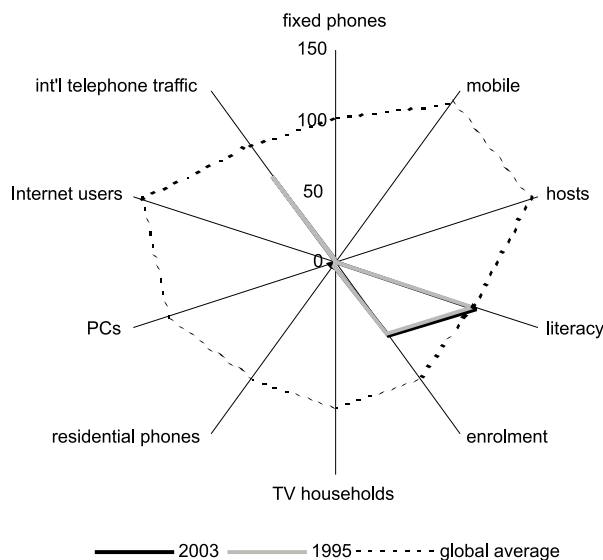




Myanmar

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Source: *Monitoring the Digital Divide*. © Orbicom 2004

Overview

Myanmar's population is growing steadily at an annual rate of 2.0 percent and was estimated at 50.1 million in 2001. The majority of the people live in rural areas. The labour force is currently estimated at 18 million people, of whom 63 percent are engaged in the agriculture sector. The national teledensity is very low, estimated at less than 1 percent. As of 2004, there were 416,182 telephones in the country, which means a telephone density of 0.79 per 100 people.¹ This figure indicates that much effort needs to be invested in the development of the telephone network to meet the needs of the people. Digitisation of both the switching and transmission systems is 70 percent complete. Obsolete manual telephone switchboards, open-wire carrier systems, analogue radio systems and high-frequency radio systems are still in use in parts of the country. There are plans to replace the existing systems with more reliable digital systems that can support the effective utilisation of ICT.

Myanma Posts and Telecommunications (MPT) is expanding the telecommunications infrastructure by establishing new microwave routes, introducing GSM mobile phone systems and building satellite ground stations for both domestic and international communication. VSAT units and the IPSTAR broadband satellite system² are also being introduced to remote regions. Myanmar is connected to the SEA-ME-WE 3 submarine cable too. Another achievement is the successful launch of a project to link all the large cities in Myanmar via fibre optic cable. The Yangon–Mandalay fibre link has already been completed.

Internet services are provided by an ISP established by MPT in March 1998. The services are being extended gradually in phases according to the technical capability and capacity of the ISP and the perceived social and cultural impact on the people. Top priority for Internet access was given to government departments, diplomatic missions and international organisations. Private companies were next.

There were more than 35,000 subscribers to email services in the country at the end of 2004, comprising mostly government departments, foreign diplomatic missions and private companies. These subscribers also make use of IP

telephony, mainly for international calls rather than domestic long-distance calls. MPT recently introduced IP telephony for domestic long-distance calls from one location in Myanmar on a trial basis through a domestic satellite connection.

Online services

E-education

The Ministry of Education and the Ministry of Information in 2000 started a project to establish e-learning centres in high schools, colleges and universities. The Myanmar Education Research Department transmits courses via satellite to television sets and computers located at these centres. Most of the centres operate in a one-way mode that allows them to receive broadcasts only; a few centres operate in a two-way mode that allows learners to interact during the broadcasts. The Universities of Distance Education also make use of the e-learning centres to support their programmes. The centres, in addition, act as reference and study facilities where students can consult their teachers. A total of 621 e-learning centres had been established across the country by the end of 2004, most of them located in rural areas.

The Universities Central Library has begun conducting e-exams over the Internet for the Diploma in Library and Information Management and the Library and Information Science basic course.

The Myanmar Higher Education Network will be established soon to link all the local higher education institutions to overseas education networks.

Enterprise portal

An enterprise portal allows companies to integrate their business processes with online content and applications. The Myanmar World Distribution Co., a leading ICT company in Myanmar, has established the Kinetic enterprise portal,

which offers modules such as customer relationship management, accounting, report management, database management, multimedia, security, e-learning, e-commerce, e-governance, and employee database.³ The portal was built using UNIX/Linux and other open source software. It has more than 1,000 corporate users in the country and also hosts the intranets of some government ministries and that of the Myanmar Maritime University. Other users include the Myeik and Phaungyi telecentres.

E-government

A pilot project to issue 5,000 e-passports to government officials and business travellers has been launched.⁴ Although looking the same as the existing passport, the e-passport contains an 8K radio frequency identification chip embedded in the back cover. The chip stores the photograph, thumbprints and other personal information of the passport holder as encrypted digital data. Upon departure from and arrival at Yangon International Airport, travellers place the passport in a scanner connected to systems at the Ministry of Home Affairs, the Ministry of Immigration and Manpower and the Ministry of Finance for processing.

The consortium Myanmar ICT Development Corporation and its member companies are in the process of establishing a national certification authority. This initiative is one of the e-government pilot projects started by the ICT Application Committee of the e-National Task Force. The task force was formed with the agenda to bridge the digital divide in Myanmar. Its members include officials from relevant ministries, computer professionals, and representatives of business associations. The task force is leading the development of the national IT master plan.

Online procurement has been established to enable government ministries around the country to procure products electronically from both local and international suppliers via the Internet.⁵ Operating on a G2B model, the system was set up to enable government agencies to independently make direct purchases, as well as to process tenders and quotations, with the aim of better managing procurement processes, lowering costs and increasing productivity.

Industries

The Myanmar ICT Development Corporation – a consortium of 50 private companies – invested in the development of the Myanmar ICT Park in an attempt to boost the software industry in the country. The government provided the land and infrastructure for this venture. Inaugurated in January 2002, the park now hosts 36 local and foreign companies employing a total of nearly 600 software engineers. The aim is for the park to evolve into an ICT hub in the country. It is part of the ICT master plan to stimulate the development of the domestic ICT industry by attracting local and international partners to form a cluster of ICT-related

businesses supported by a world-class infrastructure and technologies.⁶

Assistance for the hardware industry is provided by the Myanmar Computer Industry Association, a non-profit NGO founded in 1998 under the leadership of the Myanmar Computer Federation. The association, which has a membership of more than 200 registered hardware vendors, promotes local and international exhibitions as well as organises delegations, seminars, and project-financing loans for start-up companies. It also helps organise the country's annual international ICT exhibition, which is the largest trade event in Yangon.

The ICT services industry in Myanmar is small, with over 20 companies providing services such as network design and planning, Internet gateway and sub-ISP facility set-up, and systems administration.

The ICT industry in Myanmar is served by a number of NGOs. One of them is the Myanmar Computer Federation, a non-profit organisation established in 1998.⁷ It aims to contribute to the socioeconomic development of the country and to identify and implement the measures necessary for the development and diffusion of ICT. It also aims to provide opportunities for the youth, especially students, to be trained in the use of ICT. To these ends, the federation has organised many activities with the help of member associations and other local and international organisations. It has also been working closely with the Myanmar Computer Science Development Council and the e-National Task Force.

The Myanmar Computer Professionals Association (MCPA), an NGO established in 1998, has more than 4,000 members in Yangon.⁸ Its objectives are to upgrade its members' computer science knowledge; organise symposiums and seminars for its members; cooperate in R&D activities in computer science and technology; and strive for the establishment of associations of computer professionals at the township, district, state and division levels.

There are nine special-interest groups within MCPA each focusing on one of these areas: communication technology, Internet, Linux, multimedia, networking, language technology, software engineering, programming, and hardware. Workshops, seminars and training courses are organised regularly in these interest areas. They are open to not only professionals but also school leavers and students. MCPA conducts certification examinations in all these areas for students and professionals. The certification is now recognised by ICT companies.

Key national initiatives

An intelligent vehicle registration system has been introduced in Myanmar. It uses a contactless smart card that stores data from the wheel tag, vehicle identification card and ownership logbook on a microchip. The chip can be integrated with other applications, such as access control, transport services, biometrics and e-purse. Crypto-algorithm security technology will be deployed to protect against

manipulation and counterfeiting of the card. The chip embedded in the card offers a flexible memory structure for up to 28 applications and up to eight files for each. Portable smart-card readers and PDAs will be issued to the traffic police for retrieving the data stored on the card. More applications, such as a payment system for parking, are planned. A local group of professionals is involved in developing the applications, which they intend to introduce to overseas markets.

Regulatory environment

The e-Legal Infrastructure Committee was set up to look into ICT-related legislation. It was assigned the task of drafting the Myanmar Cyber Law, which it carried out in two stages. In the first stage, stopgap measures in the form of orders were introduced within existing laws. The order on WANs was issued in this way. The second stage saw the drafting of a comprehensive cyber law, which was passed in 2003.

Subsequently, in April 2004, the State Peace and Development Council passed the Electronic Transactions Law. The law recognises the authenticity and integrity of electronic records and electronic data messages and gives legal protection to transactions carried out over computer networks. It provides for the transmission, receipt and storage of local and foreign information through the application of electronic transaction technologies. It also provides for communication with regional and international organisations, foreign countries, local and foreign government departments and organisations, private organisations, and individuals through computer networks. The law applies to any person who commits any offence actionable under the law within or outside the country through the use of electronic transaction technology.

Aside from legislation, the Myanmar Computer Emergency Response Team (mmCERT) was formed to respond to computer-related incidents and to develop mitigation strategies for members.⁹ It also runs a national alert service and an incident-reporting scheme in cooperation with other computer emergency response teams worldwide.

Open source movement

In 2004, the Myanmar Linux User Group planned the establishment of a new Special Interest Group on Open Source Software¹⁰ and invested much energy in collaborative efforts on open source software (OSS) with groups from Cambodia, Japan, Laos, Thailand and Vietnam. A memorandum of understanding on this collaboration was signed during the fourth Asia Open Source Software Symposium held in September 2004.

The Myanmar Unicode and Natural Language Processing Laboratory has been set up to promote OSS development and natural language processing.¹¹ The laboratory has developed the Myanmar Linux operating system. It is in the

process of compiling a local-language dictionary that can be used by all engines and algorithms. It is also working on issues relating to natural language processing (including natural language comprehension and generation), word division, contextual parsing, and general algorithm for understanding and generating the local language.

A search engine for conducting searches among “.mm” websites has been developed using OSS. The website also runs email directory and web directory services using OSS.¹²

Research and development

A cluster of important research efforts is focused on developing and applying the Myanmar script in computing. It comprises a project to develop a Myanmar font that conforms to the Unicode standard, a Myanmar Linux localisation project, and a GNOME translation project to develop a GNOME X window environment running the Myanmar language. These projects are being undertaken with limited resources and support.

At the same time, a Unicode-compliant Myanmar Office suite is being developed based on the Linux foundation and the Mozilla development framework. And the Graphite Rendering Engine Implementation and Testing Project is working to render the first workable Unicode-compliant Myanmar font on both Microsoft Windows and Linux operating systems.¹³

A Beowulf clustering project was being planned in 2004 to build the first Beowulf-style high-availability cluster using low-end Pentium computers for supercomputing and R&D purposes.

Trends

Future efforts within Myanmar’s ICT sector will be focused on three OSS-related areas. The first will be to organise and set up a national-level task force on OSS. The second will be the development of an e-government framework based on OSS. The third will be collaboration with the various ASEAN open source centres and consortia.

Notes

1. <http://www.mpt.net.mm>.
2. <http://www.ipstar.com/en/index.html>.
3. <http://www.mwd.com.mm>.
4. <http://www.passport.gov.mm>.
5. <http://www.myanmar.com>.
6. <http://www.mict-park.com.mm>.
7. <http://www.mcf.org.mm>.
8. <http://www.mcpa.org.mm>.
9. <http://www.mmcert.org.mm>.
10. <http://www.myanmarLUG.org>.
11. <http://www.mcf.org.mm/unicode>.
12. <http://www.search.com.mm>.
13. <http://www.sil.org>.