖ 1924	<p>The first post stamp was issued.</p>
	❖ 1934	<p>First radio broadcasting was started.</p>
	❖ 1937	<p>“Communication college” was established.</p>
	❖ 1939	<p>The first 200 line telephone exchange put into operation.</p>
	❖ 1944	<p>Ministry of Communication was established.</p>
	❖ 1950	<p>The copper openwork line between Ulaanbaatar and Arkhangai was built.</p>
<p>First Growth - Installing Telecommunication</p>	❖ 1960	<p>The telecommunication service center building was built in Ulaanbaatar.</p>
	❖ 1969	<p>Research and Industrial Product Institute for Telecommunication was founded.</p>
	❖ 1970	<p>The first earth station for receiving the TV signals was put into operation.</p>
	❖ 1975	<p>Minsk-32, the first mainframe computer in Mongolia, Central Statistical Authority</p>
	❖ 1976	<p>FM Broadcasting started. Installation of high band microwave link started.</p>
	❖ 1982	<p>International Computer Communication was established with the computer of the USSR VINITI Center.</p>
	❖ 1989	<p>All aimags except of 4, were connected with Ulaanbaatar by analog microwave network.</p>
	❖ 1990	<p>Ministry of Communication was reorganized into Mongolian Telecommunication.</p>
❖ 1991	<p>Satellite Earth Station was installed in Ulaanbaatar to establish the international telecom services.</p>	
❖ 1992	<p>Mongolian Telecommunication company was established on the basis of MTA.</p>	



- **During the last five years, ICT was seen as a dynamic and active sector in Mongolia.**
- **Foreign investments, technical assistance, and cooperation with technically advanced nations have enabled Mongolia to achieve significant progress in ICT development.**



1. History

Mongolia recently tries to change its existing networks to digitalized ones.

Second
Growth-
Digitalized
Telecommu-
nication

- ❖ 1995 Mongolian Railway Company finished installation of digital telephone switches for 3,000 subscribers in some cities alongside the railway.
- ❖ 1996 The Mobicom Company started its GSM mobile services. Post and Telecommunication Authority (PTA) was founded.
- ❖ 1997 A 900 km long new digital switch was installed to replace the northern and western analog microwaves.
- ❖ 1998 4 Aimag centers and 4 biggest Soum centers which had no access to trunk line of microwave link were linked via VSAT system.
- ❖ 2000 Skytel started its cellular service in Ulaanbaatar.
- ❖ 2001 The amended Communications Law was adopted.
- ❖ 2002 Communications Regulatory Commission is established. East Mongolian Optical Fiber backbone link started its operation.
- ❖ 2003 Established National IT Park.
- ❖ 2004 Established Information and Communications Technology Authority.
- ❖ 2005 E-Mongolia - A **blueprint and roadmap for ICT development**
E-Government master plan



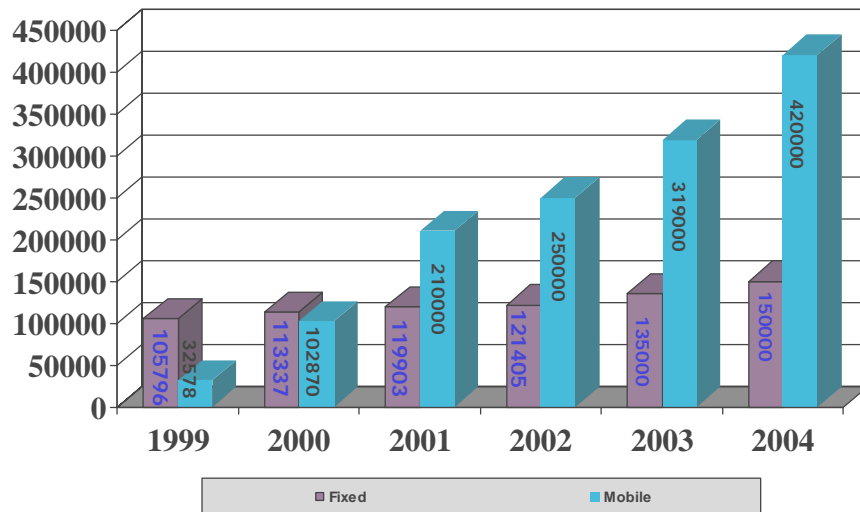
2.1 Telephony Market

Current telecom density is about 20%. Fixed telephony market growth is tied up, but cellular market growth is relatively high.

Telecom Market Growth

- The adoption of new technologies in the telephony communication sector is extremely rapid compared with traditional technology.
- The growth rate of cellular telephony is very high while that of fixed telephony is tied up.

< Growth in the number of fixed and cellular subscribers >



Tele-density

- As of end of 2004, telephony density per 100 persons was 20.7 nationwide.
- Today, the density of cellular telephony is triple that of fixed.

< Growth in the numbers of fixed and cellular subscribers >

Type	The # of Subscriber	Density per 100	Service Company
Fixed	150,000	5.4	Mongolia Telecom, Railcom, Others
Cellular and WLL	420,000	15.3	Mobicom, Skytel, MTC, CityPhone
Total	570,000	20.7	

Note : As for population of 2,751,000 (2004) – CIA World Fact Book

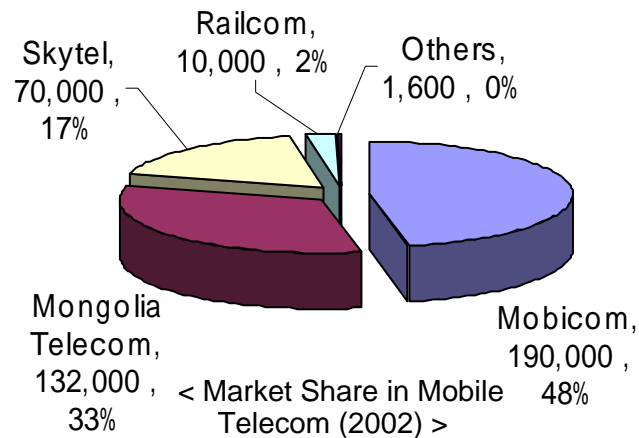


2.1 Telephony Market

Mobicom and Skytel are the main providers in the mobile/cellular telephony market. And Mongolia Telecom is the first provider in the fixed telephony market.

Mobile Telephony Market

- Mobicom Co., the first provider of cellular service, began its operations in March of 1996, which was a joint work with Japan's KDDI and Sumitomo Corporation.
- Skytel Co., the second cellular service provider, started its operation in July 1999, which was a joint work with Korea's SKT Co., and Taihan Electric Wire.



Source : Current status of ICT Development in Mongolia (2003)

Fixed Telephony and International Calling Market

- Mongolia Telecom, the first provider of fixed telephony, is a joint stock company of which 60% is owned by Mongolia and 40% by KT, Korea.
- There are six companies which have prefix codes for an international call gateway. Digital transmission of 34Mbps is available through an NEAX61 exchange between Naran station and Intersat and Intersputnik.

< International direct-dialing codes >

Company	Prefix Codes
Mongolia Telecom	001
Sky C&C	002
Mobicom	003
Micom	004
Incomnet	005
Railway authority	006

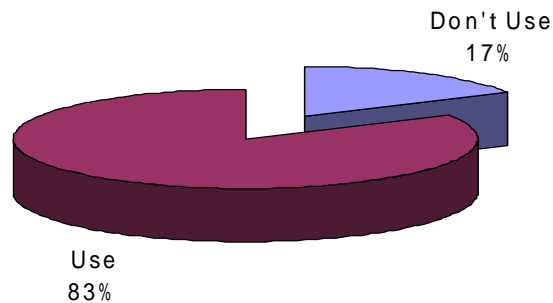


2.2 PC market

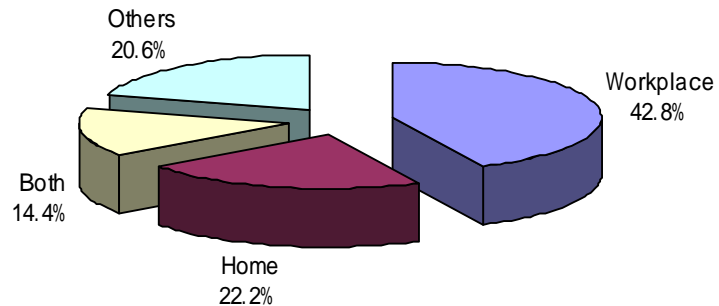
PC supplement/usage rate in companies and government are high, but the rate at home is low. This rate in Ulaanbaatar is about 50% .

PC Usage – End of 2002

- Numbers of PCs : 69,000
- PC Usage by Ulaanbaatar is about 83%



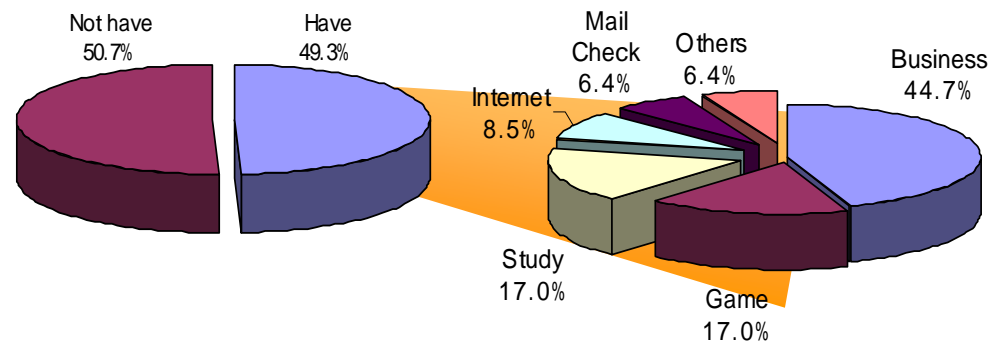
- They use PCs mainly in Workplaces



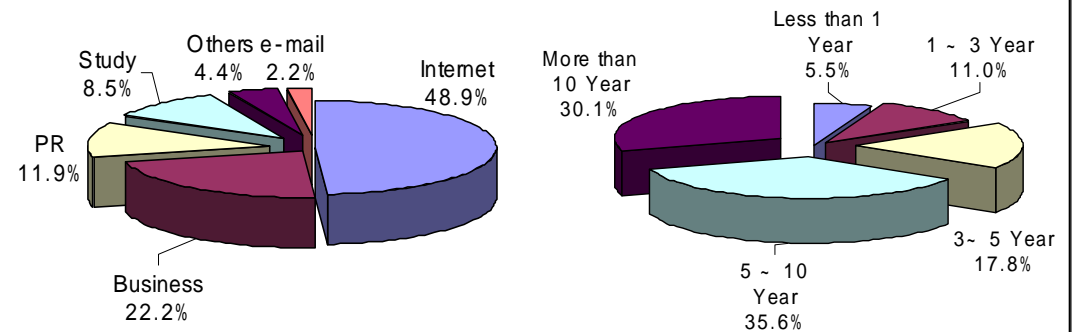
Source : Current status of ICT Development in Mongolia (2003)

Survey Result

- Citizens: About half of people have PCs at home and they mainly use PCs for businesses.



- Government: All officials have PCs mainly for Internet/businesses.



Source : Survey for e-Government Masterplan (2005)



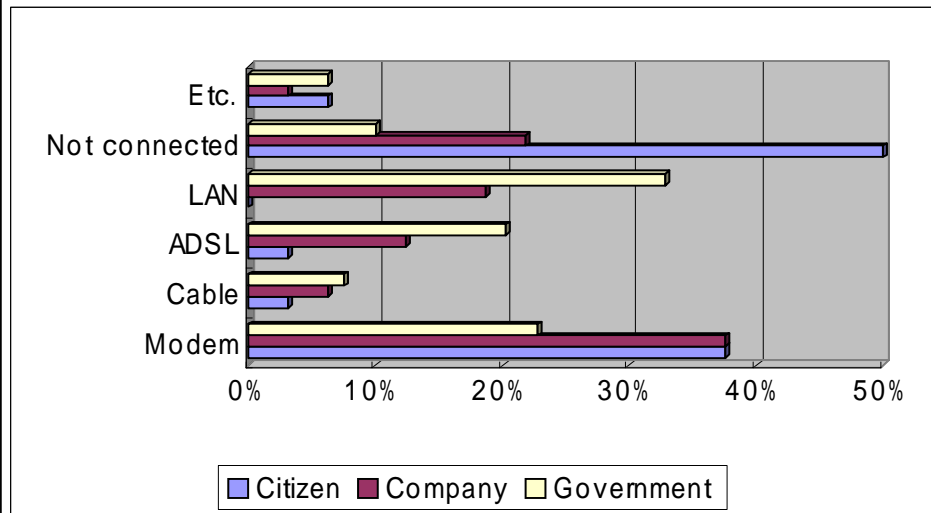
2.3 Internet penetration

Workplaces and internet cafe are main Internet accessible places

Connecting Method

- Citizens access to the Internet mainly using modem, ADSL
- Companies and government mainly use LAN, ADSL, wireless connection to access to the Internet.

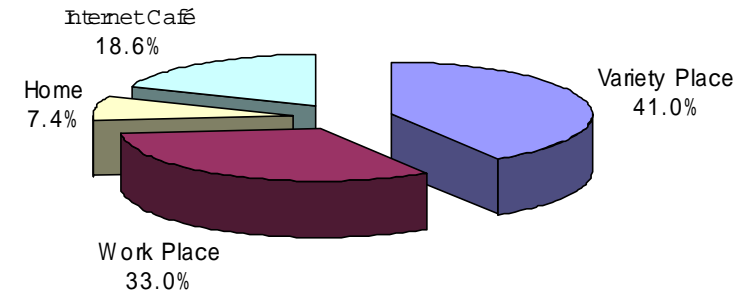
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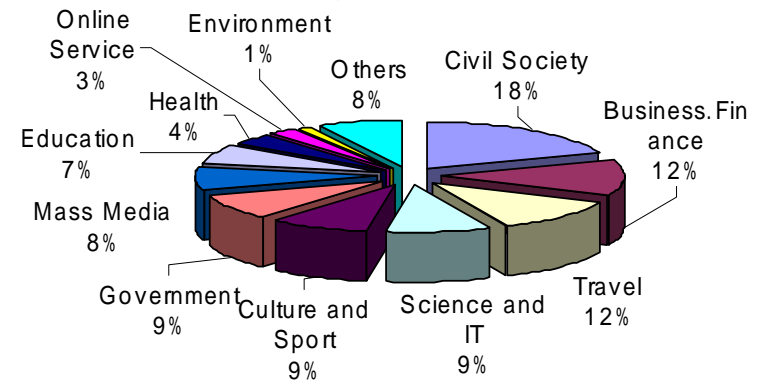
Source : Survey for e-Government Masterplan (2005)

Internet Usage

- Workplaces are main Internet accessible places



- Contents types of Mongolian Website are various.



Source : Current status of ICT Development in Mongolia (2003)

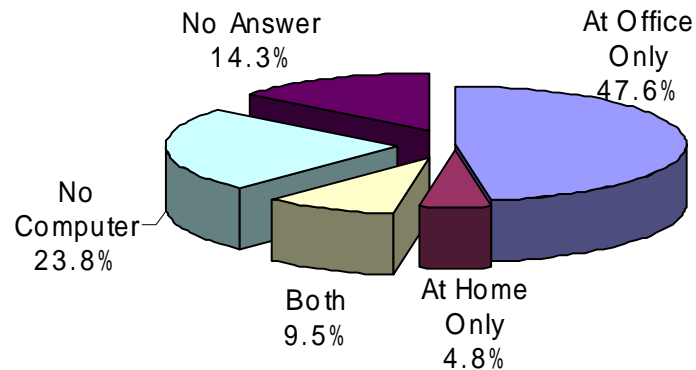


2.4 ICT Education

44.7% of students in rural areas do not have opportunities for informatics education, and 23.8% of informatics teachers do not have computers for themselves.

Informatics Teacher

- 23.8% of informatics teachers don't have opportunities to use computers in any places, and 57.1% at office only. It indicates that 42.9% of informatics teachers use computers in their labs.

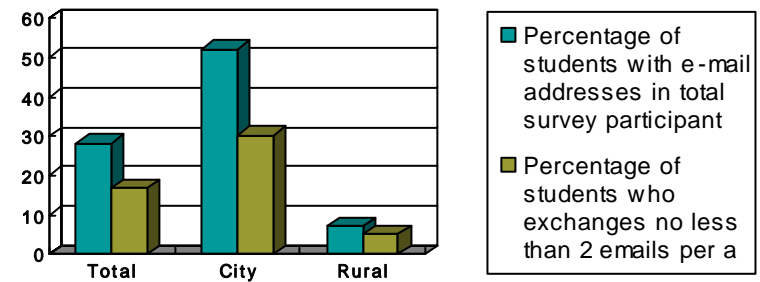


- According to the survey, 45.2% of informatics teachers use Internet. The answers differs in places: 85.7% in Ulaanbaatar, 63.6% in aimag centers, and 25% in soum.

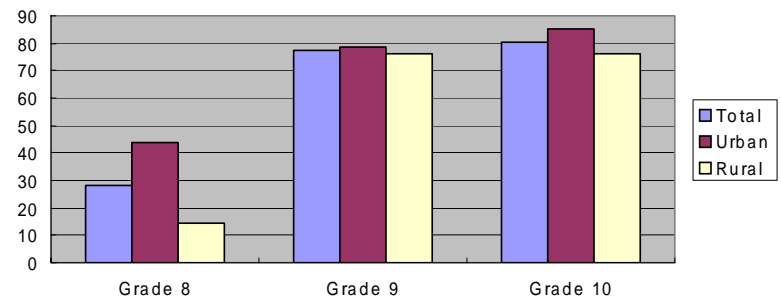
Source : "General Education and Information Technology" Survey Report (2003)

Student

- In rural areas, 44.7% don't have informatics education.

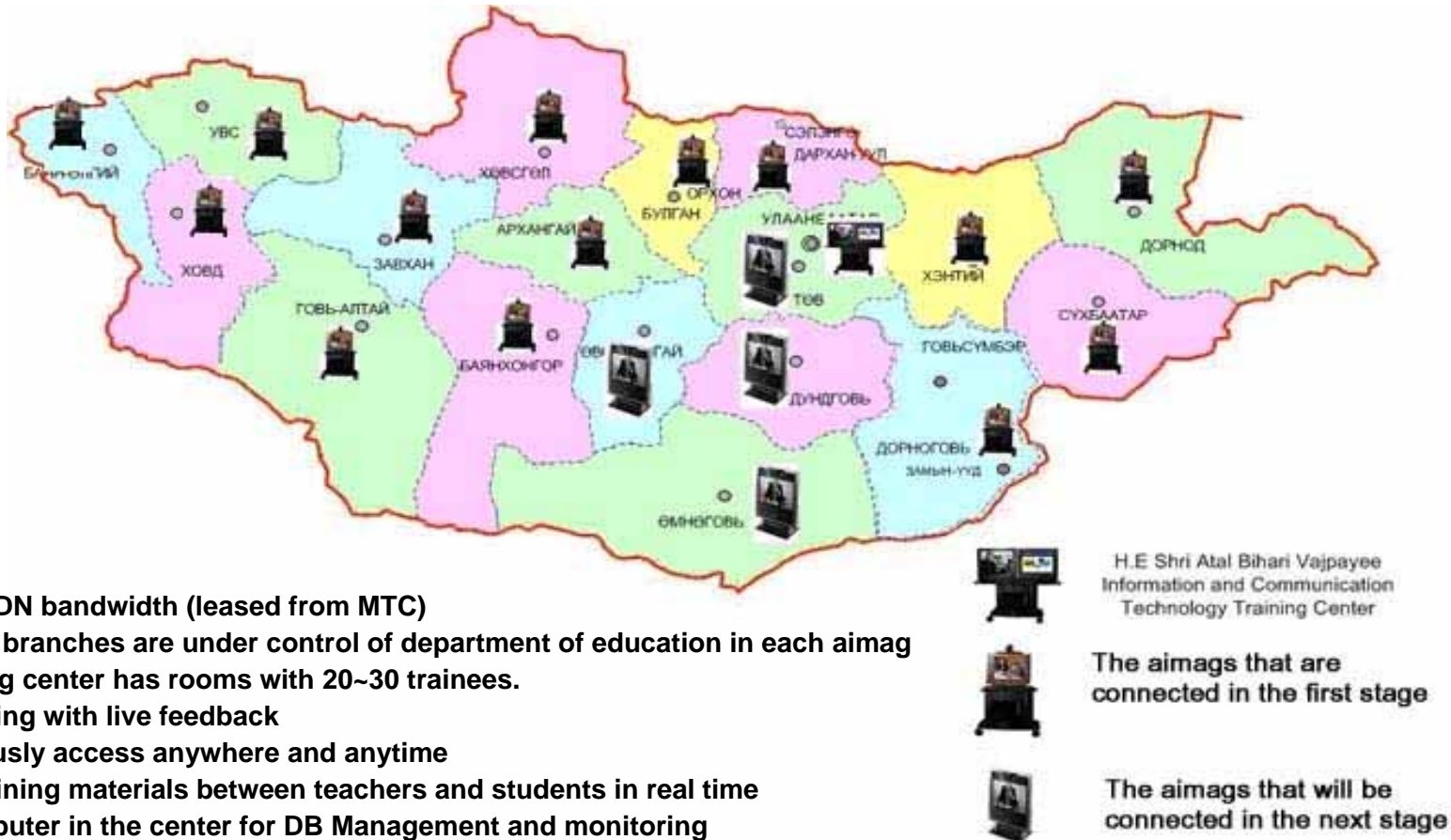


- 77.4% of surveyed students use computer labs.



2.4 ICT Education - Distance Learning Center (DLC)

The establishment of DLC project is to connect and provide ICT training program between capital city, Ulaanbaatar city, and 21 aimags. Therefore two stages are completed so far; DLC in 14 aimags and 2 centers in Ulaanbaatar city.



- 128 kbps ISDN bandwidth (leased from MTC)
- DLC and its branches are under control of department of education in each aimag
- The Learning center has rooms with 20~30 trainees.
- Online training with live feedback
- Simultaneously access anywhere and anytime
- Transfer training materials between teachers and students in real time
- Server computer in the center for DB Management and monitoring

2.5 Comparing Position of ICT readiness in Mongolia

The greatest gain in rank was posted by Mongolia which advanced from 103rd in 2003 to 75th in 2004. However, continuous efforts are required for Web Measure & Telecommunication Infrastructure.

Country (South & Eastern Asia)	Readiness Ranking in 2004	Global ranking in		
		2004	2003	Change
Republic of Korea	0.8575	5	13	+8
Singapore	0.8340	8	12	+4
Japan	0.7260	18	18	0
Malaysia	0.5409	42	43	+1
Philippines	0.5260	47	33	-14
Thailand	0.5096	50	56	+6
Brunei Darussalam	0.4632	63	55	-8
China	0.4356	67	74	+7
Mongolia	0.4152	75	103	+28
Indonesia	0.3909	85	70	-15
Vietnam	0.3378	112	97	-15
Myanmar	0.3031	123	126	+3
Cambodia	0.2859	129	134	+5
Lao People's Dem. Rep	0.2329	144	149	+5
Timor-Leste	0.0463	174	169	-5

Six Primary Indicators: PCs, Internet, Telephone Lines, On-line Population, Mobile Phones, TVs per 1000 persons

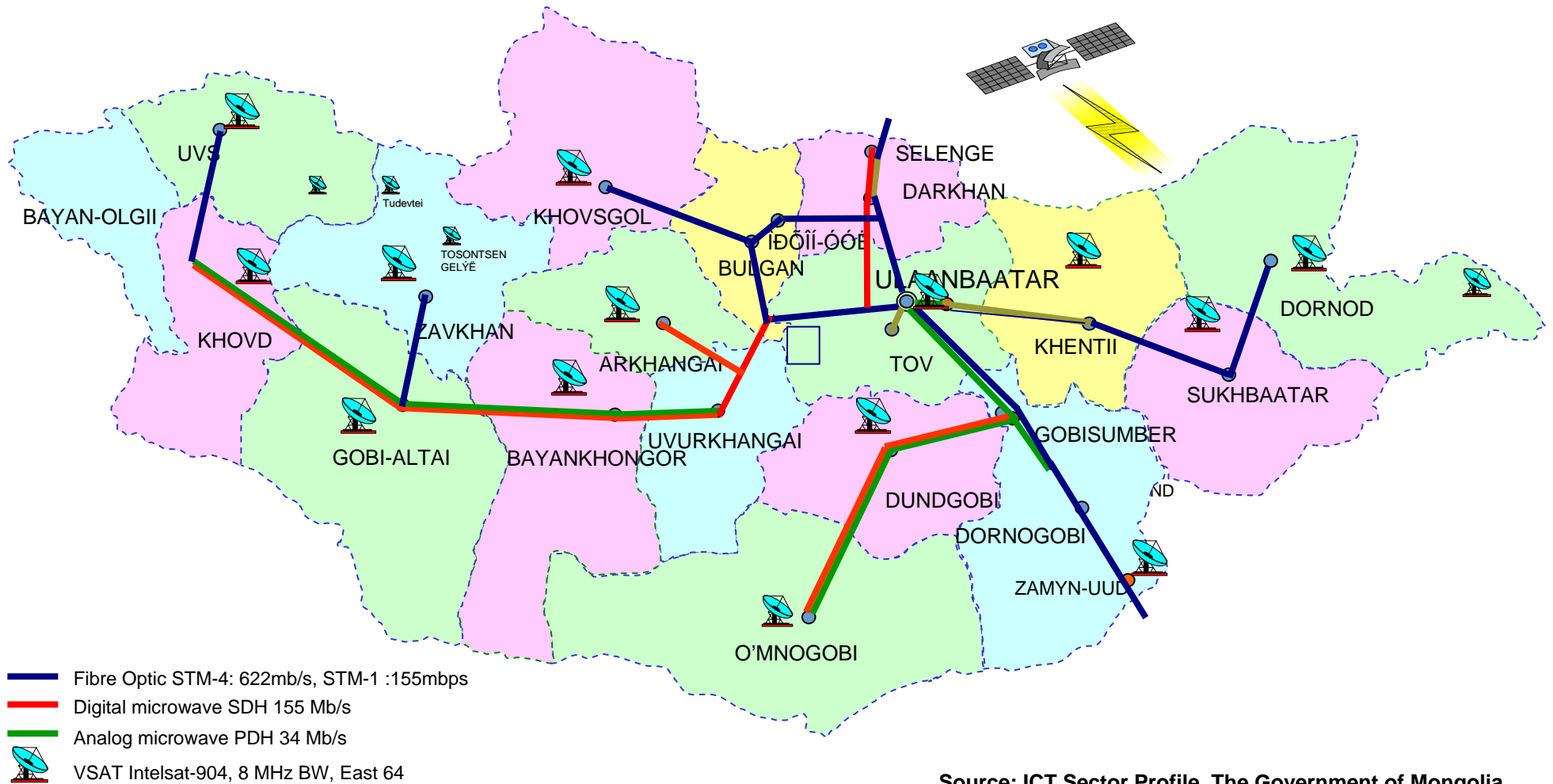
Mongolia	
Web Measure Index	0.185 (Stage I)
Telecommunication Infrastructure Index	0.190
Human Capital Index	0.870
World Average (Index 2004)	0.4127
South & Eastern Asia (Index 2004)	0.4603

Source : **UN Global e-Government Readiness Report 2004**



3.1 National Transmission Network System

Main connection of national transmission is done by digital and analog microwave

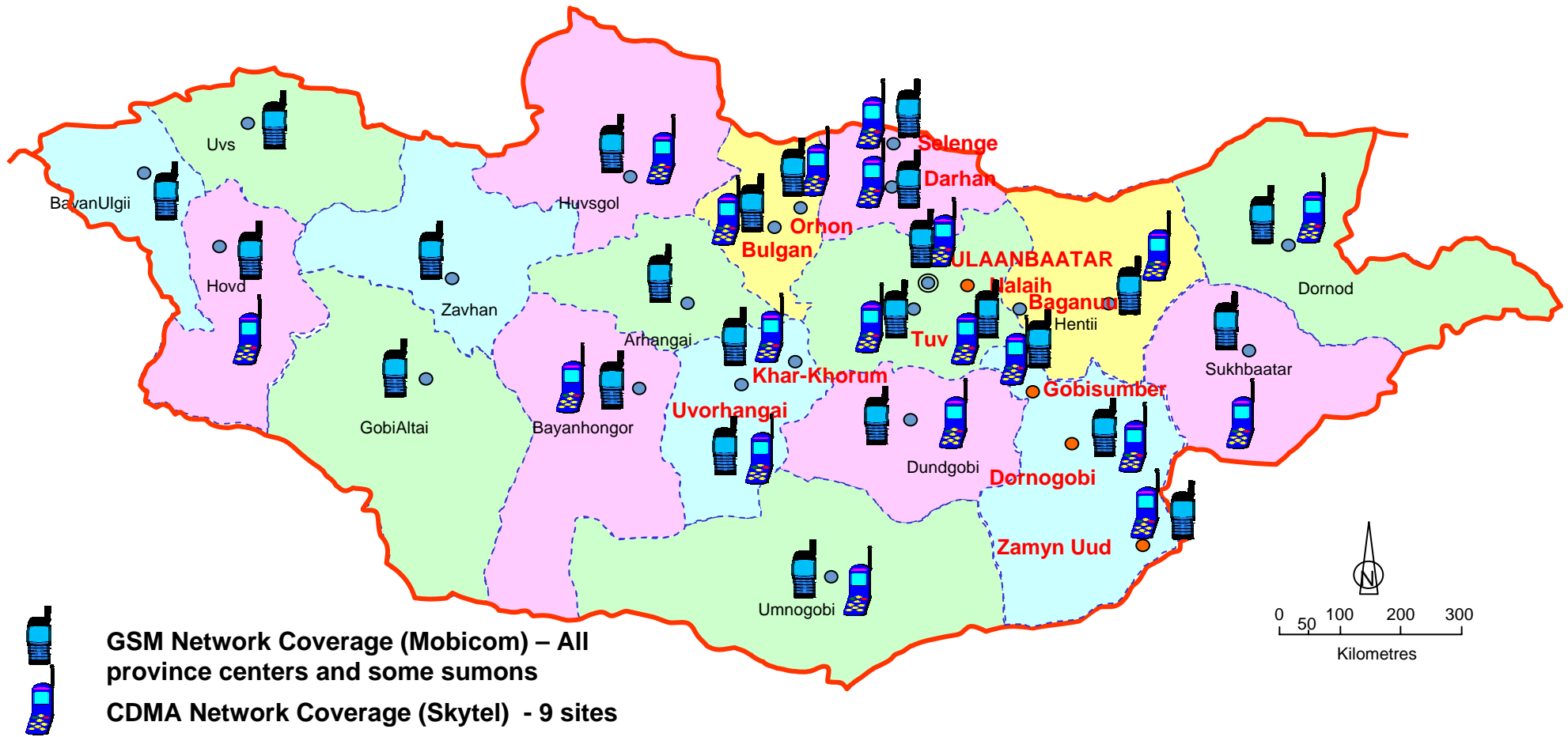


Source: ICT Sector Profile, The Government of Mongolia



3.2 Telephony Communication

Mobicom's GSM services are provided all over the Mongolian territory, and Skytel's CDMA services are provided in Central and Eastern areas. WLL services are available in Ulaanbaatar.



3.3 IT Service – Internet service

Internet services are provided via dial-up, xDSL, WiFi, CATV Modem, fiber optic link.

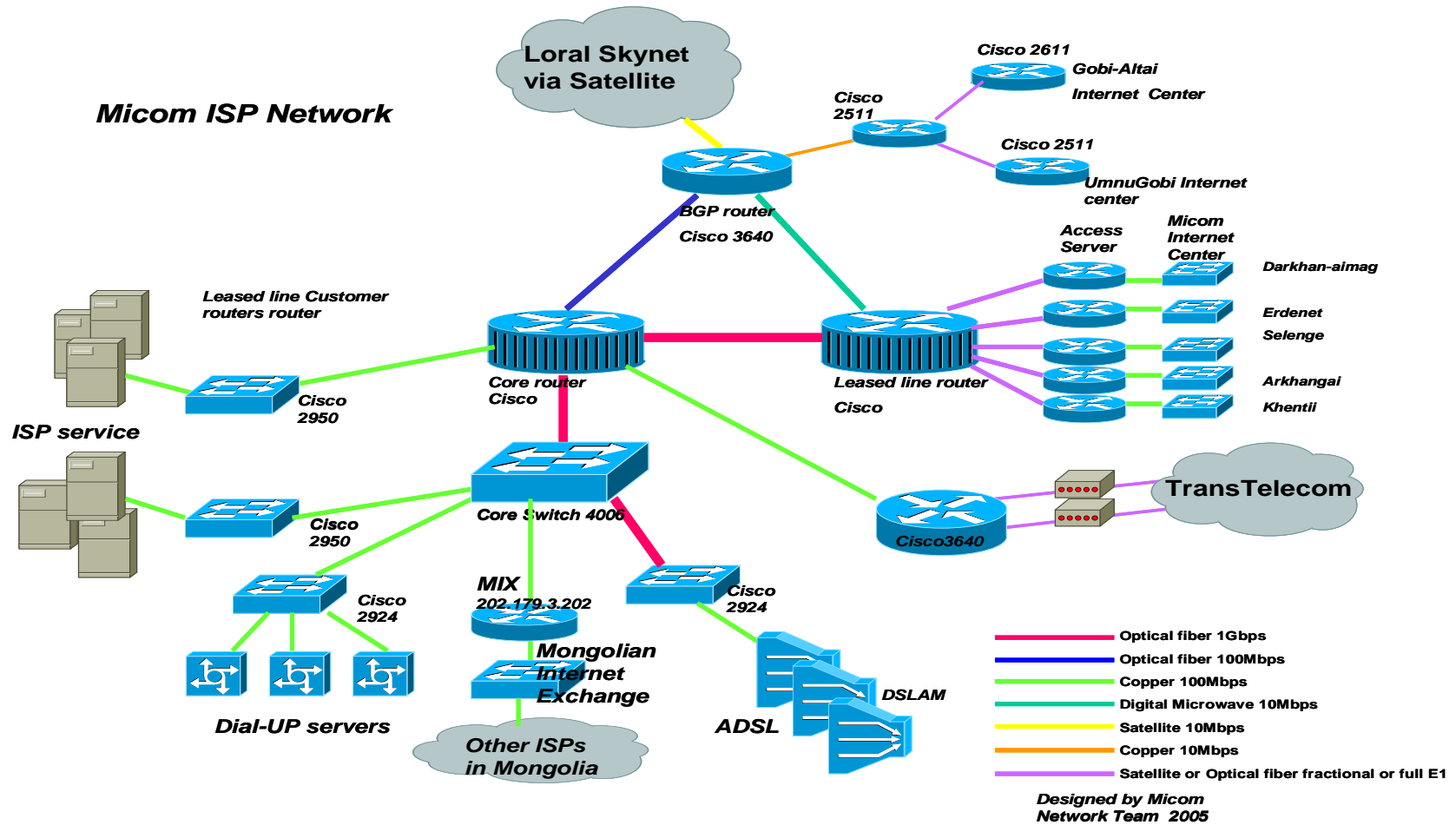
<p>Internet service provider</p>	<ul style="list-style-type: none"> ❖ First Internet e-mail service in Mongolia was started in 1994 by Datacom. ❖ Full Internet services were appeared in early 1996, and at present 10 ISPs who belong to commercial based private company or academic/government function, are operating. They are RailCom, MagicNet, MiCom, MobiNet, Sky C&C, MCSCCom, ErdemNet (education network), WirelessCom, InComNet, etc. ❖ All Mongolian ISPs connect to RailCom which connects with world networks through ChinaTeleCom and Trans Telecom Russia via fiber optic IP port. ❖ MICOM provides services to the government.
<p>Internet service</p>	<ul style="list-style-type: none"> ❖ Services available at Ulaanbaatar are 56 kbps dial-up connection by all ISPs ❖ 8 Mbps ADSL connection by Micom ❖ High-speed 64 kbps, 128 kbps or 256 kbps connection by RailNet. ❖ Dial-up connection's throughput speed in Ulaanbaatar seems to be around 24-48 kbps and 9-14kbps in Aimag or Sum.
<p>Rural Area's Internet service</p>	<ul style="list-style-type: none"> ❖ Internet users in Aimag/Sum are very limited. ❖ For example, a 10-years junior high school only uses Internet at a Sum. That low penetration rate and less access to Internet from Aimag/Sum are mainly due to high charge of long distance communication (in addition to provider's fee, 7 Tg local charge and 20 Tg long distance charge per minute are required), low speed connection, lack of consumable money of the peoples and less opportunity of PC buying or using.

Source: JICA Telecom Study, 2003



3.3 IT Service - MIX

Mongolia Internet Exchange(MIX) has been operating in order to save traffic congestion in the internet link by inter-local transactions among the Mongolian ISPs, and also to provide users better latency time of the local transactions and to reduce international leased lines since 2001.



IT park

- Established in 2002
- Centralize national IT capacity and create favorable environment for IT business
- Promotion IT outsourcing
- Incubation services for newly established IT companies
- Due to bringing several IT companies to the National IT Park is facilitating to grow companies by comparing, learning and competing with each other.
- IT companies – about 40
- Fiber optic internet connection
- Incubator
 - 20 incubation rooms
 - Internet - Free of charge
 - Rent free office space
 - Management and marketing support
 - Shared facilities & resources: mail, web and database server, meeting & training room, exhibition hall, etc.
 - Short training courses are organized frequently
 - First graduation was successful



GOVERNMENT WEBSITES



PRIME MINISTERS LISTENING



INTERNET BANK



E-COMMERCE



PHONE BANKING



E-PAYMENT



SMS BANKING

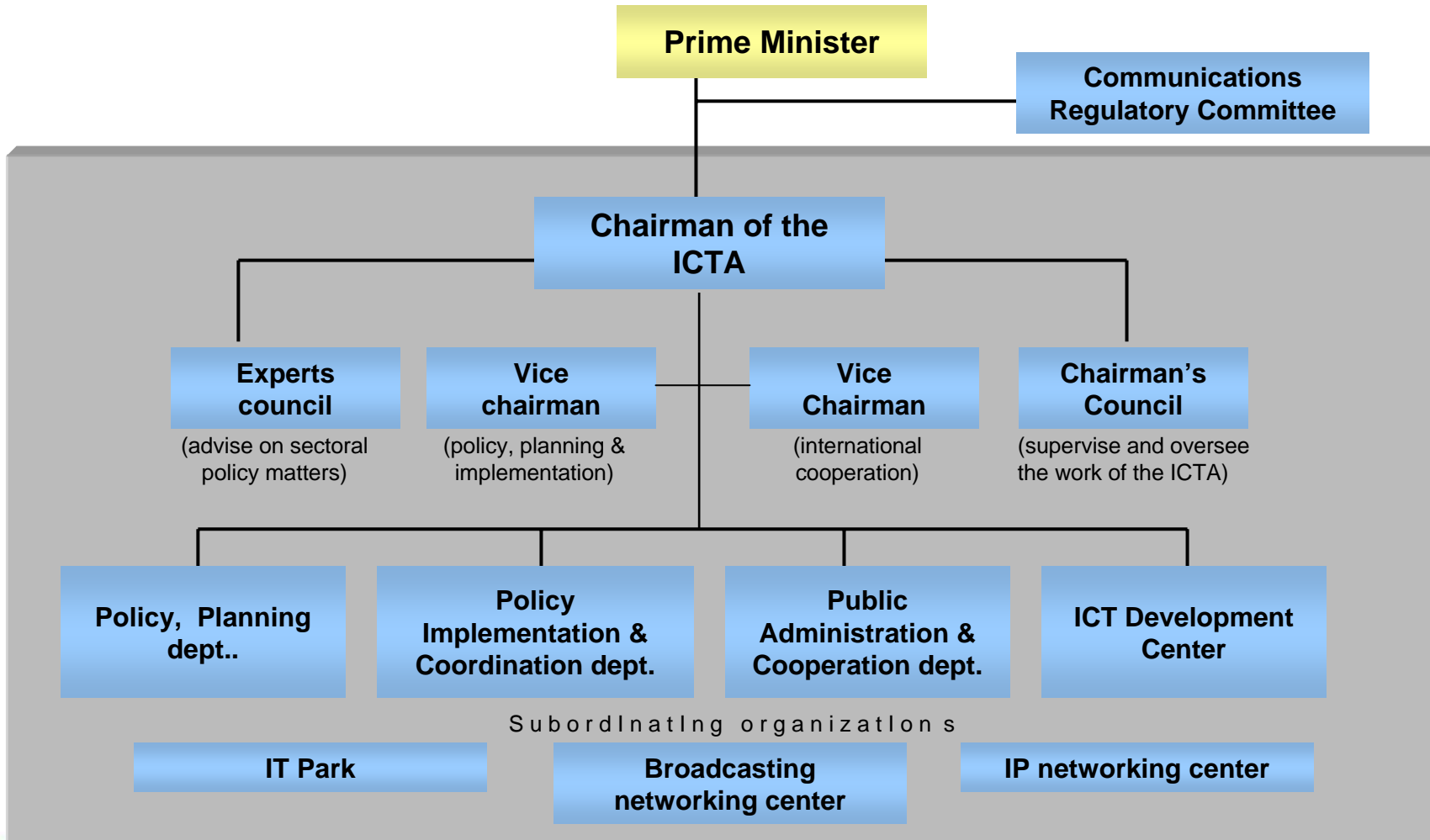


VASs FOR MOBILE COMMUNICATIONS



Organization Chart

ICTA (Information & Communication Technology Authority) is founded in October 2004. Main roles of ICTA are ICT development and leading e-Mongolia.



There is telecommunication law. Other laws are in the drafting stage.

Law	Content Summary	State	Reference Site
IT General Law	<ol style="list-style-type: none"> 1. It defines roles and responsibilities of Government entities for IT. 2. It should be a general or umbrella law of other IT related laws. 3. Promote IT Sector itself. The structure of IT General Law is similar to Mongolian Taxation Laws. 	Under Drafting	<p>Mongolian version: http://www.icta.gov.mn;</p> <p>English Version: http://www.ict.mn/midas</p>
Transaction Law	<ol style="list-style-type: none"> 1. Legal recognition of electronic form of transaction 2. It enables and promotes on-line business; 	Under Drafting	
e-Government Law	<ol style="list-style-type: none"> 1. Government is a Content Provider. 2. Government information data base its Reliable operation of Government information system its Security 	Under Drafting	
E-Signature/ Criminal Law	<ol style="list-style-type: none"> 1. It describes conditions of using e-Signature. 2. It relates issues and details about certification. 3. It gives the penalty description of illegal obtain and intrusion. 	Under Drafting	



To establish e-Mongolia, better ICT education program must be provided for citizens. Also, information systems in government sectors should be integrated to share information.

Education	<ul style="list-style-type: none"> ❖ Strengthen Information education programs to close the regional gap in informatization needed to establish e-Mongolia
Informatization	<ul style="list-style-type: none"> ❖ Integrate Information system and share information among ministries/agencies/departments
Infrastructure	<ul style="list-style-type: none"> ❖ Expand the national network system across the country to provide citizens with real-time ❖ Implement the detour (backup) line in national network ❖ Supply PCs and high-speed internet connections to citizens to make e-Government active ❖ Standardize Information Technology Architecture to implement & operate systems effectively and efficiently. ❖ Upgrade information protection level by establishing security solutions
Law	<ul style="list-style-type: none"> ❖ Establish detailed ICT Law/Regulation in advance to protect information and electronic documents
Organization	<ul style="list-style-type: none"> ❖ Enhance ICT organization's role and power all over the Government ❖ Form ICT Organization in each ministry and recruit more ICT staffs



National ICT Program E-Mongolia for the years of 2005-2012 was adopted.

16 goals:

1. One of top ten in Asia by year 2012
2. No corruption + no bureaucracy + 7/24 = E-Government
3. Affordable internet
4. One home-one PC
5. IT literacy for ALL
6. E-commerce, Distance Learning
7. Tele medicine
8. Outsourcing
9. Towards “digital” democracy
10. Shortest Euro-Asia Fiber optic link through Mongolia
11. Fiber to every home
12. Integrated coding system, Zip code
13. Registration = the mystery of capital
14. Smart card for citizens and institutional memory for Government.
15. Email for every one, web site for every organization
16. Mobile phone for every herdsman



Thank you for your attention

