

Ukraine

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1 OVERVIEW

The current State of the Ukraine came into being in 1991. It has a population of 47.8 million people and a landmass of 603,700 square kilometres. The GNI per capita was 1,050 Euro in 2005, according to World Bank figures. Its system of government is described as a “semi-presidential” republic, consisting of 24 provinces, two cities of special administrative significance (Kyiv and Sevastopol) and one autonomous republic (Crimea).

Highly qualified and relatively cheap labour, developed transportation and communications infrastructure, and a favourable geographic location make Ukraine attractive for companies interested in investing in the region. The Ukrainian regulatory system is organised to foster exports and to protect the local market from competing imports because of the economy’s dependence on exports. This has led to the implementation of cumbersome customs, licensing and certification procedures. In addition, local companies are often subject to high taxation and untransparent tax collection procedures. Although Ukraine is improving its regulatory environment through reforms taken in the process of WTO membership negotiations, much work remains to be done in reforming the rule of law and corporate governance before Ukraine can compete effectively with its neighbours for foreign investment.

Ukraine has pursued a comparatively conservative approach to telecoms reforms, retaining low subscriptions and free local calls, thereby maintaining growth in fixed line penetration. There is strong potential for the voice market. However, as Ukraine now intends to speed up liberalisation and tariff rebalancing, it has the opportunity to learn from the experience of the new EU Member States in order to avoid artificially hampering the competitive development of fixed networks for voice and Internet.

1.1 Regulation of Electronic Communications

Electronic communications regulation in Ukraine is undergoing major upheaval, due to the adoption of the comprehensive 2003 Law on Communications and the creation in April 2005 of the National Commission for Communications Regulation (NCCR), Ukraine’s independent national regulatory agency for communications. Efforts have been made to guarantee the independence of the NCCR by limiting its reliance on government and to provide it with the necessary regulatory powers and resources in order to ensure its efficiency in issuing and enforcing regulations and monitoring the markets.

One of the key issues identified by the NCCR for urgent action is interconnection. Interconnection arrangements are still heavily regulated by the state and are not transparent. The new regulator has extensive powers to deal with this issue through Article 57 of the Law on Telecommunications, and has addressed it as a priority in its first year of operation, for example through its Regulation on Interconnection adopted in October 2005. The NCCR has also assumed responsibility for numbering regulation in order to better deal with an increasingly competitive environment. However, fixed and mobile number portability are neither in place, nor planned.

Facilities sharing and the building of new infrastructure are both governed by the 2003 Law, thus giving the NCCR the opportunity to ensure competitive neutrality and transparency. Licensing has also been simplified by the 2003 Law: it requires licences for fixed (local, intercity and international) and mobile telephony for the purpose of creating “open, non-discriminatory and transparent”¹ conditions for operators. On the other hand, tariff rebalancing, in the context of ensuring a competitively neutral regulatory environment, as well as cost accounting, has yet to be comprehensively addressed.

Universal service is currently a major issue in Ukraine. It is being addressed both through legislation and through pilot projects to ensure basic telephony and Internet access through access points in towns and villages. The government also intends to promote WiMAX as a low-cost way of ensuring further roll-out of Internet access services.

The situation regarding leased lines is somewhat unclear. The vast majority of leased lines are provided by the incumbent telecommunications operator. Prices and availability appear to vary considerably between Kyiv and rural areas.

Regulation of collecting and holding data and information security in Ukraine is governed by a range of legal documents. The main laws are: Information Law № 2657-XII of 2 October 1992 (as amended in 2000, 2002, 2003 (twice), 2004 and 2005), the law on Information Security in Information-Telecommunication Systems No 2594-IV of 31 May 2005 (replaced the 1994 Information Security in Automated Systems Law), the 2003 Law on Telecommunications; and the Presidential decrees: "On Measures of Development of the National Component on the Internet Global Information Network and Providing Broad Access to this Network in Ukraine" of 31 July 2000, "On Measures of Information Protection Resources of the State" of 10 April 2000 and On Several Measures of the State Information Resources Protection in Data Transmission Network, of 24 September 2001.

With regard to data protection, Ukraine took the initiative in 2005 to sign two² Council of Europe Conventions on the processing of personal data which, when ratified, will bring Ukrainian legislation further into line with EU norms. It appears that the ratification instruments for these Conventions will be adopted at the same time as a law on data protection, which had its first reading in 2003. Basic data protection obligations for the e-communications sector were also included in the 2003 Law on Communications.

The National Commission for Communications Regulation predicts that rural settlements will be served by the telecommunications network within near five years if bill 9193 (proposed in November 2006) on the creation of a universal service fund is approved.

Communications market participants, particularly the Internet Association of Ukraine, oppose the bill in its current form, especially with regard to how the necessary funds will be collected. In addition, there is some concern over the bill's proposal to grant increased authority to the State Communications Inspectorate and the NCCR. The operators believe that increased powers will allow the agencies to interfere in the activities of cable TV network operators and TV and radio stations.

¹ Article 43.1 of the Law on Communications

² On automatic processing of personal data and on supervisory authorities for data processing.

Ukrtelecom asked the cabinet to accelerate the creation of the universal service fund in order to compensate it for losses it suffers in providing communications services in rural areas.³

1.2 Regulation of Electronic Services

Businesses have encountered some practical problems with the Ukrainian legislation on digital signatures and digital documents. Following an extended period during which little progress was made to resolve these issues, there has recently been some activity: the first certification centre opened in Ukraine in January 2006, slightly behind the mid-2005 timetable originally set by the government.

The issue of the liability of online intermediaries has not yet been actively addressed by the Ukrainian authorities, although the limited existing case law shows a broadly similar approach to that in the EU. Legislation on intellectual property rights infringements is being addressed within the context of WTO negotiations, while there is also Ukrainian legislation in place with regard to online child abuse images. New legislation is planned to deal with a range of online content issues, including pornography and hate speech.

Electronic payment systems have not yet developed to an appreciable degree in Ukraine: electronic cash, such as the Armenian e-dram system, is not widely used, while credit card ownership is low.

Generally, online retailing and service provision is hindered by the low level of Internet penetration, coupled with a low level of credit card usage. According to the e-Ukraine website,⁴ key issues slowing down e-commerce in Ukraine are an under-developed payment system, lack of necessary legislation, expensive and untrustworthy delivery systems, and lack of overall trust among consumers.

1.3 Use of Information and Communication Technologies

Fixed telephony penetration has been steadily rising, and currently stands at 23.2 percent,⁵ with mobile at 84.9 percent⁶. As these figures are significantly lower than in developed countries, there appears to be significant growth potential.

In addition, there is a major urban-rural divide which is being addressed through legislation and through pilot projects to create public access to key communications services in rural areas. There are few cable service offerings on the market, although

³ See <http://www.regulateonline.org/index.php?option=content&task=view&id=686&Itemid=32&relaltemid=767> for more information

⁴ <http://ukraine-today.com/computers/e-commerce/e-com.shtml> (last visited 15 March 2006)

⁵ Based on population and fixed telephone line data from Ukrstat. Both sets of data were published in October 2005.

⁶ <http://www.cellular-news.com/story/19810.php>

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one operator (Volia) is offering a “triple play” of phone, TV and broadband Internet access in Kyiv.

Computer penetration is limited by the low average wage, since a computer costing 420 Euro would cost approximately 19 percent⁷ of an average annual gross salary, for example.

While the government has passed legislation regarding the expansion of e-government services, little progress on practical implementation has been made. However, the development of e-government is part of the EU-Ukraine Action Plan, along with other information society initiatives, such as e-health and e-education. The ITU also supports the development of e-health in Ukraine, as part of its wider efforts on this issue. Ukraine’s score dropped from 3.79 (out of 10) to 3.51 from 2004 to 2005 in the Economist e-readiness rankings, achieving its best mark for business environment (5.49) and worst for consumer and business adoption (1.8). In 2006, Ukraine improved slightly, up to 3.62, while dropping a further four places, down to 61st (from 57th in 2005 and 2004).

⁷ Based on Ukrstat data from January 2006.

2 GENERAL ENVIRONMENT

2.1 Influence of Stakeholders on Regulation and Policy

In Ukraine, representative organisations of the telecommunications industry have a comparatively short history of working together to advance and protect the interests of the sector. Until now, only one has been specifically lobbying for more attention from the Government on telecommunications issues – the Ukrainian Union of Entrepreneurs and Industrialists (USPP),⁸ which includes two committees that deal with the formulation of proposals for the Government on the development of the telecommunications industry.

The formation of business associations in Ukraine is defined by the Law On Business, which establishes the rules regarding the creation of trade associations. The Law states that if the association unites more than 50 participants in the market, it must obtain permission from the anti-monopoly committee for the registration of participants belonging to the association.

There are currently two industry associations in the Internet sector, the Internet Association of Ukraine,⁹ which owns the Ukrainian Internet Exchange (UIE),¹⁰ and the Ukrainian Wireless Association.¹¹

The Internet Association of Ukraine was created in the interests of all participants in the Internet market and has successfully ensured a reduction in the price of internal traffic in Ukraine. Its main task is to protect the interests of Internet users and to promote their interests with regard to new legislation.

The Wireless Internet Association was established in order to deal with a wide variety of perceived problems with launching wireless services in Ukraine, including conflict resolution, the legal framework, illegal content and the harmonisation of standards and norms.

In addition, the NGO Ukrainian Internet Community¹² is a nationwide Internet-users' association. It was actively involved in the public discussion of the draft Law on Telecommunications Interception in 2004-2005.

The effectiveness of associations and organisations has increased significantly over the last two years, leading to increased dialogue between businesses, the public sector and the Government. Following the "Orange Revolution," the new Government expressed its interest in actively collaborating with both industry and wider society.

⁸ <http://www.uspp.org.ua/uspp.php>

⁹ http://www.inau.org.ua/inau/bin/view/Main_ua/AboutAssociation

¹⁰ <http://www.ua-ix.net.ua>

¹¹ <http://www.wirelessua.com>

¹² <http://www.uic.org.ua/index.php>

2.2 National Development Plan

The proposed National “e-Ukraine” Programme went through its first reading in Parliament in February 2006. The previous draft Law on the Enforcement of the National “e-Ukraine” Programme for 2006-2015, developed by the Government of Mr Yanukovich, failed to receive the necessary majority in Parliament at the hearings held on 15 December 2004, possibly due to the political upheaval taking place at the time. While little concrete progress on implementing the Programme has been made until recently, there is range of legislative instruments in place to support it once it is adopted. These include:

- The 1998 Law on the National Programme of Informatisation;
- The Cabinet of Ministers Decision of January 2005, appointing the Minister of Transport and Communications as the National Executive Manager of the National Programme on Informatisation;
- The Cabinet of Ministers Decision of April 2005 on the National Strategy for Development of Electronic Communications, the Establishment of the Commission for Telecommunications Regulation and the Adoption of the e-Ukraine Programme;
- The Cabinet of Ministers Decision of May 2005 on the Fulfilment of the EU-Ukraine Action Plan in the Information Society field;
- The Parliamentary Recommendations of September 2005 on Information Society Development;
- The Presidential Decision of October 2005 on Urgent Tasks for the Implementation of Advanced Information Technologies;
- The adoption in November 2005 by the Parliament of the National Programme of Informatisation Tasks (which lists the tasks but does not assign budgets);
- The Government Decision of December 2005 on the National Programme on ICT in Education and Science 2006-2010. The total budget for this programme is 1855 million UAH (30 million Euro).

The new plan for 2006-2015 covers the development of the network, development of human potential and the propagation of information technology. Key priorities of the new plan include the introduction of the most up-to-date technologies into all aspects of life in Ukraine, improvement of computer literacy levels and the creation of a communications infrastructure to integrate the country more effectively into global networks.

The National Informatisation Programme, agreed each year since 1998, serves more as a short-term planning exercise than a national development plan.

2.3 Data Protection

At present, there is very little personal data protection legislation in Ukraine, although a draft Law on Personal Data Protection is in the pipeline. The legal basis for privacy protection, other than the very limited privacy provisions included in the Law on Communications, is the Constitution. The provisions in the Constitution are framed in a similar way to Article 8 of the European Convention on Human Rights. While new laws

have been prepared over the past three years to address the absence of specific legislation, these are still awaiting approval by Parliament. This delay is caused by the fact that there is limited social demand for this kind of regulation. The degree to which privacy concerns do not appear to be a high priority among the population at large is suggested by the apparent lack of public concern regarding insecure state databases, which allegedly make personal data available on the black market.

The draft Law on Personal Data Protection was passed by Parliament on 16 March 2006, but was not signed into law by the President, due to concerns that it was not sufficiently in line with EU legislation, in particular Directives 1995/46/EC (the General Data Protection Directive) and 2002/58/EC (the e-Privacy Directive).

However, in 2005, Ukraine signed the Council of Europe Convention on the Automatic Processing of Personal Data and, unlike all of the other countries in this study, also signed the Additional Protocol on the Protection of Individuals with regard to the Automatic Processing of Data, which deals with supervisory authorities and transborder data flows. It is not yet clear when Ukraine will ratify the Convention and the Additional Protocol. Due to domestic legal considerations, it seems likely that the draft Law on Personal Data Protection (which passed its first reading in parliament in 2003) will be adopted at the same time as the ratification instruments for the Council of Europe conventions.

The basic provisions on data protection included in the Law on Telecommunications 2003 include the prohibition of the dissemination of personal data obtained by operators from users. The Law also guarantees the privacy of communications in general terms.

2.4 Cybercrime and Spam

In September 2005, the Cybercrime Convention of the Council of Europe was ratified by President Yushchenko, with reservations regarding the possession of child pornography and misuse of devices. Ukraine has also signed and ratified the Optional Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution and Child Pornography.

In late 2003 and early 2004, the Ukrainian Parliament adopted two key resolutions on "Activity in the Sphere of Informatisation" and on Ratification of Tasks of the National Informatisation Programme For 2003-2005", whose purpose is to improve government regulation in the sphere of information protection and fighting computer crime.

Prohibition of the importation, production, sale and distribution of child pornography in Ukraine is detailed in Article 301 of the Ukrainian criminal code. However, there is no prohibition of the possession of such material.

There is little legislation dealing with the liability of intermediaries in Ukraine. However, one case does suggest that the approach is basically similar to the EU, albeit without the same level of legislative underpinning. In 1998, a criminal case was launched against the owners of the company Relcom-Ukraine (at that time the largest Internet service provider) regarding material it hosted. Ultimately, all charges were dropped, as the company was able to show that it was not directly responsible for the material in

question and that in accordance with the contracts signed with its clients, it did not monitor information placed on its servers. There is no legal obligation on hosting providers to monitor content on their servers in Ukraine, unless a client has specifically asked it to do so and this is stipulated in the contract.

In August 2005, the Ukrainian Government introduced restrictions on unsolicited electronic communications, using Article 33 (“Responsibilities of users of telecommunications services”) of the 2003 Law On Telecommunications as the legal basis. The rules include obligations for consumers to be able to “opt-out” of receiving messages, a prohibition of the falsification of network information, and obligations regarding the provision of a functioning e-mail address and the name of the sender.

Article 161 of the Criminal Code provides for sanctions in relation to the incitement of national, racial and religious intolerance, and the demeaning of national honour and religious beliefs.

Ukrainian legislation has been enhanced and brought into line with the TRIPS requirements by several laws amending Ukrainian Intellectual Property Laws.¹³ However, most of the focus in Ukraine in relation to music and software piracy has been on offline infringements, due to the existence of large pirate CD plants in the country. Legislation was passed in May 2005 in order to close legal loopholes with regard to this activity. A wide range of further legislation was passed in this field in 2006, providing legal protection for computer programmes, broadcasting and cable retransmission, databases and resale rights. Enforcement measures were also adopted. The Ukrainian Ministry of Justice believes that 80 to 90 percent of legislation in almost all key IPR fields corresponds with the EU *acquis communautaire*.

On June 10, 2004, the Presidium of the Supreme Economic Court accepted the Resolution “On Certain Issues concerning the Solution of Disputes Related to Copyright and Intellectual Property Rights Protection,” providing procedures for protection of intellectual property rights, particularly sales of computer software and programs.

The penalty for reproducing disks protected by copyright is a fine of up to twenty times value of the manufactured goods and not less than 5,000 times the current personal tax-free allowance levels.¹⁴ The producer and the customer bear responsibility for correct completion of contracts and the use of copyright and/or related rights. The Civil and Criminal Codes have been updated on the basis of these rules, including custodial sentences of up to five years for breaching the law concerning optical disks.

Regulation in the area of information processing in Ukraine is covered by a number of laws, as highlighted above in the Overview section.

The State Committee on Communications Order of 17 June 2002 № 122 obliges access providers to install black-box systems for the interception of communications.

¹³ Laws on Several Amendments to Intellectual Property Laws No. 34-IV of 4 July 2002 (devoted to the protection of the copyright on the Internet); No. 850-IV of May 22, 2003; N 1407-IV of February 2004; and No. 2734-IV of July 6, 2005 “On amendments to the several acts regarding the production and import of discs, recording equipment and raw materials”

¹⁴ The amount of a tax exemption is the current minimum amount that can be earned free of income tax

There are no national laws on data retention.

3 REGULATORY ENVIRONMENT FOR ELECTRONIC COMMUNICATIONS

3.1 Interconnection

With Ukrtelecom still a de facto state monopoly, the situation regarding interconnection is so heavily regulated that the cost of calls from fixed phones to mobile phones is decided by Government decree and the redistribution of incomes from such calls is based on agreements between Ukrtelecom and the mobile operators. This rate is currently 0.6UAH per minute (or approximately 0.10 Euro). These agreements between Ukrtelecom and mobile operators are signed on a yearly basis. At the present time, it is difficult to obtain data on interconnection between telephony operators because all sides have an interest in not revealing the actual conditions of their agreements. There is also no public information available regarding the existence of complaints regarding interconnection regulation.

Interconnection is governed by Chapter IX of the 2003 Law on Communications and the subsequent draft NCCR Order on Interconnection and Calculation among Operators.

The Law on Communications requires operators to provide other operators willing to conclude an interconnection agreement with the information required for negotiation and to offer interconnection terms that are at least equivalent to those proposed to other operators (Art. 58). The NCCR is authorised to intervene in cases of failure by parties to negotiate (paragraph 19, Art. 18).

For fixed-to-mobile interconnection, the termination fee is 0.25 UAH (0.04 Euro) per minute. The price of call termination in the mobile-to-fixed market is decided by commercial agreement between the parties, but the tariff cannot be more than 0.25 UAH (0.04 Euro).

Mobile to mobile interconnection is purely a matter for commercial negotiation.

Charges for call origination and other telecommunication services are subject to the control of the Antimonopoly Committee (AMC) of Ukraine in cases where the charges are deemed to have a significant social impact. For instance, on 28 October 2005 the AMC adopted a decision recommending mobile operators abolish sign-up charges for users. The fact that the number of mobile subscribers exceeds the number of fixed subscribers in Ukraine was the basis for the argument that this intervention was needed.

This issue of interconnection is being addressed by the NCCR as a matter of priority, in order to deal with non-transparency in the interconnection regime. According to Article 59 of the Law on Communications, the incumbent operator is required to publish an RIO annually in the official journal of the NCCR. The offer should include the current list of interconnection points, technical requirements and economic terms. However, Ukrtelecom has not yet published an RIO, as the Law on Communications requires it to, since the Rules on Interconnection have not been adopted yet by the NCCR. The NCCR is drafting the Rules of Interconnection and these are currently available for public discussion on the NCCR website.¹⁵

¹⁵ http://www.nkrz.gov.ua/ua/docs/pravila_v3.zip (Ukrainian language only)

Until Ukrtelecom's monopolies are weakened (and a decision on this issue is expected in the near future), there is little possibility of the introduction of carrier selection and carrier preselection.

Running parallel to Ukrtelecom's monopoly are the illegal international voice services. As early as 2001, some estimates put the percentage of illegal international voice services in Ukraine as a percentage of total voice traffic as high as ten percent.¹⁶ Such problems often indicate issues with regulation or competition in the marketplace. However, this situation is changing and there are now several private operators, such as Optima, that are in the process of developing their own infrastructure.

Ukrtelecom revenues from the different services on offer were as follows: Long distance calls revenue – 2,633.9 billion UAH (427.39 million Euro) or 49.86 percent of total revenue; local fixed calls revenue – 1,317 million UAH (213.71 million Euro) or 24.3 percent of total revenue; international call revenue – 950.7 million UAH (154.27 million Euro) or 18 percent of total revenue; IP – 156.417 million UAH (25.38 million Euro), or 2.96 percent of total revenue.¹⁷ Other services such as paging made up the remainder.

No attempt has been made to calculate losses from the illegal termination of voice calls in Ukraine. Ukrtelecom offers a termination rate for IP calls of 0.75/0.77 US\$ (0.62/0.63 Euro). It is not known how many (if any) IP telephony companies avail of this offer.

Ukraine's mobile sector is very dynamic. There are five mobile providers in the country: UMC¹⁸ (GSM-900/1800 and NMT-450i), Kyivstar¹⁹ GSM (GSM-900/1800), Golden Telecom²⁰ (GSM-1800), WellCOM²¹ (GSM-900) and Astelit²² (GSM-1800).

3.2 Numbering

The Department of Communications and Informatisation (part of the Ministry of Transport and Communications) develops and manages technical policy for numbering allocation. The NCCR provides a management function for numbering policy through liaison with operators. Under the 2003 Law on Communications, administration of numbering resources is divided between the "Central body of the executive government in the communications sphere," which is responsible for legislation and policy regarding numbering, and the NCCR, which is responsible for assessing requests for numbering resources and ensuring that the relevant rules on use of numbers are respected and has the power to withdraw numbers, if necessary.

¹⁶ Zerkalo Nedely, quoted in Fibre Optic Telecommunications Networks Ukraine, 11 August, 2001, last accessed on 3 August 2005 at <http://www.bisnis.doc.gov/bisnis/bisdoc/030214UkrFiberOptics.htm>

¹⁷ Data from Ukrtelekom

¹⁸ <http://www.umc.ua/ukr/splash.php>

¹⁹ <http://www.kyivstar.net/site.php/en>

²⁰ <http://www.goldentele.com/>

²¹ http://www.beeline.ua/index_ru.wbp

²² <http://www.life.com.ua/index.php?lng=uk>

Planning work is currently underway to overhaul both the fixed and mobile numbering resources used in Ukraine in order to take account of increased use of both networks.

The number allocation procedure is regulated by the Law on Communications.²³ According to Article 70, “*numbering resources are provided to [a] telecommunications operator²⁴ for the period of validity of its licence without the right to sub-allocate these numbers to other operators.*” The sub-allocation of numbers has been used in other countries to facilitate the use of geographic numbers for VoIP, an option that is therefore not available in Ukraine.

Nevertheless, telecommunications providers are able to exchange numbering resources amongst themselves, based on contractual agreements.

Before the development of independent private telecommunications operators, Ukrtelecom²⁵ had an exclusive right to telephone numbering resources. However, this situation is changing and now there are several private operators, such as Optima, that are in the process of developing their own infrastructure, and obtaining their own numbering resources directly through the NCCR.

Neither fixed nor mobile number portability is currently available, although all of the main mobile operators have expressed support for mobile portability to be implemented.

Non-geographic numbers, such as national local call or premium rate services, have not yet been developed in Ukraine.

In the near future the subscribers of mobile operators will be able port their number between operators if Bill N 2047 is successful. This bill aims to amend the list of obligatory services provided in the context of the Law on Telecommunications.²⁶ Whether or not consumers will be charged a fee to port their numbers is not yet clear.

3.3 Rights of Way and Facilities Sharing/Collocation

Every three years, the Parliament of Ukraine approves the activities proposed under the National Program for Informatisation, which includes infrastructure development decisions taken at national and local levels. The Report of the Parliament No. 3075-IV, adopted on 4 November 2005, concerning the approval of tasks of the National Program for Informatisation for 2006-2008, obliged the Cabinet of Ministers to provide an economic analysis of the financial resources needed for the planned projects, so that the costs to the state could be included in the State Budget.

²³ Adopted November, 2003. English translation http://www.ntca.org/ka/ka-3.cfm?content_item_id=2342&folder_id=495

²⁴ According to the Law on Communications, the telecommunications operator is a legal entity that has a right to operate in the telecommunications market and to provide technical services and operate a telecommunications network

²⁵ *Ukrtelekom* (<http://www.ukrtelecom.ua>) is the monopoly telecommunications operator controlled by the Ukrainian government (92.86 percent). Other stocks were distributed to a work collective in 2002. Ukrtelekom controls over 80 percent of the public network and serves over 9 million customers

²⁶ See <http://www.mobile-ukraine.com/archives/251>

The 2003 Law on Communications²⁷ offers the NCCR a variety of tools to ensure competitive neutrality with regard to building communications infrastructure. According to current legislation, all telecommunications operators have the right to build telecommunications networks in accordance with a Plan that has been approved by the Ministry of Transport and Communications (MTC).

The procedure for approving the Plan is the following:

- The telecommunications operator should develop a Plan for the building of the telecommunications network;
- The Plan should be sent to the MTC for review and approval;
- After the plan has been approved, the operator should ask the owner of the cable man-hole (Ukrtelecom or the local government) to approve the construction.

The procedure applies equally to all communications companies regardless of size. However, as the requirements are somewhat complex, there is a risk that only larger companies, with the resources to tackle these requirements, are in a position to build telecommunications networks cost effectively.

Once the procedure for approving the Plan has been completed, the telecommunications operator needs to secure building permission. The procedure for obtaining permission to build a network is set out in Article 10 of the Law on Telecommunications, and includes:

- Having the relevant communications licence;
- Obtaining permission for land use;
- Obtaining permission from the local authority to build the network (based on the decisions approved by the local communications, architecture, and health authorities).

Often, rather than rolling out their own networks, telecommunications operators and providers use the networks built by local community companies, particularly TV providers, which also provide low cost Internet services.

3.4 Tariff Policy

Article 67 of the 2003 Law on Communication sets clear rules regarding the cost orientation of services, meaning that the legal basis for bringing about a competitive market in the local call and international markets is in place. The Law states that:

“Tariff regulation on the telecommunication market of Ukraine shall be based on the following principles:

- *Tariffs shall be based on the cost of these services and considering the profit earned;*

²⁷ A translation of which can be downloaded from http://gipi.internews.ua/eng/GIPI_activity/Telecom/Law%20on%20Telecommunications_eng.doc

- *Tariffs shall depend on the quality of telecommunication[s] services;*
- *Telecommunication[s] operators/providers shall not set dumping or discriminatory prices;*
- *Cross funding of one telecommunication service [to the benefit] of another shall be avoided.”*

NCCR has drafted extensive rebalancing measures, with a 70 percent reduction in the cost of international calls and an increase in local rates. Line rental is set to increase by between 200 and 300 percent (up to 18UAH/3 Euro to 28UAH/4.5 Euro). International tariffs are being reduced by between 17 and 69 percent, while national long-distance calls are being reduced by between 13 and 17 percent.²⁸

Despite these price adjustments, tariff rebalancing *per se* has not been implemented in Ukraine. The incumbent telecommunications operator (Ukrtelecom) fulfils its universal service obligations through its low fixed prices (prices for local and regional calls are below cost for Ukrtelecom subscribers) and the development of its fixed network to cover the entire territory of the country. The profit from international calls covers losses from local and regional calls and ensures the company's viability.

Mobile operators' prices are not regulated, as the market is deemed to be competitive.

3.5 Cost Accounting

In the absence of liberalisation and requirements for cost-based access to the monopoly provider's network, there is little need for an efficient cost accounting system at present, as Ukrtelecom calculates all costs.

However, as mentioned above, the 2003 Law on Communications does require services to be based on cost orientation in order to ensure the possibility of fair competition in the market. Therefore, the NCCR will need to develop some form of consistent methodology to ensure that this aspect of the law is respected. However, nothing has yet been published at the time of writing.

3.6 Universal Service

By “universal” services the Law on Communications understands “a minimum set of services of standardised quality determined by the Law, accessible by all the consumers on the whole territory of Ukraine” (Article 1). The exhaustive list of the universal services in Ukraine comprises: “landline telephone (local, long-distance and international) communication services, (except for services provided using wireless access facilities), including emergency call services, information services, communications that use payphones and trunk-call offices, facsimile and telegraph communication” (Article 62).

²⁸ See <http://www.ura-inform.com/ru/economics/2006/04/27/Ukrtelekom> for more information

According to the Law on Communications, specific services should be available for all consumers living on Ukrainian territory. These universal services include fixed telephone connection for local, long distance and international calls, emergency and directory services, payphone services, and facsimile and telegraph services.

The approach with regard to universal service is based on the Concept for a Universal Services Fund, which is outlined in the draft Report (No. 8448 of 14 November 2005) of the Parliament on the Approval of the Recommendations of the Parliament Hearings on Information Society Development in Ukraine held on 21 September 2005 and the Concept on Telecommunications Development. According to the Law on Telecommunications (Article 64), the development of universal services should be outlined in the Concept on Telecommunications Development, subject to approval by the Cabinet of Ministers. The latest version of the draft Concept on Telecommunications Development, dated 1 August 2005, was prepared by the Ukrainian Research and Scientific Institute of Communications and submitted to the Cabinet of Ministers. The approval process was disrupted by preparations for Parliamentary elections in Spring 2006.

Universal service is based on tariffs fixed by the Government. While the legal basis for universal service is clear, the implementation of this legislation has not been prioritised to date. A universal service fund has not yet been established and the methodology for funding any such initiative has not yet been developed. It is worth noting that mobile operators are already subject to a levy on their income to contribute to the national pension fund.

The Ukrainian authorities are addressing universal service in a pragmatic way, not dissimilar to the approach taken in Russian legislation. They are taking measures to ensure at least communal access to communications networks, providing a basic level of access to citizens before building up to more comprehensive universal service measures. Pilot projects have been launched, the experience from which should form the basis of future work in this area.

In addition, plans were announced to provide low-cost access to the Internet in the major cities of Ukraine using WiMAX technology. Three national and two regional 5.74Ghz-5.67Ghz licences are in the process of being auctioned.

Directory services and access to emergency services (fire, police and ambulance) are only available for fixed network users. Mobile networks are not connected to emergency call centres. Universal services for disadvantaged users are not yet included in Ukrainian law.

The right to receive an invoice for telephony services was introduced by the 2003 Law on Communications.

Tariffs for universal services are to be regulated by means of introducing either maximum or fixed rates (according to Article 66(2)(1) of the Law on Telecommunications). Under legislation in force since 1 January 2005, the NCCR has had the right to impose the obligation on companies with nationwide monopoly status, and on companies looking to develop services to consumers in regions needing universal service support, to develop and provide universal services to consumers. The

mechanism for the compensation of losses incurred as a result of fulfilling this obligation is to be determined by the Cabinet of Ministers of Ukraine (Article 64(5)).²⁹

3.7 Local Loop Unbundling

At present, there appears to be little likelihood that local loop unbundling will be mandated by the Ukrainian central government, as there are other priorities which are considered more urgent.

3.8 Leased Lines

Official statistics regarding the use and availability of leased lines in Ukraine are not currently available, as these data are not collected from market players by state authorities.

Alternative telecommunications providers are dependent on leased lines as Ukrtelecom owns the majority of the infrastructure and many alternative providers do not have sufficient resources to build their own networks and consequently have to rely on Ukrtelecom's network. This is particularly true for the lower-cost end of the market.

Private operators usually develop their own networks for business customers and they are not generally interested in the less lucrative residential market because of the high cost of building communications channels. According to data from operators in Kyiv, installation costs can range from 420 Euro in areas with above average (by Ukrainian standards) infrastructure to 2,500 Euro in more underdeveloped regions. Individuals or smaller businesses obviously cannot pay for such services at these rates.

At present, only cable television distributors provide the opportunity for smaller entities to have a comparatively fast, always-on connection to the Internet. Such a connection costs approximately 25 US\$ (20.6 Euro) per month. This comparatively low price is due to the fact that this service can be provided with relatively low levels of additional investment by the cable ISPs.

Local experts report that, *"99 percent of providers rent [leased lines] from Ukrtelecom, and only some carry their own lines. However, a customer will feel the difference, if he/she tries the channels of different providers. Carrying capacity, external channel quality, the "last mile" (meaning quality of a cable laid to the customer), as well as technology for signal transmission in the cable and the equipment used all have an impact on the Internet quality. The qualifications of the provider's personnel also play a big role."*³⁰

²⁹ <http://www.law.kuleuven.ac.be/icri/publications/564Article%20in%20World%20Internet%20Law%20Report-April%202004.doc?where=&temp=e43ec399ff1327ebaf063b9d50bc4fd6>

³⁰ Herman Bohapov, "Internet Services Market – the First Step is Made", 12 December 2003
http://www.e-ukraine.org/e-ukraine/section2.jsp?item_id=127179&category_id=38352

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One supplier of services to mobile phone operators in Ukraine told the study team that difficulties (cost, in particular) of using leased lines in Ukraine have resulted in other options being sought, such as wireless backhaul services which, while expensive to install, are an attractive option when long-run costs are taken into account.

The following table illustrates the monthly rental for intercity connection (the link within each city is not included in these prices).³¹

Monthly Line Rental for Intercity Connectivity

Direction	64K, UAH/Euro	2Mb, UAH/Euro
Kyiv-Odessa	3,888 / 630.90	27,994 / 4,542.5
Kyiv -Lviv	3,888 / 630.90	27,994 / 4,542.5
Kyiv -Lugansk	5,599 / 908.54	40,311 / 6541
Kyiv -Mariupol	5,599/ 908.54	40,311 / 6541
Kyiv -Simferopol	5,599 / 908.54	40,311 / 6541
Kyiv -Yzhgorod	5,599 / 908.54	40,311 / 6541

Interconnection with the public switched network is subject to state regulation governed by the Order of the State Telecommunication Committee of 7 June 2002, No. 120. The price for the provision of a connecting line is 333.33 UAH (54.09 Euro) per month.

Prices for long distance and international calls of local operators made via Ukrtelecom lines are regulated by the Order of the Ministry of Communications of 21 November 1996, No. 234, on the basis of revenue sharing. This depends on the number of lines, equipment used, and administrative costs.

In Ukraine, DSL is used by Internet Service Providers as high speed leased lines. HDSL is the most widespread technology used for this purpose, reaching 2Mbps data exchange speeds in both directions.

A new company in the Ukrainian market, Datagroup, is building out a 1,800km fibre optic network, which it will use as the basis to provide wholesale services to other communications operators and ISPs, taking advantage of Ukrtelecom's problems in dealing with current demand. Eurotranstelecomm has also recently joined the wholesale market. This new level of competition has led to significant price reductions, by up to 90 percent in some cases (not reflected in the table above). Datagroup and Ukrtelecom deny suggestions that prices are now below cost.

³¹ <http://ipages.com.ua/articles/?id=42>

3.9 Mobile Services

There are two major mobile providers on the Ukrainian market, UMC³² (Ukrainian Mobile Connection) and Kyivstar.³³ In addition, there are three very small mobile providers (Golden Telecom,³⁴ Digital Cellular Communication of Ukraine³⁵ and Ukrainian Mobile Systems³⁶). There is one virtual mobile network operator Privat:Mobil (using UMC's network on GSM900), which was launched in 2005.

Russia's Vimpelcom announced on 11 November 2005 that it had bought the mobile operator Ukrainian Radiosystems (URS) for 231.3 US\$ million (191.16 million Euro). The subscriber base of URS amounted to 51,200 people at the end of 2005, or less than 1 percent of mobile users in Ukraine.³⁷ URS has a GSM900 licence that covers the entire territory of Ukraine, which has a population of approximately 47.8 million. URS also has a GSM 1800 licence that covers 23 of Ukraine's 27 administrative regions (excluding the city of Kyiv and the Kyiv, Dnipropetrovsk, and Odessa regions). Ukrainian radiosystems (URS) provides services in GSM-900 under the brand names WellCom and Moby.

The NCCR has decided to limit the number of licences available to new subscribers for the CDMA standard in the 800 waveband. There are four companies in Ukraine operating in the CDMA standard: ITC,³⁸ CST-invest,³⁹ Velton Telecom⁴⁰ and Intertelecom.⁴¹ All of these operators are working in CDMA-20001x and they offer, in addition to telephone services, a full range of digital telephone communication services and fast data transmission.⁴² According to the CDMA Association,⁴³ the total subscriber base for CDMA rose by 43 percent in the year to June 2005.⁴⁴

Mobile users of Astelit's network (marketed under the trademark "life:")⁴⁵ will have the opportunity to be the first in Ukraine to experience 3G services. An EDGE service offering connection speeds of 236kbps is already on the market. Such offerings will also help life:) to better understand user expectations for high-end services. For life:), EDGE is a transitional migration step to 3G.⁴⁶

According to life:)'s strategy, EDGE based services will be available in the largest cities, in areas of heavy data usage and in city centres. EDGE was made available in Kyiv, Odesa and Dnipropetrovs'k on 25 March 2005. life:) intends to continue its expansion of

³² <http://www.umc.ua/eng/splash.php>

³³ <http://www.kyivstar.net/site.php/en>

³⁴ <http://www.goldentele.com>

³⁵ <http://www.dcc-ua.com/>

³⁶ <http://www.wellcom.ua/>

³⁷ <http://www.mobilecomms-technology.com/projects/vimpelcom/> (last visited 6 December 2006)

³⁸ <http://www.cdmaua.net/english/index.shtml>

³⁹ <http://www.cst-invest.dp.ua/>

⁴⁰ <http://www.velton.ua/>

⁴¹ <http://www.intertelecom.ua/>

⁴² Telecommunication of Ukraine, N23, 2005

⁴³ <http://cdma.net.ua/>

⁴⁴ See Telegeography Commsupdate, "Ukrainian CDMA Operators Expand to New Regions", 3 January, 2006

⁴⁵ <http://www.life.com.ua>

⁴⁶ <http://www.mforum.ru/news/article/010931.htm> - last visited 20 January 2006

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EDGE coverage in Ukraine. UMC recently awarded a tender to the Kyiv company Priocom⁴⁷ to develop its IP/MPLS infrastructure to boost its capacities for GPRS, EDGE, advanced IP services and in preparation for the launch of 3G services.

A range of 2.5G and 2G data services are also available on the market. However, prices are somewhat prohibitive bearing in mind the income levels in the country (WAP per minute 0.30UAH or 0.04Euro; GPRS per megabyte 5UAH or 0.81Eur at peak times, and 1UAH (0.16 Euro) off peak).⁴⁸ No statistics regarding the take-up of such services are available.

As an indication of the extent of mobile coverage, Kyivstar claims a territorial coverage of 97 percent, with a population coverage of 98 percent.⁴⁹

Mobile phone penetration is growing at a precipitous rate in Ukraine, increasing from 42.48 percent (based on industry figures) at the end of 2004, to 64 percent⁵⁰ at the beginning of 2006, and rose to 84.9% by 30 September 2006.⁵¹

The standard methodology for calculating subscriber numbers in Ukraine is to count contract customers together with prepaid customers who have had at least one piece of incoming or outgoing traffic on their phone in the preceding three or six months (depending on the operator).

There are no published overall figures on the number of pre-paid customers. However, an indication can be garnered from the following: according to the third quarter 2005 financial report of Mobile Telesystems OSJC (owner of UMC), 89 percent of UMC's customers were on prepaid tariff plans.⁵² Moreover, a small increase in the proportion of prepaid subscribers was recorded in five consecutive quarters: from 82 percent in Q3 2004 to 88 percent in Q3 2005.⁵³

To illustrate the cost of mobile services in Ukraine, a customer of UMC⁵⁴ will pay 0.30UAH (0.05 Euro) for an SMS message, while a three-minute call to another mobile operator is 1.77 UAH (0.28 Euro).

Data regarding the level of SMS use by Ukrainian consumers is illustrated on the example of Kievstar mobile operator:

Index	1st Quarter 2005	2nd Quarter 2005	1st Quarter 2006	2nd Quarter 2006
Average number of SMS messages sent per month by mobile subscribers ⁵⁵	23	16	22	21

⁴⁷ <http://www.priocom.com/en/>

⁴⁸ Prices from <http://www.kyivstar.net> as at 10 October 2005

⁴⁹ <http://www.kyivstar.net/coverage/>

⁵⁰ <http://www.mcapital.com.ua/onenews.php?id=40223>, last visited 9 February 2006

⁵¹ <http://www.cellular-news.com/story/19810.php>

⁵² Financial Results for the Second Quarter Ended 30 June 2005

⁵³ MTSS, Third Quarter Financial and Operating Results, Management Presentation, November 23, 2005

⁵⁴ There is a wide range of contract offers available; this example is based on the standard package.

⁵⁵ <http://market.mabila.ua/news/2006/09/28/5200.html>

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Fixed line monthly rental (Ukrtelecom), is 17.02 UAH (2.76 Euro) in urban areas and 10.92 UAH (1.77 Euro) in rural areas; for metered local phone calls the price is 11.90 UAH (1.93 Euro) in urban areas and 9.55 UAH (1.54 Euro) in the rural areas. There is not usually any monthly fee for mobile services.⁵⁶

UMC on the 1st September 2006:⁵⁷

Tariffs	"SIM-SIM Minimum"	"UMC Minimum"
The cost of package, UAH.	25 UAH (4 Euro). (balance 10 UAH (1.62 Euro))	5 UAH (0.8 Euro))/ monthly
Calls to UMC, Sim-Sim, Jeans	0.50 UAH (0.08 Euro)	0.50 UAH (0.08 Euro)
Calls to other mobile operators within Ukraine		
Calls to fixed land lines within Ukraine		
Calls to UMC Family	0.10 UAH (0.02 Euro)	0.10 UAH (0.02 Euro)
Connection fee	0.27 UAH (0.04 Euro)	0.27 UAH (0.04 Euro)
SMS	0.30 UAH (0.05 Euro)	0.30 UAH (0.05 Euro)

Just as in the EU, where mobile operators are seeking to maximise falling or stagnant ARPU figures, there are indications that ARPU is beginning to level off in Ukraine, as can be seen in MTS's⁵⁸ figures⁵⁹ below:

	Q2 2006	Q1 2006	Q4 2005	Q3 2005	Q2 2005	Q1 2005
MTS	\$15.11/ 12.48 Euro	\$14.46/ 11.95 Euro	\$13.33/ 11.01 Euro	\$10.94/ 9.04 Euro	\$9.52/ 7.87 Euro	\$8.08 6.68 Euro

Pension Fund Levy

A levy of 7.5 percent on subscriber revenues is charged by the Ukrainian government to supplement the national pension fund. This was increased from 6 percent in August 2005.

Mobile Market Overview

Operator	Technology	Subscribers (in millions)	Ownership
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⁵⁶ http://www.ukrtelecom.ua/ua/tariff/additional/telephone/local_private/

⁵⁷ <http://market.mabila.ua/news/2006/09/28/5200.html> - tariffs in force until 31 December 2006

⁵⁸ MTSS, Third Quarter Financial and Operating Results, Management Presentation, November 23, 2005

⁵⁹ http://www.rustocks.com/put.phtml/mtss_2q2006_gaap.pdf

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<u>Kyivstar</u>	<u>GSM</u>	17.2	<u>Telenor</u> (56.52%), <u>Alfa Group</u> (43.48%)
<u>Ukrainian Mobile Communications</u>	<u>GSM, NMT</u>	15.9	<u>MTS</u> (100%)
<u>Astelit life:)</u>	<u>GSM</u>	4.7	<u>Turkcell</u> (54.2%), <u>SCM Holdings</u> (45.8%)
<u>WellCom</u>	<u>GSM</u>	0.78	<u>VimpelCom</u> (100%)
<u>DCC</u>	<u>TDMA</u>	0.07	<u>Turkcell</u> (54.2%), <u>SCM Holdings</u> (45.8%)
<u>Golden Telecom</u>	<u>GSM</u>	0.05	<u>Golden Telecom</u> (GLDN)
CDMA operators	<u>CDMA</u>	0.135	<u>ITC Ukraine</u> , <u>Velton</u> , etc.

In September 2006, Kyivstar accounted for 43.8 percent of the total mobile subscriber base, UMC accounted for 40.5 percent and Astelit and URS accounted for 12.7 percent and 2.3 percent respectively.

At the same date, Kyivstar and UMC accounted for 31.8 percent and 27.4 percent of the increase in Ukraine's total mobile subscriber base respectively, while Astelit accounted for 29.6 percent and URS for 9.9 percent.⁶⁰

In July 2006, UMC received a licence to provide communication services in the CDMA 450 standard. UMC will provide services including wireless virtual data transmission networks, remote access to corporate e-mail, high-speed Internet access, and multimedia services (video on demand). The company is planning to offer the services both to individuals and corporate subscribers.⁶¹ It already had a CDMA-450 non-voice licence. As the Russian CDMA operator Sky Link and the UMC parent company MTS are both affiliates of the Russian holding company AFK Sistema, there is speculation that UMC's CDMA activities are paving the way for an expansion of Sky Link's activities into the Ukrainian market. In addition, UMC was granted a licence for GSM-1800 services in eight Ukrainian regions by the NCCR, and was granted additional frequency resources in seven further regions up until December 2013. The new resources will be used from May of 2007.

Telesystem of Ukraine, an existing CDMA operator, is planning to launch a mobile CDMA2000 1x service before the end of 2006. According to the General Director of the company, the service will initially cover cities of more than one million inhabitants, before rolling out nationwide within two to three years. The company is the only one with a licence for mobile CDMA, giving it a strong advantage in the 3G marketplace.⁶²

⁶⁰ <http://www.cellular-news.com/story/19810.php>

⁶¹ http://umc.ua/eng/press_release.php?news_id=1320

⁶² <http://itware.com.ua/news/13450/>

As stated on page 21 above, Ukraine has not yet launched 3G/UMTS services and only one licence has been awarded (to the telecommunications incumbent Ukrtelecom). Ukrtelecom has announced plans to invest 700m US\$ (578 million Euro) in 3G/UMTS over the next 5 years, with network equipment being supplied by Nokia. Six vendors have made offers to the NCCR to build a trial 3G/UMTS network using the 2GHz range. The NCCR is expected to launch three further 3G/UMTS licences in early 2007.⁶³

Kyivstar Profits⁶⁴

	6 MONTHS 2006		6 MONTHS 2005	
Net profit (US\$/Euro) (thousands))	243,901 / 201571		10, 590 / 8,752	
ARPU US\$/Euro	Q1 2006	Q2 2006	Q1 2005	Q2 2005
total	\$ 7.9 / EUR 6.5	\$ 8.6 / EUR 7.11	\$ 8.9 / EUR 7.36	\$ 9.7 / EUR 8.02
Contract users	\$ 26.2 / EUR 21.7	\$ 28.7 / EUR 23.72	\$ 26.5 / EUR 21.9	\$ 29.4 / EUR 24.30
Pre-paid users	\$ 6.4 / EUR 5.29	\$ 7.1 / EUR 5.87	\$ 6.8 / EUR 5.62	\$ 7.6 / EUR 6.28

3.10 Satellite Services

There are a number of companies providing Internet access via satellite technologies in Ukraine. These include Ukrsat,⁶⁵ Infocom-SK,⁶⁶ Spacegate,⁶⁷ Adamant,⁶⁸ LuckyNet,⁶⁹ Ukrnet,⁷⁰ and Itelsat.⁷¹ Excluding Infocom-SK, these are all private operators (several of these companies are resellers). Ukrchastotnagliad, the Ukrainian frequencies supervisory centre, reports that 86 operators have licences to provide satellite communications services in Ukraine. Despite the large number of operators on the market, however, satellite telecommunications in Ukraine may be limited due to low-income levels. The Government is nevertheless deploying a digital satellite television and radio broadcasting system, which will also be used for Internet services.

Ukraine has joined the Inmarsat, Intelsat, Global Star, Thuraya and Orbcomm satellite networks.

Currently, there are five licences for direct satellite communications services.

In Ukraine, access to satellite communication is divided into reception and transmission of information. The reception of information by satellite is available to anyone, without

⁶³ http://www.umts-forum.org/servlet/dycon/ztumts/umts/Live/en/umts/News_PR_Article120706

⁶⁴ <http://market.mabila.ua/news/2006/09/28/5200.html>

⁶⁵ <http://www.ukrsat.net/>

⁶⁶ <http://www.ukrpack.net/>

⁶⁷ <http://www.spacegate.com.ua/>

⁶⁸ <http://www.adamant.net/>

⁶⁹ <http://www.lucky.net/>

⁷⁰ <http://www.gu.net/>

⁷¹ <http://www.itelsat.com.ua/>

the requirement for a licence or permission for use of radio frequency. The necessary receiving equipment is available to anyone willing to invest in it.

For the transmission of information (for example, the use of an Internet access service), it is necessary to have permission to use the frequency, which acts as a brake on the development of this market sector. Furthermore, satellite communications equipment is subject to certification, which takes around half a year to process by the authorities. This market is not considered promising for those providing services to the private or small business user, since data link bandwidth is limited and Internet Service Providers that use this method cannot compete in terms of price or speed.

The narrowness of the market is explained by the fact that full uplink and downlink services via satellite communications are comparatively expensive for the end user, because users have the option of purchasing Internet access services at significantly lower prices from cable operators. For this reason, satellite communications services are generally targeted at large corporate clients.

The Ukrainian Research and Academic Network (URAN)⁷² connects 90 universities and research institutions. The main operators of the network are the European Integration Centre Ltd and public enterprise, UARNet.⁷³ The network includes access points in 16 oblast (regional) centres and uses Ukrtelecom leased lines with data rates of 64kbits/s to 8Mbits/s.

3.11 Status of the National Regulatory Authority (NRA)

The National Committee for Communications Regulation (NCCR) was set up in April 2005 as the independent national communications regulatory authority of Ukraine. As it is not possible under the Ukrainian legal system to have an executive body that operates completely outside Government, the NCCR functions under the authority of the President of Ukraine, thereby, in principle, ensuring its independence from Government.

After some uncertainty regarding the sources of funding for the NCCR up until the end of 2005, a budget of 23.1 million UAH was allocated for regulatory activities for 2006, with a further 2.6 million UAH allocated specifically for the management of the reorganisation of spectrum (see the section on spectrum below). As the NCCR has not been in operation for very long, it is difficult to say with certainty whether it has, or will have, sufficient funds to carry out its assigned tasks.

The key tasks of the NCCR⁷⁴ are to:

- introduce proposals to governmental bodies regarding legislation, other normative legal acts and standards in the sphere of telecommunications;
- develop and approve Regulations and other normative legal acts within the limits of its authority and oversee their implementation;
- supervise the telecommunications market;

⁷² <http://uran.net.ua>

⁷³ <http://www.uar.net/>

⁷⁴ This list is a translation of parts of Article 18 of the Law on Telecommunications.

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- issue licences and registrations in the scope of telecommunications services;
- distribute, assign and keep records of number resources, issue and cancel permits to use numbering resources, and manage the use of number resources;
- oversee the quality of telecommunications services and satisfy users' demands;
- regulate telecommunications tariffs and settle disputes among telecommunications operators, as appropriate;
- issue permits to telecommunications operators and providers to set specific tariffs for disabled and socially disadvantaged persons for public telecommunications services;
- support the legal provision of public telecommunications services;
- obtain statistical reports from telecommunications providers and operators as established by legislation;
- obtain documents, statistics and other data, as established by legislation, from central and local executive Governments, the executive Government of the Autonomous Republic of Crimea, and local Governments;
- adopt decisions within the limits of its authority, which must be adhered to by providers/users of the telecommunications market;
- apply administrative penalties to providers/users of a telecommunications market in a manner described by legislation;
- submit materials to the Anti-Monopoly Committee of Ukraine in cases of violation of the legislation on the protection of competition;
- take legal action following complaints regarding violations of telecommunications legislation by business entities who operate in the telecommunications sector;
- regulate the interaction of operators when telecommunications networks interconnect;
- create favourable organisational and business conditions for attracting investment in telecommunications;
- ensure equal terms and conditions for all market players;
- ensure dispute settlement among telecommunications operators and providers with interconnected telecommunications networks;
- keep a register of telecommunications operators and providers;
- cooperate with corresponding regulatory bodies in other countries;
- publish an official bulletin, which includes normative legal acts, news and other information; and
- fulfil other responsibilities, envisaged by the Law on Communications, other laws, and normative-legal acts.

There does not appear to be any overlap between the administration of telecommunications by the Government and that of the NCCR. Again, it is difficult to tell at this early stage if there will be any practical issues regarding the division of labour between the Ministry and the NCCR, or the speed with which they will be addressed should they arise.

The study team is not aware of any staff from the telecommunications incumbent being seconded to work for the NCCR, although (somewhat inevitably and not necessarily causing a problem for the independence of the commission) there are former incumbent staff working at the top levels of the NCCR.

Until the NCCR has been in operation for more time and has dealt with significant consultations or disputes, it is difficult and possibly misleading to speculate on its likely effectiveness.

3.11.1 Cable Regulation

Despite the extensive powers of the NCCR, the regulation of cable communications has not been put squarely and unequivocally into its remit.

Ukraine has an extensive cable television network (when compared with other CIS countries). However, the further development of cable television has been hampered by a lack of relevant legislation, meaning licensing and overall management of the industry is very complex. Based on current legislation, the Ukrainian cable television industry is administered by several government entities. The division of authority and responsibilities is a nebulous issue not only for foreign investors but also for industry specialists. There are at least four government agencies that exercise direct control over the industry:

- The Department for Communications of the Ministry of Transportation (the former State Committee for Communications);
- The National Council for Television and Radio Broadcasting;
- The Ukrainian Centre for Control of Radio Spectrum;
- The National Commission for Communication Regulation;

Ambiguous and outdated legislation leads to confusion and conflict; for instance, cable television services are currently licensed by the National Council for Television and Radio Broadcasting, although the latest legislation delegates this authority to the NCCR. However, because the NCCR has not yet taken over all of its responsibilities, its functions are supposed to be performed by the Department for Communications of the Ministry of Transportation. Numerous court hearings, decisions and counter decisions do not make the situation better.

Moreover, the Antimonopoly Committee of Ukraine views cable television operators as natural monopolists, and delegates regulatory authority over their industry tariffs to local administrations. Average monthly tariffs established by city authorities vary from 0.85 Euro to 5 Euro. Based on the above user fees, cable television companies say that they cannot afford to produce their own programming as well as pay television companies for the programmes they distribute. Operators can also offer individual packages that could include more channels or other value-added services (Internet, security, etc.). In these cases the fee is not limited.

3.12 Licensing and Authorisation

The procedure for the licensing of telecommunications services is regulated by the 2003 Law On Telecommunications, as well as by additional guidelines issued by the NCCR. The Law specifies that local, inter-city and international telecommunications services, as well as mobile telephone communications and television and radio broadcasting, must be licensed. Under the Law On Telecommunications, the basic principles for the licensing of telecommunications service provision are as follows: creating open market conditions; acting in the best interests of society and service providers; equal access; efficient use of resources; promotion of new technologies; and the attraction of

investment. The NCCR is responsible for establishing the terms and conditions of licences and ensuring compliance.

Licensing for fixed telephone communications costs as follows:

- International (covering the whole territory) – 1,700,000US\$ (1,404,958 Euro)
- Intercity - 68,000US\$ (56,200 Euro)
- Domestic:
 - With network capacity of up to one thousand telephone numbers – 320 US\$ (264 Euro)
 - With network capacity of up to ten thousand telephone numbers – 1,600 US\$ (1,322 Euro)
 - With network capacity above ten thousand telephone numbers – 9,600 US\$ (7,934 Euro)
 - With use of wireless access – 19,600 US\$ (16,198 Euro)
 - With use of wireless access based on DECT technology -1,000 US\$ (826 Euro)
 - In rural areas – 730 US\$ (603 Euro)
 - Audio-text – 700 US\$ (579 Euro)

A licence for mobile telephone service provision varies in accordance with the frequency involved and the size of the region in question. Prices range from 170,000 UAH (27,500 Euro) for the cheapest region in the 300-470 MHz band to 340,000 UAH (55,171 Euro) for Kyiv in the 1.7-2.2GHz band.

On 16 May 2001 the Ukrainian Government introduced licensing of VoIP with 15-year operational licenses at a cost of up to 899,300 UAH (146,000 Euro).

The term of the licence (except for VoIP, which is as described above) is determined by the NCCR and cannot be less than five years. For each type of telecommunications service, the NCCR is obliged to issue special instructions on the technical and bureaucratic parameters the enterprise should respect and what documents would be needed to confirm that the parameters have been met.

The CDMA operators have asked the NCCR to issue them with a licence for national roaming. Victor Frolov, the director of the executive committee of the CDMA Association of Ukraine, says that CDMA is available in 11 regions of Ukraine and the operators are ready to work together.

When compared with the previous situation, the 2003 legislation on licensing has greatly improved certainty for operators, as it is now impossible for the NCCR not to respond (actively or passively) within the time period specified in the law (one month) to licence applications. This replaces the system where businesses had to wait indefinite periods to get responses from official bodies.

In April 2006, the NCCR decided not to grant further GSM-900 and GSM-1800 licences, meaning that Golden Telecom will not be able to operate in the Kharkov, Lvov and Dnipropetrovs'k regions, although Astelit, Kyivstar and UMC do have licences to provide services there. A range of licences were awarded to URS, Kyivstar, Astelit and UMC for GSM-1800 services in a number of regions.

Market players in the telecoms sectors are divided by the Law on Communications into “operators” and “providers”. Under Article 1 of the Law, “providers” do not have the right to maintain or operate networks. Operators are divided into mobile operators, fixed operators and fixed wireless operators. Mobile operators need to obtain a licence for the activity of provision of phone services and for the frequencies they use, fixed operators must have a licence for local, national and international services and fixed wireless providers need the same licences as fixed operators as well as a frequency licence.

The legal status of VoIP providers has so far been neglected. Within the context of the current definitions, they could be judged to be “operators” and therefore be liable to the same licensing procedures as the categories of operators listed above. This obviously creates a degree of uncertainty in the market.⁷⁵

3.13 Spectrum

Radio spectrum is managed in Ukraine by the Ukrainian State Centre for Radio Frequencies (also referred to as “Ukrchastotnaglyad”),⁷⁶ under the authority of the State Committee on Communications and Information. The overall management of spectrum in Ukraine is in a state of flux, however. In due course, a body called the State Telecommunications Inspection (STI) will be established, under the supervision of the NCCR, to oversee spectrum management. Until this happens, the State Centre for Radio Frequencies will continue in its present role.

Radio spectrum is managed in line with the Radio Regulation annexes to the Convention of the International Telecommunication Union, which was ratified by the Ukrainian Parliament in 1994, as well as through some national regulations such as the Radio Frequency Resource Act of 2000.

Frequencies are licensed in compliance with the 7 February 2001 Cabinet of Ministers resolution number 112 on the Procedure for Issuing Licences for the Use of Frequency Resources in Ukraine.

According to Article 20 of the 2004 Law On Radio Frequency Resources of Ukraine, the National Frequency Distribution Table (NFDТ) governs the distribution of radio frequency for general (regular) and special usage.

The list of special subscribers of radio frequency resources in Ukraine consist of:

- Departments and organisations in the Ministry of Internal Affairs;
- The Ministry for Emergency Situations and the Chernobyl disaster;
- The State Administration for Border Control;
- The Administration for State Security;
- The State Department for Corrections; and
- The Ministry of Transport of Ukraine, for the use of radio electronics by joint civilian and military management systems for flight traffic and flight support.

⁷⁵ <http://www.law.kuleuven.ac.be/icri/publications/564Article%20in%20World%20Internet%20Law%20Report-April%202004.doc?where=&temp=e43ec399ff1327ebaf063b9d50bc4fd6>

⁷⁶ <http://www.ucrf.gov.ua/en/>

Non-state subscribers of radio frequency resources in Ukraine are divided into the following groups:

- Commercial entities that are using radio frequency resources in order to provide telecommunications services, except for the purpose of television broadcasting;
- Commercial entities which are broadcasting television programmes by using their own or rented radio electronics means; and
- Technology and amateur radio users (private individuals and registered businesses, which are using Ukrainian radio frequency resources without providing telecommunications services).

The NFDT currently in force, which was adopted by the Cabinet of Ministers on 12 October 1995 (order no. 803), distributes frequency as follows:

- 0.4 percent - for civil usage;
- 27 percent - for military usage;
- 72.6 percent - for joint military and civil usage (in practice – for military usage).

According to the Ministry of Transportation and Telecommunications' press-release of 22 November 2005,⁷⁷ the Cabinet of Ministers approved the decision for the usage of 76 percent of previously military radio spectrum for the provision of 3G services by civil operators. Additional 3G licences will be sold by the NCCR to private operators on a competitive basis, although these may not be issued for some time.

Currently there are commercial Wi-Fi networks that provide services to the public. Technologies using standards IEEE 802.11a and IEEE802.11b are being used in Ukraine, according to the licences issued by the State Communications Committee of Ukraine, and permissions are granted by the "Ukrchastotnagliad" (Ukrainian Frequencies Supervisory Body). Equipment needs to be certified in compliance with Ukrainian legislation. Each piece of equipment is subject to technical evaluation, in accordance with the 5 October 2000 Order 154 of the State Communications Committee. Ukraine is not planning allow use low-power devices for Wi-Fi technologies without licences and corresponding permits.

Ukraine has not allocated and is not planning to allocate radio frequencies for the unlicensed use of Wi-Fi or similar technologies. Today Wi-Fi networks, operating in the 2400-2483,5 MHz frequency, are used in Ukraine to provide the public with wireless access to the Internet. More than 200 Wi-Fi licenses have been issued in recent years and all oblast regions have now exhausted their resources in the 2400-2483.5 range.

The 3400-3700 MHz frequency range is used by Ukrtelecom and RRT Consortium for radio relay.

⁷⁷ http://www.mintrans.gov.ua/mintrans/control/uk/publish/article?art_id=44028

4 REGULATORY ENVIRONMENT FOR ONLINE SERVICES

4.1 Digital Signatures

Electronic signatures in Ukraine are governed by the Law on the Electronic Digital Signature and the Law on the Electronic Document (both from 2003). However, up until mid-2005, these laws proved generally ineffective due, inter alia, to the fact that the certification of e-signature verification centres, which is required by these laws, was so complex that it was impossible for businesses to be accredited. In addition, the certification of such centres was delegated to the Security Service of Ukraine (SBU).

On 1 July 2005, the central National Electronic Digital Signature certification body was established. Ukraine is the first among the countries of the CIS to introduce a central certification body. This carries out accreditation of key certification centres. Commercial and State certification centres can now provide electronic digital signature services for citizens, the state, private establishments and enterprises. Within the first six months of the new body coming into operation, ten centres had applied to be accredited, with the Ukrainian National Information Centre being the first body to be officially accredited.

It is hoped that electronic digital signatures will allow citizens to save time when dealing with state authorities, and allow the state authorities to provide services more efficiently. E-signatures from government bodies are offered as an option for signing official documents: citizens can choose whether to receive a digital signature with the help of the Internet or to use traditional signatures. The roll-out of digital signatures by state authorities is still at a very early stage.

4.2 Payment Systems

Electronic commerce is still undeveloped in Ukraine, partly due to the lack of adequate electronic payment systems.

However, the population does show signs of moving away from a cash-dominated society. At the beginning of 2006, the number of credit cards issued totalled 12,196,527 Mastercard credit cards and 18,243,259 Visa credit cards.⁷⁸ The annual turnover on Visa cards was \$10,8 bn (8.9 bn Euro), twice as much as in 2005.⁷⁹

Maestro card payments in Ukraine also show significant growth. The number of Maestro cards in circulation reached 8.15 million at the end of June 2005, representing a 53.2 percent growth over 2004. Debit cards using the Maestro payment system are now accepted in over 40 thousand shops.⁸⁰

⁷⁸ <http://proit.com.ua/telecom/2006/07/17/182333.html>

⁷⁹ <http://proit.com.ua/telecom/2006/07/12/124331.html>

⁸⁰ ProUA, 16 September 2005 - <http://it.proua.com/itnews/2005/09/16/111718.html>

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Despite this recent growth in electronic payment systems in Ukraine, innovative online payment systems, such as those which have been developed in Armenia, have not yet been developed or adopted in Ukraine.

Nevertheless, according to the Cabinet of Ministers Report on the implementation of the National Programme for Informatisation, 18 million dollars (14.9 million Euro) worth of goods were sold via the Internet in Ukraine in 2004. The purchase of computers and computer parts/consumables accounted for over half this figure.

5 USE OF ELECTRONIC COMMUNICATIONS SERVICES

There was an increase of 21.4% in communications services revenue between January and September 2006 – a total of 24.1 billion UAH (3.9 billion Euro). Over half of the revenue came from mobile services, with half of the remainder coming from fixed long distance and local phone services. Investment reached 5.4 billion UAH (0.88 billion Euro), an increase of 23%.⁸¹

Demand for new computers was estimated at just under 1m in 2004, a five-fold increase from 2001. High customs duties partly explain the fact that nine out of every ten computers sold in Ukraine are domestically assembled.⁸²

Ukraine does not have a coherent, comprehensive Government system of statistical monitoring for the various branches of the ICT industry, which would allow accurate evaluation of the current situation with regard to ICT development and the level of its use in society. This leads to vastly diverging figures on ICT usage. To give one example, Government statistics show that the number of computers assembled in Ukraine is 55,000 units per year, while manufacturers maintain the number is closer to 500,000, with some estimates considerably higher than this.⁸³

According to Ukrstat (State Committee on Statistics), revenue from the telecommunications market constituted 6.8 percent of GDP in the first 9 months of 2005.

In September 2005, the State Department for Telecommunications made 2004 data available to Parliament regarding the growth of communication services in Ukraine. According to these data, compared with 2003, access to mobile services had increased by 55 percent in 2004, fixed telephony by 10 percent and computer use by 33.6 percent.

5.1 Fixed Telephony Penetration

According to Ukrstat, fixed line penetration reached 23.2 percent⁸⁴ in 2005 and increased to 24.3 percent in October 2006.⁸⁵ Ukrtelecom continues to dominate the Ukrainian market place, currently connecting about nine million subscribers to its network.⁸⁶ Ukrtelecom has been working extensively with Cisco to upgrade IP services on its network, including for VoIP functionality, and is developing a next generation network.⁸⁷

⁸¹ <http://www.cellular-news.com/story/19707.php>

⁸² http://globaltechforum.eiu.com/index.asp?layout=rich_story&channelid=4&categoryid=29&title=E-readiness%3A+Ukraine&doc_id=9245

⁸³ This information comes from the US Commercial Service Report "Doing Business In Ukraine: A Country Commercial Guide for U.S. Companies" of 2 August 2005

⁸⁴ Based on population and fixed telephone line data from Ukrstat. Both sets of data were published in October 2005.

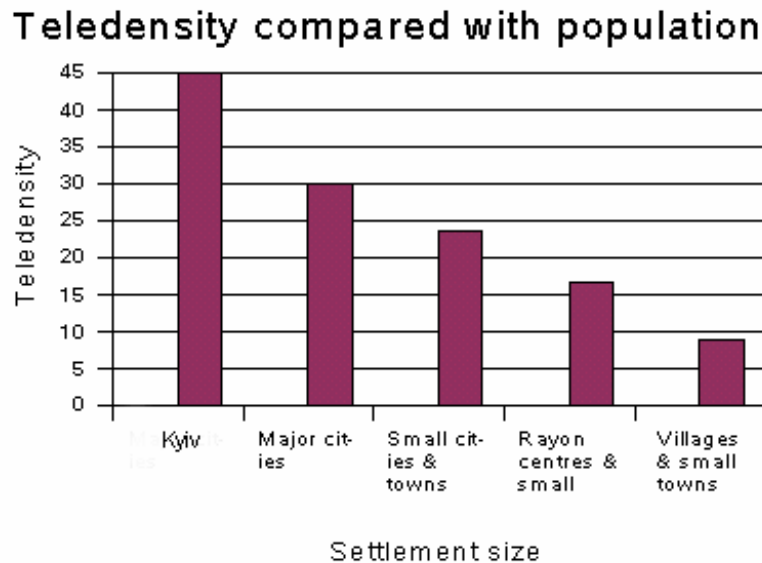
⁸⁵ Based on population and fixed telephone line data from Ukrstat, both dated October 2006

⁸⁶ <http://ukrtelecom.ua/en/about/general/today>.

⁸⁷ http://newsroom.cisco.com/dlls/2005/prod_032305d.html

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Fixed line telephone density was 24.3 percent as of 1 January 2006. However, this figure conceals a large urban/rural digital divide. Teledensities range from 45 percent in Kyiv to 9 percent in villages and small towns, and even less in more remote regions.⁸⁸



5.2 Mobile Usage

Statistics from official sources indicate that there are 30 million mobile users, which indicates an average penetration rate of approximately 64 percent.⁸⁹

5.3 Cable Services

According to data provided by the Cable TV Union of Ukraine,⁹⁰ there are approximately 300 cable operators providing services to approximately 12 percent of Ukrainian households. Only 10 percent of these have access to broadband services and only half of these actually avail of it. Annual growth is, according to this data, only 3 percent. However, against this lacklustre background, cable provider Volia is already offering advanced “triple play” services (television, Internet and telephony), with a subscriber base of over 735,000.⁹¹

⁸⁸ The graph below was created using data from V. A. Balashov, S. V. Zyablov and A. V. Nesterenko's Report “Ensuring General Access to Information Communication Services and Technologies in the Rural Areas of Ukraine” which was presented at the NTCA Conference, Kyiv 2004.

⁸⁹ <http://www.mcapital.com.ua/onenews.php?id=40223>, last visited 9 February 2006

⁹⁰ Reported by Broadband TV news <http://www.central.broadbandtvnews.com/>.

⁹¹ Ruben Beliaev, “Cable Networks in Ukraine”, 17 May 2005. Available at http://www.bisnis.doc.gov/bisnis/bisdoc/0506_ISACABLETV_UKRAINE.htm

According to industry specialists consulted in the research for this report, the estimated number of cable television customers varies from 2 million to 2.6 million households or approximately 7.5 million citizens. The total number of households in Ukraine is 17.7 million. Total coverage of the potential market of cable television customers in Ukraine is assessed at 25 percent. Every town with 50,000 or more citizens has a cable television network. The reach of existing cable television networks continues to grow at 5,000 households per month. However, this growth rate is far below growth rates recorded in 1997-1999 (10,000-15,000 households per month).⁹²

5.4 Computer Availability

Given that the average gross monthly wage was about 182 Euro⁹³ in December 2005 and the cost of a PC is about 420 Euro, PCs and licensed software are affordable for only a small minority of citizens. However, the cost of PCs does not appear to inhibit businesses from using computers for their operations. 48.2 percent of all PCs were owned by private enterprises with 38.9 percent used by government offices, according to information provided to the Ukrainian Parliament by the State Department on Telecommunications in September 2005.

5.5 Internet Access

Internet usage is growing, albeit from a low base, and is hindered by the comparatively high cost of dial-up access and limited PC ownership. The Economist Intelligence Unit⁹⁴ has suggested that, while Internet usage is normally assessed at about 8% in Ukraine, the most recent research available suggests that this figure may be significantly higher. Internetworldstats.com puts the figure at 11.4%. Official statistics for August 2006 put the number of Ukrainians who accessed the Internet in the course of the previous month at 10.9%.⁹⁵

The most used search engines are google.com (37,85 percent) and yandex.ru (32,0 percent).⁹⁶

According to Bigmir.net research in 2006,⁹⁷ half of Ukrainian Internet users from Kyiv, with inhabitants of the other main cities accounting for over half of the remainder. Users from other large Ukrainian cities with a population of one million or more (Dnepropetrovsk, Odessa, Kharkov, L'vov, Donetsk, Zaporozh'ye) represent 32.16 percent of Ukrainian Internet usage (not including Kyiv). Users in the remaining regions

⁹² "Byznes" No. 30, 2004 – <http://www.business.kiev.ua>

⁹³ http://www.ukrstat.gov.ua/operativ/operativ2005/gdn/Zarp_prom_m/Zp_pr_m_e/promm05_e.htm

⁹⁴ Economist Intelligence Unit, E-Readiness Ukraine, August, 2006

⁹⁵ <http://www.jankoy.org/ua/page-924.html>. See also <http://www.multilingual-search.com/ukraine-has-3-million-internet-users-with-google-leading/14/04/2006/en/>

⁹⁶ <http://www.jankoy.org/ua/page-924.html>

⁹⁷ A comprehensive report, in Russian, can be downloaded from the following URL:

http://i.bigmir.net/index/UAnet_global_report_032006.pdf

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of Ukraine equal 14.21 percent of Internet visitors. The region with the lowest level of Internet use, at 0.21 percent, is the Rivnenskaya region.

Users in Kyiv also generate a significantly higher amount of traffic in terms of page views. Most of the top 10 websites in Ukraine are search engines (Google, Yandex and Meta being the top three, the rest being traffic measurement sites). Top searches are focussed on academic and leisure activities.

The number of hosts in Ukraine is now more than 94,000.

Regarding Internet usage, according to research conducted by Volia cable company, most Ukrainians use the Internet for business purposes.⁹⁸ Volia's research showed that:

- 87.6 percent of respondents consider Internet usage for business purposes as justified from a commercial point of view;
- 48.9 percent of enterprises have already been connected to the Internet for one or two years, 34.6 percent for more than three years, and 15.4 percent for less than a year;
- 62.2 percent of enterprises are currently working online using dial-up and only 32.4 percent use always-on connections. 54.3 percent use their sole phone line for dial-up Internet access.

Ukrtelecom has recently taken concrete steps to encourage the mass take-up of broadband services. In March 2005, there were only 10,000 DSL lines in Ukraine.⁹⁹ At that time, DSLAMs had been installed in 450 locations in Ukraine, and work was underway with Cisco to provide capacity to permit a 1000 percent increase in DSL subscribers by the second half of 2006.

Dial-up Access Charges (Adamant¹⁰⁰ – November 2006) using internet card INET

Service package	Time	Cost per hour UAH/Euro
"By hour +Callback" (with per second billing))	03:00 - 08:00	Free of charge
	08:00 -03:00	0,80 UAH/hour
"By hour" (with per second billing)	03:00 - 08:00	Free of charge
	08:00-03:00	0,80 UAH/hour
"INET-24 hours + Callback"	0:00-24:00	10 UAH per day (1.60 Euro)
"INET-24 hours"	0:00-24:00	5 UAH per day (0.80 Euro)
"Evening"	20:00-0:00	2,66 UAH/evening (0.43 Euro)
"Night"	0:00-8:00	2,66 UAH/night (0.43 Euro)

⁹⁸ This information can be accessed at <http://www.voliam.com/>.

⁹⁹ http://www.lightreading.com/document.asp?doc_id=70732

¹⁰⁰ <http://www.adamant.ua/>

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"Weekend"	0:00-24:00	2,66 UAH per weekend (0.43 Euro)
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The following, as an example, is the price list for cable broadband via Volia¹⁰¹ cable:

Cable broadband access charges (Volia cable) (November 2006)
"Universe" tariff plans with combined traffic accounting

Monthly Subscription Fee including VAT, UAH	Amount of mixed traffic included in Monthly Subscription Fee, MB	The cost of 1 MB of mixed traffic including VAT, UAH
20 UAH / 4.06 Euro	200	0.10 UAH 0.016 Euro
50 UAH / 8.11 Euro	1,000	0.05 UAH / 0.008 Euro
100 UAH / 24.33 Euro)	5,000	0.02 UAH / 0.003 Euro

Research published in March 2006 gives a good overview of how users access the Internet in Ukraine.¹⁰²

	Audience	The average time of use
At home	68.88%	2:29:10
At work	54.60%	3:36:33
At school/university	11.24%	1:29:16
Internet café	15.01%	2:16:31
At friends/ relatives	10.22%	1:54:42
Other place	5.33%	2:14:59

It should be noted, however, that this is not a nationwide picture. According to korrespondent.net (amongst others), about half of Internet users are based in Kyiv, with the next four biggest cities accounting for a further 32.16 percent.

5.6 Public Internet Access Points (PIAPs)

Various efforts have been made to boost Internet access via PIAPs. For example, the US Embassy gave grants of over 1.4 million US\$ (1.17 million Euro) to libraries for this purpose in the period from 2001-2004. Also, the UN Development Programme and the German International Migration and Development Centre¹⁰³ have joined forces with local organisations to develop training and support for the creation of PIAPs in Ukrainian schools, the intention being to boost both IT in education and improve the level of Internet access in schools. Pilot projects have also been launched in an effort to improve universal service provision in remote areas.

There are over 3,000 computer clubs and cafes in Ukraine (equating to one for every 16,000 people in Ukraine).¹⁰⁴

¹⁰¹ http://www.volia.com/internet/price_home_eng

¹⁰² Published at <http://www.novyny.org.ua/>

¹⁰³ <http://www.cimonline.de/en/index.asp>

¹⁰⁴ <http://www.uacc.org.ua/en>

5.7 Wireless Internet Access

Wireless Internet access is developing slowly in Ukraine, partly due to the fact that Wi-Fi is licensed spectrum. Ukrtelecom is planning to launch Wi-Fi services in the larger towns and cities in Ukraine, while other ISPs are beginning to launch WiMAX services. Luckynet,¹⁰⁵ provides a range of high-speed wireless broadband access services.

A Wireless Internet Association¹⁰⁶ was established in order to deal with a wide variety of perceived problems with launching wireless services in Ukraine including conflict resolution, legal framework, illegal content, and harmonization of standards and norms.

According to feedback from the Ukrainian Mission to the EU, the Ukrainian Government is keen to support the roll-out of WiMAX services, in order to ensure low-cost Internet access for as many citizens as possible.

A new plan for the management of spectrum was adopted in April 2006, detailing the management of resources for Wi-Fi, WiMAX, 3G and other relevant technologies. Services are being launched by a joint venture of Networks by Wireless¹⁰⁷ (UK) and PAN Telecom¹⁰⁸ (Ukraine)/PAN Wireless.

On 9 October 2006, Kyivstar began offering Wi-Fi services¹⁰⁹ to its customers via smartphone, laptop or pocket PC. UMC has also shown interest in providing Wi-Fi services.

The maximum data transfer rate is 54 kb/sec. The consumer sends a premium rate SMS, either for a "sample access", allowing just one Mb of download capacity, or full access, which is sold in increments of 5Mb.

Number for SMS-sending (with any text)	Cost of SMS, per message (including VAT), UAH	Traffic volume, Mb
For test access	0,33 (0.05 Euro)	1
For usual access and balance recharge	7,50 (1.21 Euro)	5

Ukraine is one of the few countries prohibiting or prohibitively taxing IP telephony, Wi-Fi, and WiMAX networks, both public and private. The restrictions on advanced communications technologies in Ukraine are very unusual. The provision of advanced communications services in Ukraine is difficult. Providers of VoIP have to engage in a complex and costly process of obtaining a licence, as do Wi-Fi providers.¹¹⁰ Some

¹⁰⁵ <http://www.lucky.net/eng/main/news.shtml>

¹⁰⁶ <http://www.wirelessua.com>

¹⁰⁷ <http://www.nbw.net/>

¹⁰⁸ http://www.pantele.com.ua/eng_index.html

¹⁰⁹ http://www.kyivstar.com.ua/en/press_center/news/common/?id=1118

¹¹⁰ <http://www.newproject.org/news/2006/8/8/providers-on-the-run-in-ukraine-as-sbu-battles-low-cost-telephony.html>

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analysts argue that these laws emanate from Ukrtelecom lobbying to curb or eliminate competition in the ISP and voice telephony markets.¹¹¹

Wireless local loop (WLL) operator Telesystems of Ukraine is planning to invest around 180 US\$ million (149 million Euro) to roll out CDMA2000 1xEV-DO technology in the next three years. Telesystems already offers WLL connections using EV-DO on a trial basis in Kiev, following a rollout in partnership with Chinese equipment provider Huawei Technologies. It has signed contracts with LG, Pantech, ZTE for the construction of a nationwide network, with the aim of launching commercial services in Kiev, Odessa and Dnepropetrovsk in the near future.

The NCCR is in the process of auctioning five licences for WiMAX broadband services, following interest by thirty operators. Technological Systems (a subsidiary of Comstar-United¹¹²) has received a licence for the provision of WiMAX-based services in the 5.4 – 5.7 GHz range through a regional tender. It is believed that this licence cost \$0.8m (0.66 million Euro).¹¹³

Ukrtelecom has chosen Nokia to provide network equipment for its planned 3G service. Nokia will also provide equipment for Utel's W-CDMA network, which will initially be launched in Kiev.

¹¹¹ <http://www.newproject.org/news/2006/8/8/providers-on-the-run-in-ukraine-as-sbu-battles-low-cost-telephony.html>

¹¹² <http://www.comstar-uts.com/>

¹¹³ <http://www.digitalmediaasia.com/default.asp?ArticleID=19849>

6 AVAILABILITY OF ONLINE SERVICES

The EU-Ukraine Action Plan for 2005 foresees the widespread use of electronic communications services by business and administration, in particular in the health and education sectors (e-Commerce, e-Government, e-Health, e-Learning), via the provision of advanced infrastructures, the development of local content and the introduction of pilot projects initiatives.

Ukraine ranked second highest among the four countries in this study included in The Economist E-readiness rankings 2005,¹¹⁴ with a total score of 3.51, scoring best in business environment and worst in consumer and business adoption. In 2006, Ukraine improved its score and achieved 3.62 points, albeit while dropping from 57th to 61st overall in the table of 68 countries.

6.1 E-Commerce

E-Commerce is developing very slowly in Ukraine. The low level of Internet penetration in the country is a key problem, with the most optimistic estimates suggesting that there are 6.5 million Internet users,¹¹⁵ which equals approximately 13 percent of the population. Finally, the legal framework for e-commerce is also still lacking, although improvements are being made.

The leading Ukrainian online retailer city.com.ua receives approximately 8,000 hits daily.

Domain name registrations

Apart from the 47 geographical (such as kiev.ua) domains, there are seven generic suffixes for organisations registered in the .ua domain, according to their type: com.ua - commercial organizations; gov.ua-government agencies; net.ua - suppliers of network services; edu.ua – educational organizations; org.ua - other organizations (not commercial), in.ua for individuals and dominic.ua for the community of Dominican friars. The .ua domain is managed by the UA NCG (Network Coordination Group).

There has been a steady increase in the number of domains registered under .ua. For example, under .com.ua, the total number of domains increased from 31,153 in 2004 to 42,489 in 2005 and reached 54,187 by September 2006. The overall number of domains under .ua increased from 133,907 in 2004 to 169,644 in 2005 and had already reached 211,478 by September 2006.¹¹⁶

¹¹⁴ Economist E-Readiness Report 2005 http://graphics.eiu.com/files/ad_pdfs/2005Ereadiness_Ranking_WP.pdf

¹¹⁵ Based on information from the State Statistics office.

¹¹⁶ Presentation made at the RIPE regional conference in Moscow, September 2006. The presentation can be downloaded from: <http://www.ripe.net/meetings/regional/moscow-2006/presentations/ua-cctld.pdf>

6.2 E-Government

One of the key aims of the National Informatisation Programme, which is prepared by the Ministry of Transport and Communications each year, is to develop the use of ICT in central governmental bodies. Overall coordination is exercised by the Ministry of Transport and Communications.

The Cabinet of Ministers Resolution of 24 February 2003 (N208) on the Development of Electronic Government and the Order of the State Telecommunications Committee of Ukraine of 15 August 2003 govern the development of access to e-government services by citizens and businesses.

The list of e-Government legislation passed in Ukraine, albeit all under previous regimes, is very long. The Government portal lists a total of over forty different acts passed in the course of the past seven years, half of which were passed in 2003 and 2004.

Since 1998, the Ukrainian Government has produced a number of legal documents requiring state bodies to publish information about their activity on the Internet. There is a functioning Government portal,¹¹⁷ which is a gateway to the existing sites of state departments, but much work still needs to be done. For example, only 12 percent of city authorities have websites.

Legally, all state departments are supposed to have websites on the Internet. These websites are not currently interactive, focussing instead on information provision about the department, its leaders and operational procedures. With recent developments in the use of electronic signatures in Ukraine, possibilities are increasing for more user-friendly interaction with government services. For the moment, however, most government websites are “one way”, with functionality improving. An example of the planned improvements is that the Ukrainian tax authorities are planning a new improved web-based service.

The tax administration of Ukraine is undertaking a pilot project which allows company tax account reports to be accepted in electronic format. These reports are provided on floppy diskettes, as there is still no online submission. One basic problem is that in Ukraine there has been little or no practical implementation of the Law on Electronic Digital Signatures, which makes the introduction of online e-government services more difficult. This situation is currently undergoing change (see above on digital signatures).

The government of Ukraine does not have nationwide programs governing the use of software in public administration, including regarding the use of open source software. Microsoft has signed an agreement with the government of Ukraine, under which it will provide software to government institutions at one-third of the market price. The agreement reflects a long-term preferential pricing scheme for government bodies.

¹¹⁷ See <http://www.kmu.gov.ua/control/>

6.3 E-Health

E-Health has a long history in Ukraine: there is a long tradition of e-health theory development in Ukraine, although it is still not very widespread in practice. The Ukrainian telemedicine website,¹¹⁸ maintained by the Donesk Institute of Traumatology and Orthopaedics lists fourteen telemedicine centres, twenty-three institutions which carry out “teleconsultations”, and five online pharmacies. The Department of Informatics and Telemedicine of Donetsk has also developed a distance-learning tool. The Centre for Telemedicine of Ukraine has provided half of the best practice models listed on the website of the International Society for Telemedicine and e-Health.¹¹⁹

6.4 E-Learning

E-learning is somewhat limited in Ukraine, although this is one of the items that are being addressed by the EU-Ukraine Action plan, and EU funding is already being used to establish some resources. For example, an Electronic Media Resource Centre is being established with the help of the EU Tempus programme.¹²⁰ The only Ukrainian member of the European Distance and E-Learning Network is the Inter-regional Academy of Personnel Management.¹²¹

Approximately 52 percent of secondary schools have computer equipment, while only 14 percent of them have Internet access. There are wide regional variations regarding access to IT in schools.¹²²

¹¹⁸ http://www.telemed.org.ua/wwwtm_eng/TMCAT/tmucat.html

¹¹⁹ <http://www.isft.net/cms/index.php?id=1>

¹²⁰ Details of this particular project can be found on the project website: <http://emerecu.ukma.kiev.ua/>

¹²¹ <http://www.maup.com.ua/>

¹²² Pazyuk, A, Ukraine on the Way to the Knowledge Society' ed. A.Pazyuk 2005, pages 38-46

7 STRUCTURE OF THE COMMUNICATIONS INDUSTRY

7.1 Fixed Networks

7.1.1 Ukrtelecom

Currently, Ukrtelecom is the monopoly fixed line operator, which gives it a special status in the market and makes it impossible to apply antimonopoly measures against it. In addition, it is not possible to find precise information regarding what Ukrtelecom owns specifically in terms of real estate and equipment.

The privatisation of Ukrtelecom has been mooted on many occasions over the years, but has not yet been achieved for various reasons. The Ukrainian Parliament in voted in favour of privatisation in December 2006 – only 50.22% (226 out of 450) of parliamentarians voted in favour, though only six voted against. Currently, 92.86 percent of Ukrtelecom shares are owned by the State, with the remaining shares owned by employees.

Ukrtelecom has 9.8 million customers, 27 regional divisions, a trunk telephone line operator, and central telephone and telegraph stations. Its trunk network is 70 percent digitised, but only 30 percent of the local network is digital. The company owns Utel,¹²³ Ukraine's leading long distance operator with 2004 sales of 366 million US\$ (302.5 million Euro). Jointly with Utel, Ukrtelecom controls 83 percent of the local calls market and 95 percent of the domestic long distance and international long distance segments; Golden Telecom¹²⁴ and Optima¹²⁵ control the remainder. Domestic long distance and international long distance services generate about 67 percent of Ukrtelecom's consolidated revenues; local calls, due to low tariffs, account for only 28 percent.¹²⁶ Ukrtelecom also offers such services as television and radio broadcasting, Internet access and ISDN.

Profits at Ukrtelekom are expected to decline due to increased competition from mobile operators, overstaffing and regulatory uncertainty. Ukrtelekom, which has a fixed-line monopoly, is scheduled for privatisation in 2007. Georgiy Dzekon, Ukrtelekom's chairman, said the company installed 700,000 new lines in 2005, while Ukraine's four mobile operators added about 15 million new subscribers. The company's profits fell to 103 million US\$ (85 million Euro) in 2005, from 190 million US\$ (157 million Euro) in 2004. Officials expect Ukrtelekom to reveal profits of about 80 million US\$ (66 million Euro) for 2006.

The following table, from the Ukrainian State Statistics Committee¹²⁷ gives an indication of the level of involvement of the State in the communications industry and the revenues generated from the provision of the various services:

¹²³ <http://www.utel.ua/english>

¹²⁴ <http://www.goldentele.com/eng/>

¹²⁵ <http://optima.ua/>

¹²⁶ All data from <http://www.ukrtelecom.ua>

¹²⁷ <http://www.ukrstat.gov.ua/>, figures are from 2004

Revenues provided by communication services, January -September 2006¹²⁸

	Revenues, total mln. UAH	Of which, for services provided to population
Communication services, total	24138,7	9633,5
of which		
post-office services	954,2	214,2
of which: international express mail EMS	10,1	3,9
telegraph services	35,8	12,1
urban telephone network services	2086,8	1225,2
rural telephone services	162,1	138,9
long-distance (including international) telephone services	4657,5	2065,6
express activity	127,5	2,5
broadcasting services	51,2	38,9
special and communication services	46,2	0,0
TV and Radio broad casting services	624,2	385,8
cable TV	392,8	382,8
state inspection of electric communication	152,9	0,9
satellite services	50,8	0,0
computer services	910,1	175,9
of which: provision of an access to the Internet	766,5	173,8
mobile services	14279,4	5373,5
of which,		
cellular	14263,4	5372,9
pager	4,8	0,0
trunk	11,2	0,6

The international and long distance telephony market is divided between Ukrtelecom (92 percent) and approximately 10 other 10 operators, which collectively account for about 8 percent of the market.

The key problems in the market are:

1. Monopolisation of the market by Ukrtelecom;
2. The lack of development and implementation of a strategy for the development of international and long distance telephony detailed in the Concept for Telecommunication Development, which was approved by the Cabinet of Ministers in June 2006.
3. The absence of adequate mechanisms of measurement of international and national long distance telephone communications traffic separation.¹²⁹

¹²⁸ Data from the Ukrainian State Statistics Committee

¹²⁹ See http://www.wik.org/content/konf_istanbul/hayduk.pdf

Ukrtelecom's net profit for the first half of 2006 decreased by 18 percent compared with the same period in 2005, totalling 62 million UAH (10.06 million Euro). Ukrtelecom's net profit from services including IP and Internet charges increased by 34 percent compared with 2005, totalling 237 million UAH (38.5 million Euro). Its net profit for international calls for the first half of 2006 decreased by 11.5 percent, when compared to the same period of 2005.¹³⁰

Fixed-line capacity has increased at an average annual rate of around 6 percent (of installed capacity) in recent years. Ukrtelecom has introduced digital exchanges in the majority of regional centres and had 40,000 broadband access ports available by the end of 2005. However, improvements in local networks and local exchanges continue at a very slow rate. The telecommunications infrastructure outside of major cities and regional centres still relies on obsolete equipment and analogue local loops, and telephone density remains low.

Ukrtelecom owns Ukraine's primary network and trunk and zone telecommunications lines. In preparation for planned privatisation, Ukrtelecom has been restructured and comprises 30 branches providing basic telecommunications services to 9.8m subscribers.

Some private operators exist, including Golden Telecom (GT), Farlep and Optima. There are also four fixed wireless access (FWA) operators. Private operators focus primarily on offering premium services to business customers. Utel and Golden Telecom control the fixed-line business market. Ukrtelecom provides a range of telecommunications services, including ISDN, Internet network access, data transmission, and satellite and video-conferencing communications. GT offers a one-stop-shop range of products, from digital telephone lines, mobile telephones and Internet accounts to high-speed private leased circuits and international frame-relay services.¹³¹

7.1.2 Golden Telecom

Golden Telekom Ukraine¹³² is wholly owned by the Russian company Golden Telecom Inc. and provides communications services to the business market. The owners of this Russian company are the Alpha Group (29.9 percent), Telenor (20 percent), Rostelekom (11 percent), EBRD (8 percent), and investment companies Barring East (7 percent) and Capital (6 percent). 18 percent of the stocks are on the stock market or belong to the top level of management.¹³³

Golden Telecom has contracted Alcatel to deploy a fixed/mobile converged network with a next generation network core and UMA (unlicensed mobile access) capability. Alcatel believes that this will be the first fixed/mobile convergence network deployment in Ukraine.¹³⁴

¹³⁰ <http://proit.com.ua/telecom/2006/08/21/120919.html>

¹³¹ http://globaltechforum.eiu.com/index.asp?layout=rich_story&channelid=4&categoryid=29&title=E-readiness%3A+Ukraine&doc_id=9245

¹³² <http://www.goldentele.com/eng/>

¹³³ ProUA News, 14 September 2005 - <http://proit.com.ua/itnews/2005/09/14/105043.html>

¹³⁴ <http://www.dmeurope.com/default.asp?ArticleID=18809>

Golden Telecom (Ukraine) and Ukrainian Radio Systems (Beeline(TM)) have signed an agreement allowing GT subscribers to use the Beeline network, greatly increasing network access for the former's customers.

7.1.3 Optima

The private company Ukrainian Radio Systems, (which owns such trademarks as WellCom¹³⁵ and MOBI¹³⁶ and provides services to the virtual operator PrivatMobile¹³⁷), was founded by four companies (of which three are offshore businesses) that are part of the Privat group. These companies are: Ukrfondinvest, 31 percent; Ravenskroft Holding Limited (British Virgin Islands), 20 percent; Occidental Management Company Ltd (Cyprus), 24.5 percent; and Optima Telecom Inc. (USA), 24.5 percent. This group's network (the Optima¹³⁸ network) covers 11 regional centres in addition to serving as a backbone for the mobile network of Ukrainian Radio Systems.

Besides mobile and fixed line communications operations, Privat Group's portfolio also includes long-distance IP-telephone operator Ukrcom¹³⁹ and large Internet providers Alkar-Teleport,¹⁴⁰ IP -Telecom¹⁴¹ and Digital Generation.¹⁴²

Currently the group of "Optima" companies is being prepared for sale. In early 2005, the anti-monopoly committee of Ukraine permitted the Cypriot company Sparotin Limited (previously unknown on the Ukrainian market) to purchase more than 50 percent of Dnepropetrovsk company Optima Telekom, and its regional affiliates Altek (Kherson), ORT-YUG (Kherson), Telephone company ELS (Odessa), SWIT (Zaporozh'ye), LyuZa (Zaporozh'ye), Optima-Service connection (Sevastopol), At-connection (Krivoy Rog), Belotserkovskiy Telephone company (Belaya Cerkov, Kyiv region) and Sveton (Kherson region). Sparotin Limited is also buying a number of Internet providers: Alkar-Teleport (Dnepropetrovsk), Ay Pi Telekom (Kyiv), Digital Generation (Kyiv), M.C.I. (Kyiv), Infokoms (Kyiv), and such companies as DATAS (Kyiv), Optima-Service connection (Kharkov), Optima-Service connection (Odessa), and Optima-connection (Odessa), which was inactive from 2002-2004.

The fixed telephony sector, which is dominated by the incumbent, suffers from slow development, extensive state regulation (in particular regarding prices) and low margins, especially in rural regions, which are generally unprofitable.

¹³⁵ <http://www.wellcom.ua/>

¹³⁶ <http://www.mobi.ua/>

¹³⁷ <http://privatmobile.com.ua/>

¹³⁸ <http://start.optima.ua/>

¹³⁹ <http://www.ukrcom.kherson.ua/>

¹⁴⁰ <http://www.alkar.net/>

¹⁴¹ <http://www.iptcom.net/>

¹⁴² <http://www.dg.net.ua/>

7.2 Mobile Networks

Kyivstar accounted for 43.8 percent of the total subscriber base in September, UMC accounted for 40.5 percent, while Astelit and URS accounted for 12.7 percent and 2.3 percent respectively.¹⁴³

Key problems currently faced by the market are the absence of further development of management of radio frequency and ineffective usage of existing frequency by some operators.

Ukrtelecom has been awarded a 3G licence for UAH152 million (25 million Euro). Kyivstar, UMC, Astelit and URS have also applied for licences. Three licences are likely to be auctioned once the relevant spectrum has been transferred from military to civil use.

UMC¹⁴⁴ and Kyivstar¹⁴⁵ are the largest operators in the mobile cellular communications market. 100 percent of UMC's stocks belong to the Russian telecommunications company MTS (joint stock company Mobile TeleSystems). In 2002, Ukrtelecom sold its 51 percent stake in UMC to Russia's MTS for 172 million US\$ (142.15 million Euro) whilst the remaining shares were purchased from Deutsche Telekom, Teledanmark and KPN in 2003. 56.51 percent of Kyivstar stocks belong to the Norwegian telecommunications company Telenor, with the remaining 43.49 percent of the company owned by Storm (which is owned by a Russian company, the Alpha Group).

7.2.1 Kyivstar GSM

Kyivstar had more than 17.216 million subscribers on 1 September 2006, with its Ace&Base brand holding 9.028 million and its DJUICE brand holding 7.034m (in July - 6.823m) customers, and also 1.154 million contract and corporate subscribers; with network coverage of 92 percent of the population.

Kyivstar provides GPRS services over all areas covered by its network and also international GPRS-roaming services in 69 countries within the networks of 110 foreign operators. For "ACE&BASE" and "DJUICE" prepaid package subscribers, Kyivstar provides international roaming services in 18 countries with networks of 20 foreign operators. For contract subscribers, Kyivstar provides roaming services with networks of 285 foreign operators in 153 countries.

Kyivstar increased investments by 219 percent to expand its network in the period September 2004 to September 2005 (from 124 million US\$ (102.47 million Euro) to 272.3 million US\$ (225.04 million Euro)).¹⁴⁶

Kyivstar published the following results of the first half of 2006:¹⁴⁷

	First half 2006	First half 2005
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¹⁴³ <http://www.cellular-news.com/story/19810.php>

¹⁴⁴ <http://www.umc.ua/>

¹⁴⁵ <http://www.kyivstar.net/>

¹⁴⁶ All data from Kyivstar

¹⁴⁷ <http://market.mabila.ua/news/2006/09/28/5200.html>

Ukraine

Net Sales <i>(US\$ / Euro) (thousands)</i>	757,270 / 625,842		450,900 / 372,644	
EBITDA (the profit before taxation, without amortisation) <i>(US\$ / Euro) (thousands)</i>	461,843 / 381,688		242,703 / 200,581	
Net profit <i>(US\$/ Euro) (thousands)</i>	243,901 / 201571		103, 590 / 85,611	
ARPU (average monthly revenue per mobile user, <i>US\$/Euro</i>):	Q1 2006	Q2 2006	Q1 2005	Q2 2005
total	7.9 / 6.5	8.6 / 7.1	8.9 / 7.4	9.7 / 8.0
contract user	26.2 / 21.7	28.7 / 23.8	26.5 / 21.9	29.4 / 24.3
pre-paid user	6.4 / 5.3	7.1 / 5.9	6.8 / 5.6	7.6 / 6.3
AMPU (monthly amount of minutes per subscriber)	110	118	92	90

Vimpelcom has made a bid of 5 billion US\$ (4.13 million Euro) for Kievstar, which would include the Russian company taking over some of the Kievstar's 456 US\$ million (377 million Euro) debt.

7.2.2 UMC

The UMC network covers more than 87 percent of the territory of Ukraine. UMC provides roaming services to prepay and contract customers. UMC subscribers can also take advantage of privileged roaming rates when using the MTS network in Russia and Belarus.

According to UMC, the total subscriber base was 15,933 million in August 2006. This breaks down between Jeans subscribers (7,609m subscribers) and SIM-SIM (6,932m subscribers). UMC had 1,392 million postpaid customers in August 2006.

UMC's net profit amounted to 232 million US\$ (191.74 million Euro) in 2004. Between January-June 2004, net profit stood at 147 million US\$ (121.49 million Euro).¹⁴⁸

7.2.3 URS

Russian firm Vimpelcom (Alpha Group owns 32.9 percent of its stocks and Telenor is another major shareholder) recently decided to strengthen its position in the Ukrainian market by agreeing to purchase 100 percent of Ukrainian Radio Systems' (URS) network, WellCOM.¹⁴⁹ This acquisition has been the subject of some internal disputes in Vimpelcom, as Telenor opposed this takeover, while it was supported by Alpha Group. The purchase cost 231.3 million US\$ (191.16 million Euro). This price included the purchase price of 206.5 million US\$ (170.7 million Euro), plus expenditures of 24.8 million US\$ (20.5 million Euro) incurred by URS with prior approval from Vimpelcom in accordance with their EGM approval. Vimpelcom also assumed debts of approximately 23.5 million US\$ (19.42 million Euro), including 22.8 million US\$ (18.84 million Euro) of debt owed to an affiliate of the seller). Although it has lost various court battles on the

¹⁴⁸ All data from UMC

¹⁴⁹ <http://www.welcome2well.com/>

acquisition of URS, Telenor remains opposed. In December 2006, it voted against Vimpelcom's annual budget.

URS has a GSM-900 licence that covers the entire territory of Ukraine, URS also has a GSM-1800 licence that covers 23 of Ukraine's 27 administrative regions (excluding the City of Kyiv, the Kyiv Region, the Dnipropetrovsk Region and the Odessa Region i.e. the most prosperous regions). The 23 regions include approximately 79.8 percent of Ukraine's population, according to Ukraine's State Committee of Statistics.

7.2.4 DCC/Astelit

Turkish cellular operator Turkcell¹⁵⁰ (51 percent) and Donetsk System Capital Management (49 percent) are the principal owners of the Dutch-registered company Eurasia Telecommunications Holdings B.V, which is based in Ukraine. This company owns the venture Digital Cellular Connection of Ukraine (DCC¹⁵¹). The company provides mobile services to subscribers in the DAMPS standard, and also owns 99 percent of the private company Astelit, which operates under the Life:)¹⁵² brand (Life:) also provides mobile services).

The number of subscribers of DCC, which provides services in eight regions, remains stable at about forty thousand.¹⁵³

The third biggest operator of mobile communications, the "Astelit" company (operating under the brand name "life:)" has increased its subscriber base in line with overall market trends. The company reported a 32% growth in from January 2005 to January 2006.¹⁵⁴ Its network covers most major conurbations in Ukraine, and there are plans to increase this to 91 major towns.¹⁵⁵ In September 2006, the company had 4,7 million subscribers.

The company DCC ceased to exist as a legal entity in August 2006.

Astelit has extended its agreement with Nokia for the provision of GSM/EDGE equipment for expansion of its network in the west and east of Ukraine. The agreement is worth a total of 75 million US\$ (62 million Euro). This additional contract was announced by Nokia in March 2006 although no specific roll-out timetable was given.

7.2.5 Fibre-optic Network Rollout by Mobile Operators

7.2.5.1 Ukrtelecom

Ukrtelecom is the largest owner of primary networks and fibre-optic networks in Ukraine and was recently awarded a 3G licence, for which it paid 152 million UAH (24 million Euro). As of April 2005, Ukrtelecom's overall telecommunications network consisted of 78,665km of lines, of which 17,169km were fibre-optic communication lines.

¹⁵⁰ <http://www.turkcell.com.tr/index/0,1028,300427,00.html>

¹⁵¹ <http://www.dcc-ua.com/>

¹⁵² <http://www.life.com.ua>

¹⁵³ The Internet-edition of Podrobnosty, "Economy. Transport and communications", on June 7, 2005, <http://www.podrobnosti.ua/economy/transportational/2005/06/07/217891.html>

¹⁵⁴ Data from FinRusGateway, Bulletin May 2006

¹⁵⁵ ProUA, 14 September 2005 - <http://proit.com.ua/itnews/2005/09/14/105043.html>

According to Bogdan Kostik, the Director of Management of the Primary Network Department of Ukrtelecom, in 2004 Ukrtelecom had completed construction of the main fibre-optic network, with all regional centres in Ukraine having fibre-optic connections from at least two directions. In addition, Ukrtelecom has digital connections to all neighbouring countries (Moldova, Romania, Hungary, Czech Republic, Poland, Belarus and Russia). Ukrtelecom is in the process of rolling out second connections to Belarus, Hungary and Romania.

4,220 km of fibre-optics were laid over the course of 2004 (2,810km for main fibre-optic lines and 1,410km for local networks) and subsequently put into operation. In 2005, Ukrtelecom focused on the development of local fibre-optic networks. In 2005, a further 3,703km of local fibre-optic network was put into operation together with 97km of main fibre-optical lines.

In the summer of 2004, Ukrtelecom concluded a contract worth approximately 13.3 million Euro with an Israeli company, ECI Telecom.¹⁵⁶ This contract aims to deliver a multiservice platform (XDM MSPP) for a national network. According to the contract, ECI Telecom will develop and provide support for the XDM platform in more than 50 national centres, enabling the creation of a national multiservice transport network based on Dense Wavelength Division Multiplexing (DWDM), Synchronous Digital Hierarchy (SDH) and Ethernet technologies. In the first quarter of 2005, construction of the first three rings based on DWDM technology (the first stage of the project) was completed.

The length of the first stage of this DWDM-project is about 4,500km. The second stage of the project is currently being finished and will bring into operation two more DWDM rings. After the end of the second stage of the project, all regional centres in Ukraine will be united by DWDM-rings. In the future, Ukrtelecom will implement a third stage to introduce DWDM technologies on a local level. Details of this stage have not yet been established. The plans will depend on the cabling of fibre-optic networks and also on Ukrtelecom's options for financing the project.

7.2.5.2 UMC¹⁵⁷

In 2004, the Ukrainian Mobile Communications company laid 2,500km of main fibre-optic lines, bringing their network up to a total of 5,000km. In August 2004 its main ring, connecting Dnepropetrovsk, Zaporozhye, Sevastopol and Kherson, was brought into operation. In total, the backbone network unites 11 communication centres.

UMC's fibre-optic network is being rolled out energetically, with the aim of providing a second network that is on a par with that of Ukrtelecom.

7.2.5.3 Kyivstar GSM¹⁵⁸

At the end of 2004, Kyivstar GSM's network was more than 6,000 km in length. In October 2004, work was completed on the final stage of the modernisation of the

¹⁵⁶ <http://www.ecitelecom.com>

¹⁵⁷ <http://www.umc.ua/>

¹⁵⁸ <http://www.kyivstar.net/site.php/en>

company's digital network. The SDH network, with a length of 5,000km, will eventually unite most regions in Ukraine and it will be constructed based on XDM technology. All the major cities and some of the larger regional centres will be integrated into the company's main network.

At the end of 2005, the company was finishing the construction of another 3,000 km of main lines.

7.2.5.4 URS-Optima

In May 2005, the Joint-Stock Company Ukrainian Radiosystems (URS)¹⁵⁹, together with the telecom operator Optima Telecom,¹⁶⁰ put into operation a trunk communication main line on the basis of DWDM technology. This network of more than 800km provides high-speed data transmission between Kyiv, Dnepropetrovsk and Kharkov. The fibre-optic channel supports traffic transfer on four wavelengths at a speed of 2.5GBps. The general throughput of the main line is 10GBps.

In the near future, the cities of Zaporozhye, Cherkassy, Kirovograd, Kremenchug and Dneprodzerzhinsk will be connected to the DWDM network.

7.3 Cable Networks

Despite the fact that the regulatory environment (see licensing above) is somewhat difficult for cable operators, there are cable networks available in most large cities in Ukraine. The Kyiv operator Volia, which has been offering advanced "triple play" services for some time now, being a significant example of the potential for the sector.

According to the State Statistics Committee, the revenue of the cable operators increased by 5.6 percent from 42.099 million UAH (6.8 million Euro) to 44.448 million UAH (7.2 million Euro) in 2005.

7.4 Internet Access Networks

As mentioned above, Ukraine's score in the Economist e-readiness rankings was 61st in the list of 68 countries. Within the Eastern European area, Ukraine was 12th out of the 14 countries covered, ahead of only Kazakhstan and Azerbaijan.¹⁶¹

Bytemobile,¹⁶² Inc., a global provider IP service provider for mobile networks, is working with Astelit to develop its EDGE+ and GPRS+ services. This will provide accelerated

¹⁵⁹ <http://www.welcome2well.com/eng/main/index.htm>

¹⁶⁰ <http://optima.ua/>

¹⁶¹ http://globaltechforum.eiu.com/index.asp?layout=rich_story&channelid=4&categoryid=29&title=E-readiness%3A+Ukraine&doc_id=9245

¹⁶² <http://www.bytemobile.com>

Internet access, which Astelit hopes will provide it with the fastest available Internet access without using 3G technology.

Opportunities for ADSL have been very limited to date and, to the extent that they are available, this is usually through the incumbent. In 2005, Cisco and Ukrtelecom announced a major programme of upgrading IP links between the capital and regional centres as well as of further extending the upgrading of Ukrtelecom's capacity to provide ADSL.

A range of independent companies offer dial-up Internet access, in addition to Ukrtelecom.

Furthermore, in June 2006, the NCCR launched a tender for use of WiMAX frequency. There is already one WiMAX provider on the market – Ukrainian High Technologies¹⁶³ – providing services in Kyiv and Kharkiv. The company has plans to roll-out services nationwide.

7.5 Satellite Operators

Satellite providers such as Lucky Link¹⁶⁴ provide Internet access services. Lucky Link offers connection speeds of 512kbps, and VSAT connections at a speed of 256kbps downstream and 64kbps upstream. In addition, Thuraya¹⁶⁵ offers satellite telephony and GPS services.

7.6 Production of IT Services

Ukraine's information technology market is valued at between 800 million US\$ (660 million Euro) to \$1 billion US\$ (826.5 million Euro). There is a perceptible, ongoing increase in demand for the production of IT products for export. Exported Ukrainian IT services totalled 70 million US\$ (57.85 million Euro) in 2003 and 100 US\$ (82.64 million Euro) in 2004. By the end of 2005, this figure was estimated to have reached 150 million US\$ (123.97 million Euro).¹⁶⁶

Telecommunications market revenues constituted 6.8 percent of GDP in the first nine months of 2005, according to the State Statistics Committee.

The State Statistics Committee of Ukraine has also conducted an analysis of the operating systems used by almost 70,000 organisations in Ukraine. Their findings are as follows: 71.9 percent use Microsoft Windows; 20.7 percent use DOS; 5.9 percent use

¹⁶³ <http://www.uht.com.ua/ru/plain445>

¹⁶⁴ <http://www.ll.net.ua/english/index.html>

¹⁶⁵ <http://www.thuraya.com.ua/enews.htm>

¹⁶⁶ All data prepared by the State Department for Telecommunications of Ukraine for parliamentary hearings on the development of the information society in September 2005

Linux; 1 percent use Unix/Fix; 0.1 percent use Os/2; 0.1 percent use OC EC/CBM EC; and the remaining 0.4 percent use other operating systems.

Ukraine is slowly emerging as a low cost hub for high quality software development. The producers work mostly alone or in small groups on outsourced projects ordered from abroad. These activities are usually not reflected in official statistics. There is growing interest among Ukrainian computer companies to establish software production centres that could participate in international software development projects.

7.7 Financial Development of the ICT Sector

7.7.1 Communications

Investment in fixed capital in the communications sector continues to grow. The Ukrainian State Statistics Committee reports a growth of 19.8 percent in fixed capital investment between the first nine months of 2005 and 2006.

Incomes from mobile services in the first ten months of 2006 were 49.5% up on the same period in the previous year, while fixed services (urban, rural and long-distance) decreased by a little over one percent. This decrease was mainly due to a decline of 6 percent of the largest part of that market, long distance and international telephony.

Revenue from the telecommunications market from January – September of 2006 can be broken down as follows:¹⁶⁷

- Urban telephone network services – 2086,8 million UAH (338.6 million Euro);
- Rural telephone services – 162,1 million UAH (26.3 million Euro);
- Long distance & international – 4657,5 million UAH (755.8 million Euro);
- Mobile services – 14279,4 million UAH (2317 million Euro).

7.7.2 Information Technology

No Ukrainian companies have made a significant impact on the international technology industry. Siemens, Ericsson and Nokia are leading suppliers of network equipment for the fixed and mobile markets.

With an estimated total turnover of 450 million US\$ (372 million Euro) in computer hardware sales and 125 million US\$ (103 million Euro) in ICT services, the information technology industry is comparatively small. The industry provides ICT products and services through several distinct economic activities, including consulting services, software development, data processing, database development, technical support and repair, and other computer-related services. The most common IT activities include: enterprise resource planning, customer relationship management software, specialised management and accounting software, antivirus software, e-commerce applications, and industry-specific solutions.

¹⁶⁷ State Statistics Committee of Ukraine

Ukraine

According to the Ukrainian Association of Software Developers (UASWD),¹⁶⁸ over 1,300 legal entities are engaged in activities connected with software development, production, and distribution with another 900 companies involved in the import, assembly, distribution, and support of computer hardware. Multinational companies now reflect a much larger percentage of the industry, representing approximately 60 percent. Local registered firms make up about 30 percent of the market, and the remaining 10 percent comprises small, shadow market groups working primarily on small offshore orders for software development.

Proportion of companies involved in Ukrainian IT services and product export market, 2005¹⁶⁹

Large and midsize commercial companies	30-45%
Software development centres of international vendors	5%
Small companies (fewer than 15 persons), independent groups of programmers, individual developers	25-35%
Note: representative sample is declared to be 50%. Many outsourcing companies do not declare themselves on domestic market. Complex ownership structures makes ownership and company identification difficult.	15-40%

The IT industry in Ukraine complains about a range of structural problems that prevents it from developing further. These include competitiveness problems caused by low-cost Russian imports, an alleged lack of government leadership to prioritise and support the sector, and inadequate infrastructure.

¹⁶⁸ <http://www.uaswd.org.ua/en>

¹⁶⁹ Estimate by QArea. Their full report on software development in Kharkiv is available from: http://www.qarea.com/articles_pages/article5/article-details.php