

**Best Export Markets
For
U.S. Telecommunications Equipment, 2007**

Best Export Markets for U.S Telecommunications Equipment was compiled by Nicolas Terrien, under the supervision of Maurice Kogon, Director of the El Camino College Center for International Trade Development (CITD) in Hawthorne, California. The report is based largely on 2007 Country Commercial Guides (CCGs) prepared by United States Commercial Service (USCS) posts abroad. All CCGs include a standard chapter “Leading Sectors for U.S. Exports.” This report drew from those CCGs which specifically recommended Telecommunications Equipment as a best prospect for U.S. exports.

The entire report is also available as a Word document, in print or electronically, for \$25.00. To order, contact the El Camino College CITD at: 310-973-3173 or mkogon@elcamino.edu.

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Angola	Georgia	Nepal	Spain
Australia	Germany	New Zealand	Sri Lanka
Austria	Ghana	Norway	Swaziland
Barbados	Guinea	Pakistan	Sweden
China	Haiti	Paraguay	Switzerland
Croatia	Indonesia	Philippines	Thailand
Czech Rep	Israel	Qatar	Turkey
Denmark	Kazakhstan	Romania	Uganda
Egypt	Latvia	Saudi Arabia	Ukraine
Estonia	Malawi	Serbia Montenegro	U.K
Ethiopia	Mexico	Singapore	Uruguay
France	Mozambique	South Africa	Vietnam
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I. Export Market Brief

A. Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio Broadcasting or Television (HS 852520)

This Export Market Brief, based on the latest available trade statistics and market research, provides an overview of the world market for U.S. Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio Broadcasting or Television (HS 852520), one of two sub-sectors of Telecommunications Equipment covered in this Best Market Report.

Export growth: U.S. exports of products in the HS 852520 category rose from \$3.4 billion in 2003 to \$5.9 billion in 2006, an increase of 75.6% over the four-year period.

Leading Export Markets: The leading markets for U.S. exports of products in the HS 852520 category in 2006 (all above (\$100 million) were: Mexico (22.6% of total), Canada (16.5%), Venezuela (9.4%), Hong-Kong (3.8%), Brazil (2.8%), Peru (2.5%), Ecuador (2.2%), and Germany (1.7%). Other significant markets (above \$76 million) were: Guatemala (1.7%), China (1.6%), France (1.5%), Algeria (1.3%), Australia (1.3%), and U.K. (1.3%).

Fastest Growing Export Markets: The leading markets with both high and sustained growth rates for U.S. exports of HS 852520 products over the latest four years (2003-06 and 2005-06) were: Mexico, Venezuela, Hong-Kong, Brazil, Peru, and Guatemala.

Leading Importing Countries: The top foreign importers of products in the HS 852520 category in 2005 were Germany (\$12.7 billion, or 11.3% of total, U.K (8.5%), China/Hong Kong (6.6%), Italy (4.5%), and Singapore (4.4%). Other significant importers (all above \$3.5 billion) were France (4.1%), Netherlands (3.4%), India (3.3%), and Spain (3.1%).

World Market Size & U.S. Share: Total world exports of HS 852520 products by all countries reached \$139 billion in 2005, up from \$108 billion in 2004 (+27.8%). The U.S. had a 3.6% share of the total world market in 2005. Other world suppliers with significant market shares were China (17%), Rep of Korea (14%), UK (12.7%) and Germany (10.9%).

Best Market Prospects: The markets listed below appear to be particularly promising for U.S. exports of the overall Telecommunications Equipment category over the next two years:

Angola	Georgia	Nepal	Spain
Australia	Germany	New Zealand	Sri Lanka
Austria	Ghana	Norway	Swaziland
Barbados	Guinea	Pakistan	Sweden
China	Haiti	Paraguay	Switzerland
Croatia	Indonesia	Philippines	Thailand
Czech Rep	Israel	Qatar	Turkey
Denmark	Kazakhstan	Romania	Uganda
Egypt	Latvia	Saudi Arabia	Ukraine
Estonia	Malawi	Serbia Montenegro	U.K
Ethiopia	Mexico	Singapore	Uruguay
France	Mozambique	South Africa	Vietnam

I. Export Market Brief

B. Instruments and Apparatus Specially Designed for Telecommunications (HS 903040)

This Market Brief, based on the latest available trade statistics and market research, provides an overview of the world market for U.S. Instruments and Apparatus Specially Designed for Telecommunications (HS 903040), one of two sub-sectors of Telecommunications Equipment covered in this Best Market Report.

Export growth: U.S exports of products in the HS 903040 category rose from \$744 million in 2003 to \$1.2 billion in 2006, an increase of 67.2% over the four-year period.

Leading Export Market: The leading markets for U.S exports of products in the HS 903040 category in 2006 (all above \$57 million) were: Japan (8.7% of total), Germany (7.9%), Israel (7.8%), Canada (7.4%), Hong-Kong (5.3%), Malaysia (5%), U.K (4.6%) and China (4.6%). Other significant markets (above \$32 million) were: France (4.2%), India (3.5%), Costa Rica (3.3%), Korea (2.8%), Mexico (2.7%) and Australia (2.6%).

Fastest Growing Export Markets: The leading markets with both high and sustained growth rates for U.S. exports of HS 903040 products over the latest four years (2003-06 and 2005-06) were: Germany, Israel, Malaysia, Costa Rica, and Australia. Other significant growth markets over the 2003-06 periods were Columbia, Iraq, Dominican Rep, South Africa and Bahamas.

Leading Importing Countries: The top foreign importers of HS 903040 products in 2005 were China (\$307 million, or 12% of total), Hong-Kong (8.7%), Germany (6.7%), U.K. (6%) and Rep of Korea (5.5%). Other significant importers (all above \$86 million) were Canada (5.4%), Malaysia (3.7%), France (3.5%) and Japan (3.4%).

World Market Size & U.S. Share: Total world exports of HS 903040 products by all countries reached \$3.2 billion in 2005, up from \$2.6 billion in 2004 (+20.1%). The U.S had a 36.8% share of the total world market in 2005, topped by Germany (21.4%) and Malaysia (8.9%). Other world suppliers with significant market shares were U.K (8.7%), China/Hong-Kong (5.2%), Canada (3.7%) and Japan (2%).

Best Market Prospects: The markets listed below appear to be particularly promising for U.S. exports of the overall Telecommunications Equipment category over the next two years:

Angola	Georgia	Nepal	Spain
Australia	Germany	New Zealand	Sri Lanka
Austria	Ghana	Norway	Swaziland
Barbados	Guinea	Pakistan	Sweden
China	Haiti	Paraguay	Switzerland
Croatia	Indonesia	Philippines	Thailand
Czech Rep	Israel	Qatar	Turkey
Denmark	Kazakhstan	Romania	Uganda
Egypt	Latvia	Saudi Arabia	Ukraine
Estonia	Malawi	Serbia Montenegro	U.K
Ethiopia	Mexico	Singapore	Uruguay
France	Mozambique	South Africa	Vietnam

II. Target Market Matrix

A. Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio Broadcasting or Television (HS 852520)

This matrix assesses the U.S. market potential for HS 852520 products in each listed country, based on how well the country performed against the 11 “predictor” criteria represented in Columns 1-11 below. A **double X** in the Column cell indicates the country met the criterion very well; a **single X** indicates reasonably good performance; a **blank** indicates the country was lacking in that criterion. The countries with the greatest number of XX’s and X’s across the most number of criteria are presumed to offer greater export potential for the industry, based on this methodology.

Country	1	2	3	4	5	6	7	8	9	10	11
Algeria	X	X	XX								
Australia	X				XX		XX		XX	XX	XX
Brazil	XX	XX	X						XX	XX	XX
Canada	XX					XX		X			
Chile											
China	X			XX					XX	XX	XX
Colombia					XX	XX					
Dominican Rep											
Ecuador	XX		XX								
El Salvador											
France	X			X	X				XX	XX	XX
Germany	XX			XX	X	X			XX	X	X
Guatemala	X										
Hong-Kong		X	X	XX							
India	X			X		XX			X	X	XX
Israel							XX	X	X		X
Jamaica								X		X	X
Japan	X										
Korea											
Malaysia			X								
Mexico	XX	X	XX		X		XX		XX	XX	XX
Netherlands				X	XX						
Nigeria									X		X
Peru	XX		XX								
Saudi Arabia					XX	XX			X	X	XX
Singapore		X		XX			XX		XX	XX	XX
Trinidad		X	XX					X	X	X	X
U.K	X			XX		X	X		XX	XX	XX
United			X								
Venezuela	XX	X	X								

Key: Columns/Criteria

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Largest export markets, latest year 2. Fastest growing export markets, past 3 yrs 3. Fastest growing export markets, latest year 4. Largest importing countries, latest year 5. Fastest growing importing countries, past 3 yrs 6. Fastest growing importing countries, latest year | <ol style="list-style-type: none"> 7. Strong share of import market, latest year 8. Limited competition from local producers 9. High receptivity to products from your country 10. No significant market barriers 11. Recommended as a “best” export market |
|---|--|

II. Target Market Matrix

B. Instruments and Apparatus Specially Designed For Telecommunications (HS 903040)

This matrix assesses the U.S. market potential for **HS 903040** products in each listed country, based on how well the country performed against the 11 “predictor” criteria represented in Columns 1-11 below. A **double X** in the Column cell indicates the country met the criterion very well; a **single X** indicates reasonably good performance; a **blank** indicates the country was lacking in that criterion. The countries with the greatest number of XX’s and X’s across the most number of criteria are presumed to offer greater export potential for the industry, based on this methodology.

Country	1	2	3	4	5	6	7	8	9	10	11
Argentina		XX	X								
Australia	X		X		X	XX	XX		XX	XX	XX
Austria		X			X						
Bahamas		XX	X								
Brazil									XX	XX	XX
Canada	XX			X				X			
China	XX			XX					XX	XX	XX
Colombia		XX	X								
Costa Rica	X	XX	XX								
Dominican Rep		XX									
France	X			X	XX	X			XX	XX	XX
Germany	XX	X		XX					XX	XX	X
Hong-Kong	XX			XX							
India	X				XX	XX			X	X	XX
Israel	XX	X				XX	XX	X	X		X
Italy											
Iraq		XX	XX								
Japan	XX			X	X						
Korea	X			XX							
Malaysia	XX	X	X	X	XX	XX					
Mexico	X				X		XX		XX	XX	XX
Netherlands						X					
Singapore							XX		XX	XX	XX
South Africa		X	XX								
Spain									XX	XX	XX
Sweden								X	X	X	X
Switzerland						X					
Taiwan											
United											
Venezuela		X									

Key: Columns/Criteria

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Largest export markets, latest year 2. Fastest growing export markets, past 3 yrs 3. Fastest growing export markets, latest year 4. Largest importing countries, latest year 5. Fastest growing importing countries, past 3 yrs 6. Fastest growing importing countries, latest year | <ol style="list-style-type: none"> 7. Strong share of import market, latest year 8. Limited competition from local producers 9. High receptivity to products from your country 10. No significant market barriers 11. Recommended as a “best” export market |
|---|--|

III. Market Potential Indicators

A. Top 30 Export Markets for U.S. Telecommunications Equipment by Country

These tables show the leading and fastest growing markets for two categories of U.S. Telecommunications Equipment over the past four years (2003-2006). Source: U.S. Census Bureau.

- 1. Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio Broadcasting or Television (HS 852520)**
- 2. Instrument and Apparatus for Telecommunications (HS 903040)**

B. Top 30 World Importers of Telecommunications Equipment by Country.

These tables show the leading and fastest growing world importers of Telecommunications Equipment during 2002-2005. Source: United Nations COMTRADE.

- 1. Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio Broadcasting or Television (HS 852520)**
- 2. Instrument and Apparatus for Telecommunications (HS 903040)**

C. Top 30 World Exporters of Telecommunications Equipment by Country & U.S. Share.

These tables show the U.S. and competitor-country shares of total world exports of Telecommunications Equipment during 2002-2005. Source: United Nations COMTRADE.

- 1. Transmission Apparatus for Radiotelephony, Radiotelegraphy, Radio Broadcasting or Television (HS 852520)**
- 2. Instrument and Apparatus for Telecommunications (HS 903040)**

D. Market Sizes & U.S. Share: Telecommunications Equipment, 2004-2006, by Country.

This table shows each “best prospect” country’s total market, total imports, imports from the U.S., and the U.S. market share for products in this sector. Source: U.S. Commercial Staff in each country.

III. Market Potential Indicators
III.A. Top 30 U.S Exports Markets 2003-2006

**1. HS 852520:Transmission Apparatus for Radiotelephony,
Radiotelegraphy, Radio Broadcasting or Television**

Country	2003	2004	2005	2006	% Change	% Change	% Share
	<i>In 1,000 Dollars</i>				2003-06	2005-06	2006
Mexico	448,602	774,083	703,109	1,349,845	200.9%	92.00%	22.6%
Canada	889,888	950,060	955,029	987,094	10.9%	3.40%	16.5%
Venezuela	73,855	255,017	334,223	562,165	661.2%	68.20%	9.4%
Hong Kong	55,104	97,315	135,793	228,168	314.1%	68.00%	3.8%
Brazil	53,402	67,763	92,557	164,381	207.8%	77.60%	2.8%
Peru	93,482	85,927	74,379	151,909	62.5%	104.20%	2.5%
Ecuador	83,037	120,205	215,697	133,364	60.6%	-38.20%	2.2%
Germany	70,279	100,288	104,769	102,768	46.2%	-1.90%	1.7%
Guatemala	58,562	89,829	82,805	101,780	73.8%	22.90%	1.7%
China	84,370	94,730	170,385	92,908	10.1%	-45.50%	1.6%
France	72,628	134,708	116,464	91,445	25.9%	-21.50%	1.5%
Algeria	4,641	32,564	28,082	79,626	1615.7%	183.50%	1.3%
Australia	42,165	81,332	97,450	78,003	85.0%	-20.00%	1.3%
United Kingdom	96,763	82,943	74,915	76,940	-20.5%	2.70%	1.3%
Trin & Tobago	10,135	36,340	23,238	75,075	640.7%	223.10%	1.3%
Malaysia	30,130	20,148	38,276	72,547	140.8%	89.50%	1.2%
Colombia	105,972	199,221	152,467	72,230	-31.8%	-52.60%	1.2%
Singapore	31,786	43,372	51,120	68,759	116.3%	34.50%	1.2%
Saudi Arabia	18,417	28,092	30,338	67,137	264.5%	121.30%	1.1%
United Arab Em	20,677	31,004	39,369	66,890	223.5%	69.90%	1.1%
Israel	64,403	70,472	66,292	66,496	3.2%	0.30%	1.1%
Nigeria	35,873	32,460	41,918	59,524	65.9%	42.00%	1.0%
Netherlands	32,336	36,080	119,706	52,528	62.4%	-56.10%	0.9%
Dominican Rep	31,924	23,074	46,952	51,276	60.6%	9.20%	0.9%
El Salvador	26,671	60,282	43,857	51,188	91.9%	16.70%	0.9%
Chile	76,332	65,785	49,901	50,998	-33.2%	2.20%	0.9%
Korea	39,855	31,319	65,096	47,967	20.4%	-26.30%	0.8%
India	51,091	104,557	108,203	47,916	-6.2%	-55.70%	0.8%
Jamaica	53,805	67,157	44,677	47,143	-12.4%	5.50%	0.8%
Japan	60,614	56,292	79,182	46,835	-22.7%	-40.90%	0.8%
Subtotal :	2,816,802	3,872,418	4,186,248	5,144,906	82.7%	22.90%	86.2%
All Other:	582,545	771,761	810,987	825,649	41.7%	1.80%	13.8%
Total	3,399,347	4,644,179	4,997,235	5,970,555	75.6%	19.50%	100.0%

III. Market Potential Indicators
III.A. Top 30 U.S Exports Markets 2003-2006

2. HS 903040: Instrument and Apparatus for Telecommunications

Country	2003	2004	2005	2006	%	%	%
	<i>In 1,000 Dollars</i>				Change	Change	Share
	2003-06	2005-06	2006				
Japan	76,812	97,115	107,547	108,810	41.7%	1.20%	8.7%
Germany	35,985	55,606	86,703	98,571	173.9%	13.70%	7.9%
Israel	20,323	45,724	79,666	97,173	378.1%	22.00%	7.8%
Canada	85,997	112,965	110,176	92,607	7.7%	-15.90%	7.4%
Hong Kong	40,336	58,971	64,700	65,457	62.3%	1.20%	5.3%
Malaysia	14,319	18,616	31,671	62,005	333.0%	95.80%	5.0%
United Kingdom	74,994	85,973	74,886	57,772	-23.0%	-22.90%	4.6%
China	41,941	68,017	50,594	57,716	37.6%	14.10%	4.6%
France	23,116	36,349	63,613	52,175	125.7%	-18.00%	4.2%
India	13,721	22,104	32,922	44,120	221.6%	34.00%	3.5%
Costa Rica	854	1,957	7,117	41,226	4727.4%	479.30%	3.3%
Korea	37,515	46,432	66,123	34,713	-7.5%	-47.50%	2.8%
Mexico	17,948	39,724	37,196	33,475	86.5%	-10.00%	2.7%
Australia	10,756	16,425	21,846	32,724	204.2%	49.80%	2.6%
Taiwan	22,655	27,126	21,826	28,863	27.4%	32.20%	2.3%
Netherlands	24,632	25,717	35,554	25,098	1.9%	-29.40%	2.0%
Colombia	2,830	3,920	14,957	24,153	753.5%	61.50%	1.9%
Italy	16,190	15,813	20,052	20,067	23.9%	0.10%	1.6%
Singapore	33,616	25,213	31,542	19,754	-41.2%	-37.40%	1.6%
Iraq	499	769	1,936	15,683	3042.9%	709.90%	1.3%
Brazil	16,641	21,766	22,085	15,282	-8.2%	-30.80%	1.2%
Dominican Rep	1,862	5,087	8,436	12,524	572.6%	48.50%	1.0%
Spain	7,778	11,923	11,026	10,751	38.2%	-2.50%	0.9%
Sweden	7,226	8,731	10,033	10,535	45.8%	5.00%	0.8%
Austria	2,910	6,390	10,326	10,391	257.1%	0.60%	0.8%
South Africa	1,633	1,600	2,067	8,740	435.2%	322.90%	0.7%
Venezuela	2,588	6,679	10,898	8,719	236.9%	-20.00%	0.7%
Bahamas	470	1,621	5,640	8,555	1720.2%	51.70%	0.7%
Argentina	1,492	6,251	5,187	8,170	447.6%	57.50%	0.7%
Switzerland	4,773	5,688	8,779	8,081	69.3%	-8.00%	0.6%
Subtotal:	642,413	880,271	1,055,104	1,113,909	73.4%	5.60%	89.5%
All Other:	102,451	99,503	126,522	131,296	28.2%	3.80%	10.5%
Total	744,864	979,775	1,181,626	1,245,205	67.2%	5.40%	100.0%

III. Market Potential Indicators
III.B. Top 30 World Importers, 2002-2005

**1. HS 852520: Transmission Apparatus for Radiotelephony,
Radiotelegraphy, Radio Broadcasting or Television**

Importing Country	2002	2003	2004	2005	% Change	% Change	% Share
	<i>In US Dollars</i>				2002-05	2004-05	2005
USA	\$13,906,025,594	\$15,721,587,990	\$21,204,336,556	\$25,180,309,783	81.1%	18.8%	22.2%
Germany	\$5,637,054,000	\$5,094,491,000	\$10,131,340,000	\$12,755,304,000	126.3%	25.9%	11.3%
United Kingdom	\$3,844,548,608	\$5,317,981,498	\$7,635,617,396	\$9,591,989,016	149.5%	25.6%	8.5%
Hong Kong	\$5,861,042,031	\$5,007,365,230	\$5,994,284,284	\$7,499,520,000	28.0%	25.1%	6.6%
Italy	\$2,117,889,152	\$2,778,989,168	\$5,274,854,824	\$5,139,937,085	142.7%	-2.6%	4.5%
Singapore	\$2,125,540,591	\$3,255,445,624	\$5,031,989,291	\$5,024,077,115	136.4%	-0.2%	4.4%
France	\$2,359,315,456	\$2,742,637,312	\$3,484,954,797	\$4,638,584,827	96.6%	33.1%	4.1%
Netherlands	\$847,342,433	\$1,455,352,267	\$3,398,169,428	\$3,805,984,754	349.2%	12.0%	3.4%
India*	N/A	\$1,842,936,418	\$2,416,840,653	\$3,736,487,132	102.7%	54.6%	3.3%
Spain	\$1,286,675,712	\$1,965,054,939	\$2,860,366,634	\$3,502,589,452	172.2%	22.5%	3.1%
Denmark	\$1,642,674,048	\$1,103,053,824	\$1,522,782,860	\$2,665,741,151	62.3%	75.1%	2.4%
Russian Fed.	\$517,583,815	\$564,647,085	\$917,118,629	\$2,431,750,143	369.8%	165.2%	2.1%
Mexico	\$1,380,691,584	\$1,317,596,540	\$2,105,331,290	\$2,154,912,755	56.1%	2.4%	1.9%
China	\$3,210,616,411	\$4,149,882,016	\$2,168,880,588	\$1,969,031,920	-38.7%	-9.2%	1.7%
Austria	\$872,452,233	\$1,139,917,993	\$1,349,915,297	\$1,778,826,718	103.9%	31.8%	1.6%
Australia	\$748,348,096	\$1,208,527,232	\$1,670,134,498	\$1,737,816,324	132.2%	4.1%	1.5%
Canada	\$1,058,771,508	\$1,246,471,221	\$1,559,469,220	\$1,709,593,635	61.5%	9.6%	1.5%
Finland	\$388,123,776	\$518,189,504	\$702,084,868	\$1,672,084,732	330.8%	138.2%	1.5%
Switzerland	\$711,491,776	\$785,422,336	\$1,132,521,347	\$1,628,242,105	128.8%	43.8%	1.4%
Sweden	\$606,071,616	\$929,107,520	\$1,494,899,652	\$1,590,287,041	162.4%	6.4%	1.4%
Hungary	\$787,294,016	\$1,483,804,000	\$1,932,387,000	\$1,581,929,415	100.9%	-18.1%	1.4%
Saudi Arabia	\$390,131,036	\$501,041,784	\$646,000,933	\$1,516,052,900	288.6%	134.7%	1.3%
Thailand	\$1,445,198,220	\$1,302,704,294	\$1,225,215,973	\$1,496,775,730	3.6%	22.2%	1.3%
South Africa	\$669,362,560	\$780,180,992	\$1,149,352,511	\$1,489,195,667	122.5%	29.6%	1.3%
Turkey	\$506,933,988	\$647,049,511	\$1,064,736,246	\$1,237,005,200	144.0%	16.2%	1.1%
Malaysia	\$1,023,412,615	\$786,666,827	\$1,283,473,900	\$1,222,875,563	19.5%	-4.7%	1.1%
Colombia	\$338,162,208	\$495,775,136	\$648,337,281	\$1,201,821,450	255.4%	85.4%	1.1%
Belgium	\$538,461,412	\$516,226,255	\$733,627,280	\$1,164,303,932	116.2%	58.7%	1.0%
Argentina	\$31,594,212	\$188,654,561	\$902,845,556	\$1,152,525,237	3547.9%	27.7%	1.0%
Poland	\$736,182,976	\$842,451,008	\$854,215,265	\$1,045,694,487	42.0%	22.4%	0.9%
TOTAL	\$55,588,991,683	\$65,689,211,085	\$92,496,084,057	\$113,321,249,269	103.9%	22.5%	100.0%

* Change from 2003-2005

III. Market Potential Indicators
III.B. Top 30 World Importers, 2003-2006

2. HS 903040: Instrument and Apparatus for Telecommunications

Importing Country	2002	2003	2004	2005	% Change	% Change	% Share
	<i>In US Dollars</i>				2002- 05	2004-05	2005
USA	\$406,048,571	\$366,941,048	\$509,366,204	\$545,376,857	34.3%	7.1%	21.3%
China	\$207,161,780	\$239,754,609	\$302,754,092	\$307,660,347	48.5%	1.6%	12.0%
Hong Kong	\$138,139,279	\$136,823,808	\$187,632,787	\$221,070,427	60.0%	17.8%	8.7%
Germany	\$142,610,000	\$161,598,000	\$151,648,000	\$172,093,000	20.7%	13.5%	6.7%
United Kingdom	\$174,740,960	\$162,096,984	\$175,858,617	\$152,076,381	-13.0%	-13.5%	6.0%
Rep. of Korea	\$108,015,504	\$108,390,672	\$111,821,553	\$141,107,155	30.6%	26.2%	5.5%
Canada	\$118,993,961	\$104,077,635	\$143,793,014	\$139,171,490	17.0%	-3.2%	5.4%
Malaysia	\$18,802,865	\$12,718,107	\$52,310,668	\$94,209,692	401.0%	80.1%	3.7%
France	\$47,051,704	\$42,168,840	\$66,993,010	\$90,440,924	92.2%	35.0%	3.5%
Japan	\$60,846,085	\$52,810,713	\$75,218,396	\$86,346,130	41.9%	14.8%	3.4%
Singapore	\$90,720,235	\$100,168,523	\$102,367,418	\$83,563,772	-7.9%	-18.4%	3.3%
Mexico	\$34,842,240	\$43,822,155	\$55,089,079	\$61,376,374	76.2%	11.4%	2.4%
Italy	\$46,728,668	\$44,346,294	\$58,282,012	\$59,716,290	27.8%	2.5%	2.3%
Israel	\$35,930,000	\$25,156,000	\$38,390,000	\$51,456,000	43.2%	34.0%	2.0%
India*	N/A	\$19,108,005	\$32,300,367	\$42,754,997	123.8%	32.4%	1.7%
Netherlands	\$29,755,259	\$21,868,216	\$25,796,331	\$31,560,356	6.1%	22.3%	1.2%
Finland	\$23,327,722	\$35,302,492	\$33,643,520	\$31,185,959	33.7%	-7.3%	1.2%
Brazil	\$30,735,686	\$21,457,248	\$40,063,138	\$30,484,355	-0.8%	-23.9%	1.2%
Sweden	\$18,887,160	\$22,624,204	\$31,258,017	\$26,913,578	42.5%	-13.9%	1.1%
Australia	\$14,319,967	\$18,267,896	\$18,463,033	\$25,751,600	79.8%	39.5%	1.0%
Spain	\$31,708,926	\$25,743,215	\$31,920,493	\$24,941,924	-21.3%	-21.9%	1.0%
Belgium	\$10,821,623	\$11,151,594	\$15,199,855	\$23,107,542	113.5%	52.0%	0.9%
Austria	\$15,179,320	\$19,845,093	\$29,336,334	\$20,565,036	35.5%	-29.9%	0.8%
Switzerland	\$15,023,811	\$14,018,911	\$15,222,955	\$17,811,842	18.6%	17.0%	0.7%
Denmark	\$11,384,564	\$16,390,763	\$13,516,735	\$16,947,520	48.9%	25.4%	0.7%
Poland	\$9,087,000	\$6,614,000	\$11,342,289	\$14,431,261	58.8%	27.2%	0.6%
Saudi Arabia	\$86,227,272	\$50,815,356	\$19,822,332	\$13,985,610	-83.8%	-29.4%	0.5%
Greece	\$15,200,097	\$23,707,784	\$11,909,988	\$10,001,629	-34.2%	-16.0%	0.4%
South Africa	\$6,902,120	\$6,244,053	\$9,030,266	\$9,928,602	43.8%	9.9%	0.4%
Romania	\$3,900,000	\$4,290,687	\$8,465,256	\$8,462,592	117.0%	0.0%	0.3%
TOTAL	\$1,953,092,379	\$1,918,322,905	\$2,378,815,759	\$2,554,499,242	30.8%	7.4%	100.0%

III. Market Potential Indicators
III.C Top 30 World Exporters & U.S Market Share, 2002-2005

**1. HS 852520: Transmission Apparatus for Radiotelephony,
Radiotelegraphy, Radio Broadcasting or Television**

Exporting Country	2002	2003	2004	2005	% Change	% Change	% Share
	<i>In US Dollars</i>				2002- 05	2004-05	2005
China	\$6,057,553,059	\$8,312,394,876	\$16,277,297,782	\$23,691,632,626	291.1%	45.6%	17.0%
Rep. of Korea	\$10,130,424,832	\$13,903,687,680	\$19,403,664,211	\$19,476,079,203	92.3%	0.4%	14.0%
United Kingdom	\$11,416,889,344	\$7,608,044,083	\$5,009,972,678	\$17,610,502,017	54.2%	251.5%	12.7%
Germany	\$9,469,528,000	\$8,414,873,000	\$13,327,752,000	\$15,150,360,000	60.0%	13.7%	10.9%
Finland	\$5,661,184,000	\$6,626,098,688	\$6,042,195,808	\$8,675,163,477	53.2%	43.6%	6.2%
Singapore	\$1,866,269,123	\$3,479,998,497	\$6,637,106,484	\$6,927,431,527	271.2%	4.4%	5.0%
Hungary	\$2,691,196,928	\$3,681,543,000	\$6,324,909,000	\$5,669,324,680	110.7%	-10.4%	4.1%
USA	\$3,476,190,244	\$3,399,166,959	\$4,658,509,941	\$4,997,234,911	43.8%	7.3%	3.6%
France	\$3,710,917,376	\$3,659,792,896	\$4,700,470,442	\$4,424,854,420	19.2%	-5.9%	3.2%
Sweden	\$3,008,335,872	\$2,927,444,992	\$4,103,245,036	\$4,212,016,542	40.0%	2.7%	3.0%
Mexico	\$2,498,125,568	\$2,246,428,840	\$3,426,330,747	\$4,084,581,278	63.5%	19.2%	2.9%
Malaysia	\$2,022,524,868	\$2,013,647,935	\$2,613,900,633	\$3,267,953,417	61.6%	25.0%	2.3%
Hong Kong	\$2,328,348,202	\$2,766,470,968	\$2,413,489,575	\$2,914,480,563	25.2%	20.8%	2.1%
Brazil	\$1,225,238,912	\$1,193,463,673	\$881,288,355	\$2,551,111,059	108.2%	189.5%	1.8%
Netherlands	\$1,114,960	\$1,298,164,749	\$2,438,056,683	\$2,423,941,692	217301.7%	-0.6%	1.7%
Denmark	\$1,946,097,280	\$1,332,087,424	\$1,278,945,818	\$2,330,552,203	19.8%	82.2%	1.7%
Japan	\$2,166,673,770	\$2,756,246,265	\$2,734,892,664	\$1,872,390,954	-13.6%	-31.5%	1.3%
Italy	\$814,541,312	\$874,948,419	\$1,384,741,226	\$1,831,754,144	124.9%	32.3%	1.3%
Canada	\$825,110,197	\$796,200,326	\$1,128,096,509	\$1,664,999,192	101.8%	47.6%	1.2%
Austria	\$584,544,360	\$682,096,354	\$887,817,263	\$1,343,336,798	129.8%	51.3%	1.0%
Switzerland	\$126,351,360	\$103,746,360	\$305,126,351	\$849,068,887	572.0%	178.3%	0.6%
Spain	\$499,903,136	\$810,598,082	\$750,206,065	\$689,387,115	37.9%	-8.1%	0.5%
Estonia	\$247,926,390	\$312,734,741	\$381,157,174	\$442,093,424	78.3%	16.0%	0.3%
Israel	\$385,756,000	\$363,408,992	\$426,748,000	\$398,168,000	3.2%	-6.7%	0.3%
Czech Rep.	\$328,602,515	\$661,269,654	\$681,293,716	\$331,728,951	1.0%	-51.3%	0.2%
Cyprus	\$757,393	\$1,339,423	\$69,854,526	\$325,769,902	42912.0%	366.4%	0.2%
Ireland	\$465,161,888	\$89,394,064	\$229,050,516	\$316,509,121	-32.0%	38.2%	0.2%
Mauritius	\$9,230,655	\$13,835,369	\$34,947,323	\$263,821,182	2758.1%	654.9%	0.2%
Belgium	\$225,041,907	\$121,062,169	\$165,362,330	\$240,005,007	6.6%	45.1%	0.2%
Luxembourg	\$511,982,656	\$250,824,298	\$211,324,838	\$220,148,802	-57.0%	4.2%	0.2%
TOTAL	\$74,701,522,107	\$80,701,012,776	\$108,927,753,694	\$139,196,401,094	86.3%	27.8%	100.0%

III. Market Potential Indicators
III.C Top 30 World Exporters & U.S Market Share, 2002-2005

2. HS 903040: Instrument and Apparatus for Telecommunications

Exporting Country	2002	2003	2004	2005	% Change	% Change	% Share
	<i>In 1,000 Dollars</i>				2002- 05	2004-05	2005
USA	\$869,288,297	\$744,864,110	\$980,822,181	\$1,181,626,365	35.9%	20.5%	36.8%
Germany	\$395,859,000	\$422,208,000	\$617,274,000	\$687,195,000	73.6%	11.3%	21.4%
Malaysia	\$15,786,195	\$52,815,296	\$144,196,589	\$286,170,821	1712.8%	98.5%	8.9%
United Kingdom	\$339,775,968	\$341,462,538	\$273,797,261	\$279,441,155	-17.8%	2.1%	8.7%
Hong Kong	\$115,384,061	\$114,196,522	\$158,470,224	\$166,187,401	44.0%	4.9%	5.2%
Canada	\$74,459,482	\$74,849,534	\$104,433,135	\$119,277,506	60.2%	14.2%	3.7%
Japan	\$43,985,590	\$34,718,580	\$50,315,039	\$65,456,038	48.8%	30.1%	2.0%
Singapore	\$63,932,432	\$53,730,230	\$58,121,273	\$62,813,859	-1.7%	8.1%	2.0%
Sweden	\$36,123,012	\$38,218,888	\$55,906,089	\$54,430,973	50.7%	-2.6%	1.7%
France	\$49,006,712	\$34,927,200	\$40,336,187	\$53,119,120	8.4%	31.7%	1.7%
Finland	\$25,235,456	\$34,545,224	\$34,213,144	\$50,099,313	98.5%	46.4%	1.6%
Switzerland	\$27,114,826	\$28,362,564	\$25,248,846	\$40,604,406	49.7%	60.8%	1.3%
Italy	\$18,334,810	\$15,744,440	\$14,602,960	\$21,800,311	18.9%	49.3%	0.7%
Austria	\$4,603,815	\$5,363,481	\$11,803,821	\$20,480,281	344.9%	73.5%	0.6%
Spain	\$15,958,198	\$13,006,211	\$14,848,823	\$17,146,872	7.4%	15.5%	0.5%
Netherlands	\$46,492,139	\$24,771,619	\$24,564,655	\$17,089,236	-63.2%	-30.4%	0.5%
South Africa	\$6,192,800	\$4,895,835	\$1,907,847	\$9,993,438	61.4%	423.8%	0.3%
Rep. of Korea	\$7,962,538	\$14,279,074	\$6,071,315	\$9,432,079	18.5%	55.4%	0.3%
Belgium	\$7,561,659	\$8,468,217	\$9,727,816	\$9,205,906	21.7%	-5.4%	0.3%
Australia	\$17,646,156	\$5,591,004	\$6,470,021	\$7,960,084	-54.9%	23.0%	0.2%
Denmark	\$15,431,645	\$12,169,990	N/A	\$7,877,715	-49.0%	N/A	0.2%
Poland	\$351,000	\$5,384,000	\$6,087,747	\$6,676,590	1802.2%	9.7%	0.2%
China	\$3,258,340	\$4,728,974	\$6,113,272	\$6,602,332	102.6%	8.0%	0.2%
Mexico	\$6,632,544	\$6,313,671	\$6,480,229	\$6,205,826	-6.4%	-4.2%	0.2%
Hungary	\$6,826,000	\$9,603,000	\$6,959,000	\$6,059,762	-11.2%	-12.9%	0.2%
Czech Rep.	\$2,503,151	\$8,681,985	\$8,989,958	\$5,483,207	119.1%	-39.0%	0.2%
Ireland	\$1,272,175	\$3,910,740	\$387,811	\$5,012,986	294.0%	1192.6%	0.2%
New Zealand	\$4,857,839	\$2,719,546	\$1,812,467	\$2,474,636	-49.1%	36.5%	0.1%
Russian Federation	\$377,203	\$879,215	\$564,814	\$1,996,528	429.3%	253.5%	0.1%
Portugal	\$2,656,146	\$2,483,855	\$2,843,299	\$1,805,630	-32.0%	-36.5%	0.1%
TOTAL	\$2,224,869,189	\$2,123,893,543	\$2,673,369,823	\$3,209,725,376	44.3%	20.1%	100.0%

III. Market Potential Indicators

III. D Market Sizes & U.S Share, by Country, 2004-06

The Table below provides comparative data on total market, import market, and imports from the U.S. for 38 countries considered “best prospects” for U.S. exports of Telecommunications Equipment. The countries are listed in alphabetic order, not in rank order. The data are based on local sources and reflect best estimates of USCS commercial officers each country. Statistical accuracy and comparability to other sources (e.g., “USDOC Bureau of Census”) are affected by a number of factors, including lack of published figures in certain markets, variances in data collection techniques, sources of data, and industry definitions.

Market Sizes for Airports & Ground Support Equipment, by Country
(Values in \$ Millions)

Country	Total Market			Total Import			Imports from US			U.S. Share
	2004	2006	% Change	2004	2006	% Change	2004	2006	% Change	2005
Angola	130	300	130.8%	130	300	130.8%	50	85	70.0%	28.3%
Australia	4,818	5,418	12.5%	2,790	3,100	11.1%	600	780	30.0%	25.2%
Austria	1,272	1,424	11.9%	520	517	-0.6%	41	37	-9.8%	7.2%
Barbados*	66	55	-16.7%	69	67	-2.9%	43	48	11.6%	71.6%
China	18,574	41,560	123.8%	24,608	37,757	53.4%	1,320	1,516	14.8%	4.0%
Croatia	950	1,100	15.8%	750	1,050	40.0%	5	10	100.0%	1.0%
Czech Rep.	2,790	3,920	40.5%	2,510	3,650	45.4%	740	980	32.4%	26.8%
Denmark	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Egypt*	3,360	4,320	28.6%	2,880	3,456	20.0%	1,440	1,728	20.0%	50.0%
France	14,490	16,064	10.9%	8,105	9,754	20.3%	1,295	1,570	21.2%	16.1%
Georgia**	35	67	91.4%	36	67	86.1%	1	6	500.0%	9.0%
Germany**	15,700	18,000	14.6%	7,000	9,700	38.6%	1,300	1,700	30.8%	17.5%
Ghana	74	228	208.1%	74	228	208.1%	10	17	70.0%	7.5%
Guinea	27	14	-48.1%	27	14	-48.1%	1	1	150.0%	9.3%
Haiti*	25	90	260.0%	25	90	260.0%	19	86	352.6%	95.6%
Indonesia	2,852	3,920	37.4%	2,570	3,512	36.7%	1,156	1,525	31.9%	43.4%
Israel	1,350	1,782	32.0%	1,000	1,375	37.5%	310	350	12.9%	25.5%
Kazakhstan	252	474	88.1%	244	468	91.8%	18	73	305.6%	15.6%
Mexico	6,387	8,155	27.7%	4,706	5,370	14.1%	2,824	3,229	14.3%	60.1%
Nepal	38	65	71.1%	21	55	161.9%	7	2	-71.4%	3.6%
New Zealand	3,957	4,500	13.7%	3,600	4,100	13.9%	1,800	2,500	38.9%	61.0%
Norway**	8,420	9,700	15.2%	997	1,150	15.3%	N/A	N/A	N/A	N/A

Market Sizes for Airports & Ground Support Equipment, by Country
(Values in \$ Millions)

Country	Total Market			Total Import			Imports from US			U.S. Share
	2004	2006	% Change	2004	2006	% Change	2004	2006	% Change	2005
Paraguay**	N/A	N/A	N/A	N/A	N/A	N/A	19	16	-15.8%	N/A
Philippines	1,340	1,300	-3.0%	1,340	1,400	4.5%	45	75	66.7%	5.4%
Qatar**	64	100	56.3%	64	100	56.3%	6	15	150.0%	15.0%
Romania	3,350	4,680	39.7%	2,700	3,975	47.2%	230	400	73.9%	10.1%
Serbia Mont	N/A	N/A	N/A	N/A	N/A	N/A	36	32	-11.1%	N/A
Singapore	3,309	3,791	14.6%	8,213	12,425	51.3%	274	536	95.6%	4.3%
South Africa	12	14	19.2%	6	7	16.7%	3	4	33.3%	57.1%
Spain	5,610	7,864	40.2%	4,342	6,162	41.9%	1,223	1,470	20.2%	23.9%
Sweden**	1,567	1,628	3.9%	1,225	1,058	-13.6%	48	70	45.8%	6.6%
Switzerland	8,234	8,700	5.7%	2,520	2,820	11.9%	835	905	8.4%	32.1%
Thailand	1,280	1,680	31.3%	2,343	3,846	64.1%	61	92	50.8%	2.4%
Turkey	11,400	15,600	36.8%	3,750	6,400	70.7%	270	400	48.1%	6.3%
Uganda**	N/A	N/A	N/A	N/A	N/A	N/A	5	5	0.0%	N/A
U.K	9,766	11,754	20.4%	5,822	5,000	-14.1%	990	738	-25.5%	14.8%
Uruguay	N/A	N/A	N/A	63	125	98.4%	16	13	-18.8%	10.4%
Vietnam*	1,155	1,650	42.9%	854	1,085	27.0%	97	135	39.2%	12.4%

*2005-2006

**2003-2005

IV. Best-Prospect Market Assessments

Following are overviews of “best prospect” markets for Telecommunications Equipment, based on observations of USCS posts in each country. The countries appear in alphabetical order. For more detailed market research on Telecommunications Equipment in these and other specific markets, see relevant Market Research Reports listed in Chapter V. For general commercial and economic information on individual countries, see the relevant Country Commercial Guides (CCGs).

ALGERIA

Overview

Algeria’s Ministry of Post, Telephone, and Telecommunication has a long-term plan to modernize its network and introduce new services. Implementation of the plan calls for substantial imports. U.S. manufacturers dominate the radio communications and satellite equipment market, while French, Japanese and German suppliers dominate other markets. U.S. firms should concentrate on transmission equipment, particularly fiber optics, and switching and radio communications equipment. The telecommunication market has great potential and U.S. firms should take the opportunity to move into it aggressively.

ANGOLA

Overview

The two main Angolan cellular phone operators have announced that they more than doubled their client base in 2006. The state-owned cellular telephone operator Movitel has 600,000 customers, while its privately-owned competitor Unitel boasts a client base of 2,000,000. Unitel revenues in 2005 netted a total of \$600 million. Currently, the cellular phone network is oversubscribed and service can be

unreliable. Unitel is investing \$300 million in third generation technology. A proposal requesting the approval of a third license for a private network, has been pending since 2005. The government plans to invest in telecommunications infrastructure in order to achieve nationwide coverage. A \$50 million Angola Telecom started a project to extend microwave coverage to three provinces. Presently Angola has 12 publicly available Internet service providers. Inacom, the telecom regulator, announced that it has no plans to increase the number of providers in the near future. A submarine fiber optic cable financed through the Bank of Savings and Credit (BPC) will increase communications capacity for all coastal provinces. It is a joint Angola Telecom and Ericson South Africa project valued at \$300 million.

Opportunities

Movitel currently operates in all 18 provincial capital cities. Angola Telecom, a state owned company that operates all of Angola’s fixed telephone lines, spent a project \$31 million to upgrade its existing network in 2005. The company expanded the telephone network to the areas surrounding Kuito, as well as the municipalities of Andulo

and Kamacupa in Huambo province. Angola Telecom also plans to offer Internet service in these areas.

Resources

Angola Telecom:
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AUSTRALIA

Overview

U.S. exports of telecommunications equipment to Australia represent about 20% of the total import market and have the potential to continue to grow beyond that share. Revenues grew by 5% in 2005. Australia's telecommunications industry is well developed and mature. Telephone lines are connected to 96% of all Australian households, and total telecommunications revenue for 2005 is estimated at \$26 billion. Australia is implementing a range of broadband infrastructure and has seen significant expansion in the telecommunications market following deregulation in July 1997. In 2000, the federal government removed Telstra's monopoly for carrying local calls, with the unbundling of the local loop. Deregulation has resulted in expansion to more than 60 licensed carriers (from the initial two), offering a range of telecommunications services, including long-distance and local telephony, broadband services, and wireless services.

The market has seen significant consolidation over the past two years. The giant telecommunications provider, Telstra, has regained its dominance of the voice market, which is now estimated to be 75% of the total market. It is anticipated that the Federal

Government will sell its remaining 50.1% share of Telstra in the very near future. This project, known as "T3" should open up opportunities for U.S. telecommunications manufacturers in niche markets. Telecommunications products are segmented into customer premises equipment (CPE), such as telephone handsets, and network equipment and infrastructure. Customer premises equipment is defined as products attached to the network at the customer end, and includes not only telephones, small business systems and PABXs, but also any piece of equipment attached to the network. U.S.-made CPE equipment will not be permitted in Australia without modification to comply with regulations set down by the Australian Communications Authority (ACA).

Best Products/Services

The biggest driver of the telecommunications market at present is the Internet/data market that grew in 2004 by 20% over 2003. Good opportunities exist for U.S. vendors of related hardware. The VoIP market is also expanding rapidly. Other key niche segments include the mobile market and, more importantly, Internet networks.

These two segments have opened up major areas of equipment provision previously not required. XDSL technologies were launched to the public in August 2000, and a range of other services, including satellite and cable are also being offered to provide broadband access to the Internet. Although U.S.-made analog phones sold well in the past, the closure of the Australian analog AMP network in early 2000 and the spread of the digital GSM network resulted in a diminished market share for

U.S.-made products compared to European-made GSM products. However, the introduction of the CDMA mobile networks run by Telstra and Orange are important for suppliers like Motorola and Qualcomm. More recently the 3G mobile network was introduced in Australia. All carriers, including Telstra, continue to develop and upgrade existing networks. About \$2.5 billion are expended each year to maintain the existing networks. These carriers usually undertake network infrastructure purchases on an "invitation only" basis to selective international telecommunications suppliers, which must also be prepared to include some aspect of local industry development. Nonetheless, U.S. exporters of network infrastructure products should certainly consider presenting their products to the carriers. U.S. products, including advanced network equipment like ATM switches, call processing and managing equipment, modems, and routers, are competitive in Australia. Growth areas include wireless technologies, fiber optics, and communications and applications software.

Opportunities

Opportunities for U.S. vendors exist in providing equipment for the following areas:

- Broadband – wireless and fixed. There are approximately 1,450,000 broadband subscribers in Australia and the number of users switching from dial-up to broadband accounts is set to grow strongly over the next few years.
- VoIP. Still in its infancy in Australia, VoIP will become a viable option to fixed line in the corporate market.
- Switchless PABXs. With the decline in price in a number of these solutions,

expect to see demand for them to grow in call centers throughout Australia.

Resources/Publications

- <http://www.cebit.com.au/>
- <http://www.buyusa.gov/australia/en/cebit.html>
- <http://www.commsworld.com.au/>
- <http://www.exchange.com.au/>
- <http://www.budde.com.au/>

Associations/Government Agencies:

- The Australian Competition and Consumer Commission (ACCC): <http://www.accc.gov.au>. The ACCC is the local body with the charter for ensuring compliance with the Trade Practices Act and the Telecommunications Act. The ACCC is similar in function and role to the U.S. Federal Trade Commission in that it deals with anti-competitive and unfair market practices, mergers and acquisitions and third-party access to facilities of national interest. Additionally, the ACCC is responsible for general consumer protection and competition regulation as it applies to the Trade Practices Act. Australian Communications Authority: <http://www.aca.gov.au>
- The Australian Communications Authority is the chief regulator of the Telecommunications and Radio communications Act. Australian Telecommunications Users Group: <http://www.atug.org.au>
- ATUG is a not-for-profit membership-based organization of Australian telecommunications users; and has been working for better choice, value and services in the sector since 1981. Australian Mobile Telecommunications Association: <http://www.amta.org.au>

- AMTA is the national industry body representing the mobile telecommunications industry in Australia. Australian Information Industry Association:
<http://www.aiia.com.au>
- The Internet Industry Association of Australia (IIA) is the industry association acting for the local IT industry. <http://www.iiia.net.au>

U.S. companies seeking information on the Australian telecommunications market are encouraged to contact Duncan Archibald at the U.S. Commercial Service in Sydney (email): duncan.archibald@mail.doc.gov

AUSTRIA

Overview

The Austrian telecommunications equipment market in Austria is open, well developed, and highly competitive. Major worldwide telecom equipment suppliers such as Siemens, Motorola, Ericsson, Nokia, Alcatel, Philips, and Cisco Systems have dominant positions. The market totaled \$1.4 billion in 2005, an increase of about 9.2% over 2004. The fastest growing sector in the last few years was the end-user equipment market, which was led by growth in sales of mobile telephone sets. Manufacturers of communications equipment were able to boost the value of total production by 3.4% in 2005. Lively increases in production in recent years have derived from strong investment in wireless communications, and this continued in 2005. Investment activity by fixed network operators, on the other hand, was modest. Exports by Austrian producers to the EU once again increased, as did exports to Eastern

Europe. Given the demand for additional development of infrastructure (for broadband communications, for example), the sector anticipates continuing increases in investment.

The Austrian market for enterprise infrastructure and network access equipment is expected to increase to \$373 million in 2006, from \$350.2 million in 2005, an increase of 6%. Sales of broadband equipment amounted to \$38.4 million in 2005. Over 1 million broadband households were registered in 2005, which is expected to increase by approximately 20% in 2006.

Best Products/Services

Growth segments over the next two years will be enterprise converged voice equipment, dedicated content equipment, and wireless LAN equipment. With the expansion of the broadband sector, investment in network infrastructure will be needed. Best prospects in this area are optical fiber, power line, radio networks (W-LAN), and cable television networks (CATV).

Resources

Web resources:

- The Association of the Austrian Electrical and Electronics Industry (FEEI): <http://www.feei.at>
- IDC Austria: <http://www.idc.com/austria>
- Statistik Austria: <http://www.statistik.at>
- Contact: Ingeborg Doblinger, Commercial Specialist, Commercial Service, Vienna, Austria Email: ingeborg.doblinger@mail.doc.gov

BARBADOS

Overview

Barbados has liberalized its telecommunications market, and there is full competition in the cellular, domestic, customer premises equipment and international sectors. In addition to presenting opportunities for U.S. telecom companies, liberalization should continue to bring down the relatively high long distance rates to the benefit of all international businesses.

Best Products/Services

- Voice Over Internet Protocol Equipment
- Customer Premises Equipment
- Cellular Telecommunications Equipment.

Opportunities

There will be a demand for Voice over Internet Protocol (VOIP) Equipment as existing telecommunications companies source VOIP equipment for their networks and roll out the service to their customers.

Resources

- Doreen Weekes, Commercial Specialist, U.S. Commercial Service, Bridgetown
Tel: 246/436-4950 Ext. 4068
Website: <http://www.buyusa.gov/caribbean/en/barbados.html>
Email: doreen.weekes@mail.doc.gov
- Barbados Public Utilities Website: http://www.barbados.gov.bb/portfolio_econ.htm

Some of the most commonly attended trade shows by Barbadian buyers for this product category include:

- Satellite 2007, Washington, DC, (<http://www.satellite2007.com/>)
- CTIA Wireless 2007, Orlando, FL, (<http://www.ctiawireless.com/>)

CHINA

Overview

China's telecom carriers -- China Telecom, China Netcom, China Mobile, China Unicom, China Tietong and China Satellite -- invested some \$28.7 billion in telecom infrastructure in 2006. As a result of this investment, Chinese telecom carriers added 86.2 million additional new subscribers (19.6 million fixed line users and 66.6 million mobile phone users) to bring the total number of telephone users in China to 830 million. Fixed line telephone penetration rate reached 28.3% and mobile communications penetration rate reached 35.2%.

China also achieved tremendous growth in Internet users. According to China's Ministry of Information Industry (MII), China is the home to 132 million Internet users, with 52 million broadband users. In 2007, MII projects that Chinese telecom carriers will invest \$25 billion to capture 70 million fixed line telephone subscribers and mobile phone users. The number of telephone users in China could reach 900 million by the end of 2007. By the end of 2007, MII expects the fixed line penetration rate to reach 29% and mobile communications to reach 39.4%.

Although the Chinese government has committed to offer 3G (3rd generation mobile communication) services during the 2008 Beijing Olympic Games, deployment of 3G networks has been delayed. Chinese telecom carriers have focused on expanding their trial networks of TD-SCDMA, a 3G standard developed by China. It is believed that China may issue 3G licenses in the second half of 2007 and Chinese telecom

carriers are likely to begin by rolling out 3G networks in the cities of Beijing, Shanghai, Qingdao, Tianjin, Qinhuangdao, Shenyang, as well as Hong Kong.

Opportunities

Mobile Communications. Mobile communications remains the most profitable business in China's telecommunications service sector, accounting for 45% of the total revenue generated by the industry. China's two mobile operators, China Mobile and China Unicom, will continue to expand their mobile networks in 2007 to increase network coverage and be able to offer new services to their customers. Base stations, switches, and network optimization solutions will be needed for this expansion. China's six basic telecom carriers are lobbying hard to receive the 3G licenses. Although it is still unclear how many licenses will be issued, the deployment of 3G networks in 2007 will create sales opportunities for both Chinese and multinational telecom vendors and application solution providers.

Value-Added Services. Both Chinese fixed line and mobile telecom operators are changing their development strategies. They are moving from infrastructure builders to service providers. They are focusing on not only building the infrastructure but also developing new services, especially value-added services, in order to generate additional revenue and remain competitive in the market. They are increasingly open to partnerships with other service or solution providers. For more information, please refer to our report titled "Telecommunications Service Market in China" at http://www.buyusainfo.net/docs/x_8516024.pdf.

IP and Broadband. IP and broadband are the top priorities for China's fixed line telecom operators. China Telecom, China Netcom and China TieTong will increase their investment in IP and broadband infrastructure in 2007. Intelligent optical networks, multi-service platforms and fiber to the home (FTTH) will be the development trend for broadband networks. As China's broadband market grows, China will need more wire line Internet access products such as ADSL, LAN and Ethernet, as well as Wi-Fi and WiMax for wireless Internet access.

IPTV and mobile TV are two pioneer applications in the convergence of China's telecom industry. China Netcom launched IPTV in Harbin on May 17, 2006 and now has more than 100,000 subscribers. Shanghai Telecom launched IPTV in Shanghai on September 1, 2006 and has 60,000 subscribers. China Mobile and China Unicom partnered with China's Central Television (CCTV) and launched mobile TV on December 11, 2006. The further growth of China's IPTV and mobile TV markets in 2007 will offer U.S. technology companies additional export opportunities.

Resources

Trade Show

PT/Expo Comm China 2007
October 23-27, 2007 China International Exhibition Center
<http://buyusa.gov/china/en/ptexpocomm2007.html>

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• Beijing

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CROATIA

Overview

After bringing the telecommunications legislation in accordance with the EU and WTO requirements in a relatively short period of time, Croatia currently enjoys a highly liberal telecommunications market environment with five fixed and three mobile operators, five major ISPs, two major cable TV operators and eight concessionaires operating a total of 21 WiMax concessions in 6 major counties. The Croatian Telecommunications Agency (www.telekom.hr) acts as an independent regulatory authority in the telecommunications sector. It is financed from the licensing fees, which are in most cases reduced to an administrative processing fee. Major changes took place in 2005 – the local loop was effectively unbundled, the companies with significant market power were required to publish their interconnection tariffs, and the number portability and carrier pre-selection became available. With the new market entrants in the fixed telephony, call prices were reduced by between 7%-39%, depending on the tariff model. Mobile operators reduced their prices by 22% in average for domestic calls, and approximately 2.5% for international calls. Croatian telecommunication companies invested a total of approximately \$300 million in telecommunication equipment in 2005.

Best products/Services

Mobile communications remain the most developed market segment with penetration rate estimated at as high as 90%, while broadband has a penetration rate of just over 2%. The incumbent operator, T-Hrvatski Telekom, is focused on marketing ADSL and has

launched a MaxTV service – digital TV combined with video-on-demand service for its subscribers.

Opportunities

Expansion of UMTS mobile networks requires continuous investments in carrier-grade network equipment. The same is true for recent start-up fixed telephony operators. Metronet, the first telecommunications company launched with entirely Croatian venture capital, became one of Cisco's preferred customers in this part of Europe. In July 2006, Metronet issued a bond flotation of approximately \$20million to finance the expansion of its optical network.

Resources

Croatian Telecommunications Agency – <http://www.telekom.hr/>

CZECH REPUBLIC

Overview

The Czech IT and telecom market is vibrant and competitive. Penetration ratios are approaching those of Western Europe, government and private investment in the sector continues, and growth of over 8% is expected this year. U.S. companies with niche products and services will continue to find good opportunities by working with a local partner, either agent or OEM.

Major players include SWS, Oracle, Auto Cont, Microsoft, Hewlett-Packard, IBM, Sun Microsystems, eD'T-Systems, Unysis, CompuSource/MacSource and Unicorn. Primary technology providers include Microsoft, IBM, Sun Systems, Oracle, Lotus, Novell, Compaq, Symantec, Spectrum and Citrix.

Best Products/Services

- Electronic components
- Network equipment
- Wireless equipment
- Data service equipment
- Voice service equipment
- Video conferencing equipment

Opportunities

- Telefonica increased its investment in the country and is committed to further modernization of the Czech telecom sector.
- E-commerce in the Czech Republic continues to grow. Over 34% of households and 90% of business have Internet access. Progress is slow but steady.
- Computer and office equipment hardware still accounts for a very large share (45percent) of the IT market, but the market is gradually shifting to software and services (currently 19 and 36% respectively).
- Mobile phone usage outstrips the EU average – this country of 10.3 million people boasts 12 million mobile phones, and increasing numbers of Czech consumers are canceling their fixed lines. Overall spending on telecommunication equipment and services is steeply increasing.
- U.S. suppliers are price competitive in the Czech Republic, due to the continuously fluctuating dollar.

Resources

- INVEX, International Fair of Information and Communication Technologies, October 22-26, 2007, Brno, www.invex.cz, e-mail: invex@bv
- The largest telecom event in Central / Eastern Europe, and ranked as one of the top four IT fairs worldwide. Over

600 exhibitors from 18 countries regularly take part.

- DIGITEX, International Fair of Consumer Electronics and Digital Entertainment, October 22-26, 2007 Brno, invex@bvz.cz

Key Websites

- Ministry of Informatics, Havelkova 1, 130 00 Praha 3, web: www.micr.cz, e-mail: posta@micr.cz
- Czech Telecommunication Office (Regulatory body appointed by government, Sokolovska 219 Prague 9, web: www.ctu.cz, e-mail: info@ctu.cz)
- Association for Information Society, www.spis.cz
- Association for e-Commerce, www.apek.cz
- Center for e-Commerce, www.e-commerce.cz
- U.S. Commercial Service
Luda Taylor, Commercial Specialist
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DENMARK

Overview

Denmark has a strong international position in the IT and wireless sector and a first class telecom and data infrastructure. Denmark has one of the highest rates of Internet penetration, mobile phone penetration and e-business implementation in Europe, together with one of the highest levels of IT spending per capita in the world. Denmark is an excellent test market for new products/technologies and exporters due to its manageable market size. The general willingness of the population to exploit the newest technologies is also

examples of the IT readiness of the entire Danish society.

There are three companies with established GSM mobile networks in Denmark. There are also a number of companies who only offer mobile services through leasing within these networks. Denmark awarded its third generation (3G) universal mobile telecommunications service (UMTS) licenses through an auction in September 2001 to four operators. Currently, the GSM network is the most common in the country but the general packet radio service (GPRS) system, built upon the existing GSM network, is also operative in many areas.

In October 2003, the company Hi3G launched the first '3G' service (under the name "3") in Denmark, which uses W-CDMA. Sweden's Ericsson supplies 3's network, radio equipment, services and transmission. In September 2006, "3" had amassed 150,000 customers in Denmark, a trebling of their subscriber base in one year. By the end of 2005 TDC launched its 3G services and Finnish-Swedish TeliaSonera is expected to launch their services in the near future, and is until then promoting EDGE services to their consumers. Sonofon acquired the last license and is expected to launch 3G services during the third quarter of 2006 after testing was completed in June 2006. Its parent company, Telenor, already operates '3G' services in three other markets. Roughly 14,000 new broadcasting masts have to be raised to cover Denmark entirely.

In the coming year, TDC, the former monopoly and distinct market leader, Sonofon will launch 'Turbo 3G' in 2007, High Speed Downlink Packet Access

(HSDPA). This change requires only an upgrade to the base-station software so is not seen to be a long and drawn-out launch. It is expected that the speeds offered by the three competitors will be around the 3.6Mbps

On the broadband market, the current status is that 98% of the Danish population is able to get a fast internet connection. In large parts of the country, several alternative access services are available in the form of ADSL, cable modems and FWA. In areas where only ADSL connections can be established, the consumers are able to choose among several different providers. As of December 31, 2005, over 1.35 million broadband connections had been established in Denmark, including access via local networks in housing associations and student hostels. This corresponds to 25 high-speed connections per 100 inhabitants, compared with about 16 connections per 100 inhabitants 6 months earlier, in June 2005.

Mobile telecommunications has also grown so that now almost 100% of the population uses a mobile phone. This growth has resulted in net fall in household (landline) telephone lines. This drop is not dramatic; however, it is a constant feature and has been over the last three years.

Best Products/Services

U.S. products and services are generally looked upon as market leaders, and the new-to-market services, which emerge in the USA, are also the services that have good potential in the Danish market. Normal market mechanisms prevail. New-to-market companies will face fierce competition from those

already established here, many of which are American. Also, the number of local companies willing to invest in new accounts is very small. Consequently, new-to-market companies should be prepared to establish their own sales offices in the region, or, as some have already done, establish a market presence through joint-ventures, buy-outs, or strategic alliances.

Opportunities

There are good opportunities for U.S. companies in the growing broadband market, since more and more of the 275 Danish municipalities are investing in their own fiber-optic networks, which are rapidly increasing the country's broadband capacity. Denmark also adopted wireless technologies as a supplement to the traditional broadband solutions. In the coming years, there will also be opportunities for U.S. telecom service operators and content providers for the 3G mobile net. The licenses have a 15-year duration and the winning bidders have obligated themselves to cover 30% of the population by the end of 2004 and 80% by the end of 2008. These terms are regarded as very reasonable since most Danes are living close to the larger cities

Resources

The National IT and Telecom Agency is part of the Ministry for Science, Technology and Innovation (www.itst.dk).

For more information, please contact Bjarke Frederiksen, Senior Commercial Specialist.

EGYPT

Overview

The Egyptian telecommunications sector is one of the most developed in the Middle East/North Africa region. Forecasts expect the sector to grow significantly in the coming three years until it reaches a peak in 2009. The telecommunications market was officially deregulated at the end of 2005, a move that opened the market for new entrants and created a competitive market. The deregulation opened the telecommunication market creating opportunity for equipment and services providers. A third GSM 3G license was awarded in April 2006 for \$2.9 billion to the consortium led by the UAE company Eitesalat (66%), Egypt Post (20%), the National Bank of Egypt (10%), and the Commercial International Bank (4%). Eiteslat is planning to spend another \$1 billion on infrastructure for its network.

The National Telecommunication Regulatory Authority (NTRA) announced a license award to a consortium of Egyptian and Arab private sector companies to extend a maritime cable for international traffic, a \$120 million project. The cable will serve the Gulf region and south Europe. The construction of the cable should decrease international call costs and increase demand on internet broadband services, in addition to increasing Egypt's exports of international telecommunication services.

Another anticipated step towards deregulation is NTRA's upcoming release of two licenses for international gateways using open technology that will be awarded to the private sector. The NTRA is also studying the guidelines to deploy WiMax.

Best Products/Services

- Wireless Networks and Solutions
- Wi-Fi
- Wi-Max
- Voice Over Internet Protocol (VoIP)
- CDMA
- DSL
- GSM Solutions and Applications
- Call Centers
- Fiber Optic Cables
- Billing Solutions
- Clearing houses for roaming
- Triple Play
- E-numbering
- Mobile Number Portability
- Media Convergence
- Network Centers
- Call Centers

Opportunities

With the deregulation of the industry and the subsequent growth and investment, a wide range of telecommunication equipment and components will be required, including copper and fiber optic cables, central office switches, cellular stations, data communications satellite, and microwave communication equipment. New entrants will find business opportunities in wireless technologies, 3 G, Wi-fi, Wi-Max, VoIP, CDMA, GSM solutions and applications. Wireless technology is being implemented around Cairo with hotspots installed in a number of hotels, coffee shops and restaurants. The NTRA allowed domestic VoIP, and request for proposals for two international gateways using open technology will be announced in 2007.

Resources

- Commercial Service in Egypt:
<http://www.buyusa.gov/egypt/en/>
- U.S. Embassy:
<http://cairo.usembassy.gov/>
- USAID: <http://www.usaid-eg.org/>
- World Bank:
<http://www.worldbank.org/>
- American Chamber of Commerce in Egypt: <http://www.amcham.org.eg>
- Egyptian Government Web Portal:
<http://www.egypt.gov.eg/english/>
- Ministry of Communications and Information Technology:
<http://www.mcit.gov.eg/>
- Telecom Egypt:
<http://www.telecomegypt.com.eg/home-en.asp>
- National Telecommunication Regulatory Authority,
<https://www.ntra.gov.eg/www.ntra.gov.eg>
- Information Technology Industry Development Agency:
<http://www.itida.gov.eg/>
- MobiNil: <http://www.mobinil.com/>
- Vodafone: <http://www.vodafone.com/>
- Contact for the Commercial Specialist in charge of the Telecommunication Sector: Ms. Hend El-Sineity, hend.el-sineity@mail.doc.gov.

ESTONIA

Overview

Total sales of companies in the IT and telecom sector in Estonia in 2005 grew 7.8% over the preceding year, to reach approximately \$1.4 million. According to a study by the Estonian Association of Information Technology and Telecommunications, despite continued fragmentation of the market, the 100 biggest companies together accounted for roughly 90% of the entire market.

The four largest telecom operators accounted for half of the entire sector's sales and for more than 70% of profit. In comparison with 2004, the volume of the market for IT and telecom services grew 7.8%, while the number of employees was up 4.2%. Also, profitability rose 7.8% on average.

Trends during 2005 show intensified competition between telecommunications companies and "traditional" IT businesses. The sale of equipment makes up a very significant portion of the sales of service providers and many companies now offer voice and data communication services which previously were considered the domain of telecommunication companies.

The telecommunications companies have been still notably more aggressive and efficient in selling voice and data communication services. Even though their sales grew less than those of IT companies in comparison to 2004 (11.8% and 15.9% respectively), their share of the market increased more due to their high turnover volumes. The telecommunications sector has been fully liberalized and is open to competition. The Estonian telecommunications industry is led by Eesti Telekom, which comprises both the fixed line and mobile business.

The Estonian mobile communications market is dominated by four operators: EMT (started in 1991, owned by Eesti Telekom), Elisa (1994, owned by Elisa Communications), Tele2 (owned by Tele2 AB) and Bravocom. Estonian Telekom has made significant investments in the telecommunications infrastructure. Fiber optic cables cover the whole country. Direct undersea

connections to Sweden and Finland and links to neighboring Russia and Latvia guarantee first-class international communications. A wide range of services (Internet dial-up, ISDN, ADSL, WI-FI or permanent and cable connections) are offered. In addition to ADSL, wireless connections like WDSL and RDSL are offered in rural districts. Telecommunications equipment has been one of the biggest product groups imported from the U.S. during past years.

Key developments in Estonia's IT and telecommunications market:

- E-Tax Board Income Tax Statements can be filled out via the Internet (since Spring 2001)
- 60% of the population is using the Internet and 80% Internet banking (summer2006)
- The Government uses a web-based document system (since August 2000)
- All Estonian schools are connected to the Internet, as a result of the state-run "Tiger Leap" program
- Over 800 Public Internet Access Points exist
- There are over 855 free wireless Internet zones around the country (Autumn 2006)
- e-billing (July 2000)
- Parking by mobile phones project (July 1, 2000)
- Digital Signature Act came into force (December 2000)
- ID card - new primary domestic identification document (January 2002)

Estonia is completely covered by digital mobile phone networks. The entire country has mobile phone coverage, with three operators providing GSM services. Due to the close proximity of the Nordic

countries -- the world leaders in many of the new wireless telecommunication technologies, -- Estonia has become a country where mobile phones are not only manufactured, but are also widely used. Today almost 100% of the population uses GSM services. From October 28th, 2005, AS EMT (Ltd) became the first mobile network operator in Estonia to open a third-generation (3G) network for commercial use and to offer 3G services. 3G mobile connection enables high-speed data communication that, in turn, allows forwarding of moving images and video clips. In the EMT 3G network, the speed of data connection is 384 KB per second.

EMT foresees essential growth in data communication in addition to the calling services; data connection is also one of EMT's strategic development goals. The launch of 3G will help increase EMT data communication revenue. According to 3G license terms in Estonia, the 3G network must cover 30% of the Estonian population by the year 2010. At the moment, the EMT 3G network covers most of Tallinn, the capital of Estonia. The EMT 3G network equipment is manufactured by Ericsson.

In 2004, the Estonian mobile operator EMT started building the EDGE network, offering faster speeds of mobile data transmission. EMT invested almost 1 million EUR in the project during the first year. EMT plans nearly complete transition to the EDGE technology by the end of 2007. Ericsson will supply the network equipment.

In 2005, the first Wi-Max network was opened near Tallinn, with a range of 15 km. Beginning April 2007, EMT will make available to its subscribers a new

service, mobile ID, which will allow digital signatures by cell phone, and enable services requiring secure identification such as online banking services.

Best Products/Services

Wireless technologies and applications

Resources

- Gateway to the IT companies:
http://www.ee/index.php?Ari/Side/Arvuti-_ja_andmeside&l=2
- WIFI: www.wifi.ee
- Estonian Telecom:
http://www.telekom.ee/index.php3?lang=est&act_lang=switch
- Ministry of Economy and Communication:
<http://www.mkm.ee/index.php?id=8419>

ETHIOPIA

Overview

Ethiopia continues to invest in expanding and upgrading its telecommunications network. Ethiopia currently has the lowest telephone line density, albeit improving, in Africa, with less than 2.1% coverage among potential fixed line customers. There are currently 800,000 fixed lines and 1 million mobile phone users in the country. The Ethiopian Telecommunications Corporation (ETC) has plans to aggressively expand telecommunications services in the next 2-3 years with vendor financing obtained from China companies amounting \$1.5 billion. In addition, ETC has plans to expand ICT infrastructures across the country to support voice, data, and video services.

To implement these plans, ETC will acquire digital overlay switches,

transmission systems (mainly fiber optic backbone), digital microwave, satellite and wireless technology. Other projects contained within the ETC's development program include DRMAS stations, VSAT stations, coin- and card-operated telephones, expanded internet and mobile telephones. For all these projects, ETC will make substantial investments over the coming years.

Best Products/Services

The current directive on value added services, including ISP, issued by the Government of Ethiopia has allowed foreign companies to participate with local partners. Wireless internet service in partnership with the Ethiopian private sector. Fixed networks, switching and optical networks are other areas where U.S. firms could supply equipment and/or services.

Opportunities

ETC will embark upon the following identified project areas in the coming few years.

- Mobile network expansion by more than 7 million
- About 10,000 km optical fiber route construction
- Expansion of fixed wire line by about 4 million
- Rural connectivity for 10,000 villages
- Optical access in major towns of the country
- CDMA WLL projects for major towns
- Telecommunications network planning and design
- Contract supervision
- Capacity building in the area of project management

Resources

Ethiopian Telecommunications Corporation: www.ethionet.et

FRANCE

Overview

The IT and telecommunications market is currently being supported by the broadband and mobile telephony sectors, which should continue their rapid growth and further drive the industry. The French broadband market is going through an amazing phase of growth and convergence. The number of traditional wire line broadband connections to French residences is increasing steadily, dominated by ADSL. Use of broadband capable, also known as “Third Generation,” cell phones, is also growing, as they aggressively target a maturing French mobile sector. Wireless broadband connectivity is increasing as well, especially through the spread of public hot spots.

For consumers, this rising access to broadband is enabled and driven by the growth of e-commerce and e-media consumption in France. For businesses, broadband connectivity is an increasingly integral part of marketing, communication and distribution strategies. The trend in French Internet consumption continues to be more connectivity and better services for less money. The number of high-speed Internet subscriptions has surged each quarter. During the second quarter of 2006, the number of subscriptions grew by approximately 630,000, 6.1% more than end-March 2006.

In comparison, subscriptions rose to 560,000 during the second quarter of 2005. The number of high-speed Internet subscriptions increased by 3.2 million in one year, annual growth of 40.7%. The new field of competition for Internet

providers in France lies in the convergence of services offered. Most Internet providers now offer VoIP and or Triple Play services (data, television, voice). Mobile usage in France has traditionally lagged behind the European average, but the country has been catching up in recent years. Penetration is over 80%, up from 55% in 2002. A further development in the mobile sector is the appearance of MVNOs or Virtual Mobile Network Operators. MVNOs buy minutes from one of the major operators (in this case, Orange, SFR or Bouygues) and then redistribute those minutes to consumers. As of June 2006, MVNOs represented 693,800 customers and 1.46% of the market.

The telecommunications and IT sectors already play a central role in the French economy. As these sectors experience further growth, the market for infrastructure and equipment will continue to offer opportunities to U.S. companies.

Best Products/Services

General French business and consumer commitment to mobility and broadband consumption is clear. French consumers, particularly the young generation, seem to adapt fully to the continuing convergence of technologies. Consumer demand for mobile products, broadband technology, and services such as video on demand, mobile television and videophones is increasing.

Opportunities

As broadband and wireless demand matures the French market for telecom infrastructure, equipment and support services will offer many exciting prospects for American exporters.

Resources

- Association of Internet Service Providers (AFA) www.afa-france.com
- French Association of Network & Telecom Service Operators (AFORS), www.afortelecom.fr
- Regulation Authority for Electronic and Postal Communication (Arcep) www.arcep.fr
- European Telecommunications standards Institute (ETSI) www.etsi.org
- Trade Association for the IT and Communications Sector (TICS) www.alliance-tics.com
- Embassy U.S. Commercial Service Trade Specialist: [Myrline.Mikal,-Goide@mail.doc.gov] Phone: 33-1 43 12 29 80 - Website: <http://www.buyusa.gov/france/en>

GEORGIA

Overview

Georgia's telecommunications sector requires modernization to comply with the growing market demands. Major international investors in this sector have been the U.S., Korea, Turkey, and Israel. There are also two international cellular phone companies: Magti (U.S.) and Geocell (Turkey.) Both use the GSM system. As of January 2005, the number of cellular phone users was 800,000 (every fifth Georgian had a cellular phone.) That is a 42% increase compared to January 1, 2004. Cellular penetration is highest in Tbilisi.

Best Products/Services

Telecommunications has become one of the most attractive sectors for foreign investors as a result of growing market demand and revenues generated by local operators. Expansion of

telecommunications infrastructure at the national, regional and international levels is seen as an integral part of Georgia's economic development and its successful integration into the global economy.

Opportunities

Cellular telecommunication services have been the most profitable sub-sector. Georgia does not produce telecommunications equipment. The two main cellular telephone operators in Georgia are Magti and Geocell.

Resources

- Georgian National Communications Commission, <http://www.gncc.ge>
- Magti, <http://www.magticom.ge>
- <http://www.geocell.ge/v2/eng/index.php>

GERMANY

Overview

Despite both turmoil and stagnation in the industry, telecommunications is still widely regarded as one of the driving forces behind potential economic growth in Germany. Whether in the areas of multi-media, mobile communications, or the Internet, telecommunications is key to unlocking German potential for future economic development.

Germany has not only been one of the fastest growing markets for mobile equipment - there are more mobile than fixed-line subscribers - but is also very well prepared for any future technology in the telecommunications sector. While thousands of miles of high quality fiber optical cable have been buried in the country, focus is on DSL roll out to make the country ready for applications of the future.

Best Products/Services

- Broadband Equipment and Services
- W-Lan Equipment and Services
- UMTS Services

Opportunities

Germany still lags behind the rest of the EU in broadband deployment. Once political and regulatory hurdles have been overcome, broadband technologies (DSL and TV cable) will offer considerable opportunities for suppliers of technology and services.

Resources

- German Regulatory Authority:
www.bundesnetzagentur.de
- CeBIT, the world's largest trade fair for ICT products and services:
www.cebit.de
- Electro-technical Manufacturers:
www.zvei.de
- German Information Technology Manufacturers: www.bitkom.de
- German telecommunications service providers: www.vatm.de
- Commercial Service Contact:
Volker.Wirsdorf@mail.doc.gov

GHANA

Overview

As a result of the government's liberalization of its telecommunications sector, annual growth has been significant. There are 2 land providers and 4 cellular companies. There are also 10 paging service providers, 128 internet service providers, 106 VSAT data operators, and 61 public/corporate data operators licensed as of January 2006. FM stations number 128, and TV stations 24.

Imports are mainly for landline projects, private mobile telephone services, and broadband data transfer services. The subscriber base of mobile operators increased tremendously in 2005, as they attempted to out compete each other. Subscriber numbers for the various services may be obtained by accessing <http://www.nca.org.gh>

The rapid increase in the market size resulted in a high volume of imports of telecommunications equipment, including switching and transmission equipment, telephone, and fax machines, radio and television equipment, and cellular radiotelephones. One mobile provider, Kasapa, upgraded from analog equipment to digital CDMA, and Ghana Telecom installed a pre-paid platform for its landline service.

Areeba, formerly known as Scacom, the leading mobile phone service provider, extended its service to the rural areas of Ghana. Countrywide, as landline density remains very low (2.9 lines per hundred people) cellular companies with prepaid cards have had made major gains in market share. While mobile penetration into rural areas has recently increased tremendously, the areas still remain largely under served by both landline and cellular companies.

The national network operators have programs underway to meet the performance targets under their licenses. Ghana Telecom has been expanding to meet a 400,000- telephone line requirement.

GUINEA

Overview

Guinea's telecommunications sector has been overwhelmed by potential customers and by limited infrastructure to supply their demand. The system was oversubscribed, and past providers have offered poor service. In 2006, Dubai-based Investcom launched cellular service in Guinea under the brand name Areeba. Providing consistently reliable service, Areeba has proved to be the first major challenger of the State-owned Sotelgui and is Guinea's fastest growing cellular operator. Areeba has invested heavily in infrastructure, and its national coverage is wider than that of Sotelgui. A U.S.-based firm, Cellcom, also received a telecommunications license in 2006. As in other African countries, the demand for reliable telecommunications is huge in Guinea. The sector can support other service providers and the attendant communication devices.

HAITI

Overview

The Telecommunications Sector is regulated by the government's regulatory agency CONATEL, Conseil National des Telecommunications (the Haitian FCC) that assigns frequencies to all telecommunication companies and issues operating licenses. Haiti's meager telephone density doubled from 1996 to 2006, reaching 16 telephones per 1000 people, thanks to the opening of three private cellular phone companies during that period. Total investment by the three major new wireless companies reached approximately \$350 million, accounting for a 260% increase in telecommunication equipment imports in

2006. A new GSM wireless cellular telephone company, DIGICEL, opened mid-2006 and the two other telecommunication companies started a very expensive upgrading program. The rapid expansion of the Internet market accompanied a growing demand for private cellular telephone lines as well as diversified telecommunications services.

The telecommunication market is highly concentrated in Port-au-Prince and its suburbs. The market also developed, to a lesser extent, in other major Haitian cities. As the telecommunication market matures it is expected that, starting in 2007, the market will expand in other Haitian cities at a rate of approximately 25 to 30% a year for the next five years. From 2000 to 2006, a total of more than five hundred cyber cafés opened in Haiti, mainly in Port-au-Prince and in the provincial cities. The cyber cafés offer access to low speed Internet connections for long distance telephony and Internet browsing.

Best Products/Services

The telecommunications sector will continue to be a strong market in the future. The rapid expansion of the telecommunications market has been accompanied by a growing demand for diversified telecommunications services. Approximately 10 firms offer Internet access and data transmission services and there is a growing computer culture as a result of the growing use of the Internet.

Opportunities

With three new companies established for the provision of GSM cellular services, there will be a growing demand for telecommunication equipments in the future for major Haitian cities not yet

covered. There will also be a market for the extension of internet services inside of the country.

INDONESIA

Overview

The country's telecommunications sector underwent major regulatory restructuring leading to the previously exclusive domain of PT Telkom began to open up with the entry of Indosat, and Telkom starting to have a major impact on the international call business. At present Indonesia has around 9 million fixed-line telephones, representing a teledensity of only 4.0 lines per 100 people. To stimulate the development of country's teledensity rate, PT Telkom, PT Indosat and PT Bakerie Telecom deployed CDMA fixed wireless service.

The Indonesian cellular market is heating up and potentially lucrative as demand for mobile phones continues to increase. With around 64 million subscribers in early 2007, a penetration of 28% indicates there is still plenty of room for growth. The number of subscribers is forecasted to reach 76 to 80 million by the end of 2007. The shape of the market is expected to undergo change as a number of new operators, with foreign partners, like Singapore Telecommunications Limited (Singtel), Singapore Technologies Telemedia (STT), Telecom Malaysia, Maxis, and Hutchinson, enter the market. Three cellular operators – Telkomsel, Indosat and Excelcomindo - introduced Third Generation (3G) services in 2006.

Best Products/Services

- Base transceiver stations

- Switching, ancillary and transmission equipment
- Cellular handsets, content providers.

Opportunities

Indonesia's telecommunication infrastructure market has good potential for wireless equipment, services and content provider companies. The rapid expansion of the country's cellular and fixed-wireless networks has driven increased spending for telecom infrastructure.

Resources

Indonesian State Ministry of Communication and Information:
www.kominfo.go.id

ISRAEL

Overview

Israel's telecommunications market is currently estimated at \$5.5 billion and has been a major driving force in the Israeli economy. The telecommunications sector has grown steadily even in years of economic crisis. In 2003-2005, the average growth rate was 3.91%. The main factors in this growth are the cellular, Internet, and multi-channel television fields.

The Israeli government has made great strides in opening up its telecommunications sector to competition. Since the mid-90's the communications market has consisted of four domestic cellular operators, six international service providers, three regional monopoly cable television providers as well as a satellite television provider and two fixed domestic operators with universal service obligation. Mobile services are the

leading market segment, followed by fixed services, cable TV, international long distance calls and Internet. There are 3.1 million direct exchange lines, 7.7 million cellular telephone subscribers, 1.4 million multi-channel TV subscribers, and over 1.2 million households have an Internet connection. Most of the telecommunications market revenues come from wireless technology and Internet.

Since Israel is a small country, with almost no natural resources, it has always had to depend on its intellectual resources. It is this factor that has made the country a technological leader. Many Israeli companies are active in developing and manufacturing telecommunications and networking equipment, and the original cell phone technology was largely developed in Israel by Motorola. Still, Israel imports over \$1 billion of telecommunications equipment each year, of which \$300 million is imported from the United States. In addition, over \$100 million in telecom services are imported from the United States.

Best Products/Services

IP Networks – Voice, Video, Data and Multimedia, FMC, IPTV, Wi-Fi, WiMAX and VOBB. As the Israeli telecoms industry expands and more technologies are introduced, the market will continue to offer good opportunities for U.S. exporters.

Opportunities

Israel has one of the highest household broadband penetration rates in the world, building on even higher Internet penetration. Five major and about 70 smaller Internet service providers serve more than three million users, over 60%

households and 80% businesses. Market competition is fierce, both between cable and DSL infrastructures and between ISP's. Israel's very high broadband penetration rate provides great potential for triple play and digital media market developments. Bezeq with its satellite TV subsidiary YES (satellite), and HOT (cable, which is the merged operating entity of the three Israeli cable TV companies), have the potential to easily deliver triple play services as each possesses both content and delivery mechanisms. IPTV is a hot area today, and there are several technologies emerging that appear to be good approaches, but the service is still being developed.

Another area of development is the Fixed Mobile Convergence (FMC) market. A market survey conducted by BBDO Consulting shows that over 65% of fixed and mobile operators will have implemented FMC services into their product suites over the next three years. There are a number of Israeli companies offering FMC solutions allowing for Dual-Mode Handset service. The long-term goal of Bezeq (the Israeli ILEC) is to merge its activities with those of its subsidiaries in order to become one group that provides cellular, wireline (local and international calls), IPTV, and Internet services, over converged fixed-mobile infrastructure.

However for now, regulations in Israel require structural separation between service providers. This means a complete separation between cellular, international calls and local calls operators; i.e., separate infrastructures, subscriber base and management. Bezeq hopes that the structural separation restrictions will be removed.

The cellular market segment is the main growth engine underpinning the Israeli telecommunications market. All four cellular operators provide 99% countrywide coverage and modern network services. Israel's cellular market continues to grow and is always seeking new and innovative value added services applications. Israel is a highly urbanized, technologically-literate society. Israelis are used to having world-leading technology in many other fields, and mobile phones are no exception. All mobile operators make a good profit from the high volume of traffic generated. According to market players, new, innovative applications, rather than voice, drive the market, and Israel is a good market for operators to test new applications. With mobile penetration reaching 107%, Israelis are technically savvy users. There is a continual demand for more sophisticated technology since Israelis update their handsets regularly, at least once a year. The "experience rate" for new hardware and applications is high. Operators are aware of this and seem to be striving to accommodate their subscribers.

Resources

- Ministry of Communications
- Israel Association of Electronics & Software Industries

KAZAKHSTAN

Overview

Kazakhstan spent approximately \$468 million on imports of telecommunications equipment in 2006, an increase of 32% from the previous year. As there is almost no domestic production of

telecom equipment (except coaxial and fiber-optic cables, and small PBXs), volumes of domestic production are a fraction of market demand. As a result, imports represent 98% of the telecommunications equipment market, with the U.S. commanding a 15% share.

The telecom market is still hampered by a lack of competition, and the majority state-owned Kazakhtelecom and its subsidiaries constitute a de facto monopoly, controlling most of the country's \$1.6 billion telecom industry. As in other developing countries, the cellular segment represents the largest portion of the market (40%), followed by fixed line (33%) and Internet (10%). Accession to the WTO should positively impact this sector, allowing for more foreign investment and reduced rates for users (currently, costs of telecommunication services in Kazakhstan exceed those of the US and Western and Eastern Europe). WTO membership would also allow for growth in this sector, as telephone density is at 18%, and Internet access is only 4%.

Best Products/Services

There is a growing demand for telecom equipment and services for mobile, fixed line telephony, cable, broadband, mobile (value-added) data services, and all types of Internet-related communication services including Wi-Max and Wi-Fi technologies and equipment, VSAT terminals, and DECT technologies.

Opportunities

- In 2006, Kazakhstan launched the Alatau IT City, informational technologies park in Almaty. The IT Park offers a number of projects aimed to improve and develop the IT industry

in Kazakhstan and can provide tax and other benefits to firms interested in investing into this sector.

- Kazakh telecom announced a state procurement tender for a New Generation Network Project, a new broadband infrastructure based on the IP/MPLS and Metro Ethernet technology.
- In 2006 Kazakhstan launched its own communications satellite. The government of Kazakhstan allocated approximately \$340 million for the development of Kazakhstan's space program, and plans to launch four more telecommunication satellites by 2010.
- A number of e-Government Projects are being implemented in Kazakhstan. Last year, the development of a CDMA-450 network began, and this year the government is going to open a tender on DCS 1800 frequency to attract a third GSM operator to Kazakhstan.
- In 2006 the government also approved a program to reduce the country's "informational inequality" by creating a training center for information technology specialists and a Kazakhstani university for informational technologies, which will be developed by cooperating with leading educational and training organizations.

Resources

- Agency on Information and Telecommunications of Kazakhstan - <http://www.aic.gov.kz>
- Alatau IT City - <http://www.aic.kz/>
- Astel - <http://www.astel.kz>
- BankNet - <http://www.banknet.kz>
- ICT News - <http://www.profit.kz>
- Kazakhstan Online - <http://www.online.kz>

- Kazakhtelecom - <http://www.telecom.kz>
 - KITEL 2007, major Telecom Trade Show - <http://www.kitel.kz/en/2007/>
 - Nursat - <http://www.nursat.kz>
- For more information contact Commercial Specialist Nurlan Zhagarin.

LATVIA

Overview

The telecommunications sector has grown rapidly in Latvia during the last decade. In 2002, as an EU aspirant country, Latvia liberalized its telecommunications market through amendments to the Law on Telecommunications. Although the former monopoly Lattelekom (privatized in 1994) remains strong in the fixed line segment, it does not dominate the sector as a whole. The number of mobile telecommunications subscribers exceeded the number of subscribers to fixed line telecommunications already in May 2002, and the trend of growing mobile phone use and shrinking fixed line use continues. Lattelekom's fixed line business is heavily targeted by various new entrants that have aggressively entered the market with new technologies and services.

The coming years will see fierce competition in this market from new players such as Latvijas Dzelsceļi, Latvenergo, and large cable operators. VITA, the Latvian State Information Network Agency, remains engaged mainly in the support and maintenance of the country's State Significance Data Transmission Network. After Lattelekom, the largest fixed operator is cable TV operator Baltkom. The strongest sub-sectors of the

telecommunications sector are digital lines installation and mobile telecommunications services. The entrance of two new operators in the Latvian mobile telecommunications market has brought further development and competition. Tele2 and LMT successfully launched UMTS services for their customers in 2005. In 2005 BITE, a Lithuanian mobile operator, received the third GSM/UMTS license for Latvia, and its number of subscribers is growing fast (over 50,000 by the end of 2005).

Supported by various new technologies, such as EDGE, GPRS, and HSDPA, Latvian GSM operators offer a wide range of m-payment and e-payment services. Now their customers bank, pay their insurance premiums, TV, internet, newspapers subscription and public utilities companies' invoices, watch TV, or work on the internet wirelessly. TRIATEL is the only operator that operates in the CDMA 2000 standard. NOKIA still holds the position of the most popular cell phone brand in Latvia followed by such names as Siemens, Samsung, and Ericsson-Sony.

Best Products/Services

Various B2B solutions for telecommunications companies.

Opportunities

Software, Hardware, VoIP accessories, Accessories for mobile phones

Resources

- Public Utilities Regulator: www.sprk.gov.lv
- The Ministry of Transport: www.sam.gov.lv
- Latvian Investment and Development Agency: www.liaa.gov.lv

MALAWI

Overview

The Government of Malawi is upgrading its telecommunications systems and infrastructure. Some U.S. firms have already entered this sector, but opportunities for other firms still exist. Malawi's second GSM cellular telephone network -- "Celtel Malawi" operated by Mobil Systems International (MSI) of Britain -- began operations in Blantyre in July 1999. MSI has since expanded service to many parts of the country and has now become the largest cellular service provider. In December 2002 the government granted a third national cellular license to Malawi Mobile Networks Limited, a consortium of local and foreign companies. The license has since been cancelled because of the operator's failure to establish a network.

The Malawi Government established the Malawi Communication Regulatory Authority (MACRA) in May 1999 (as a regulatory body) and split the former Malawi Posts and Telecommunication Corporation (MPTC) into the Malawi Posts Corporation (MPC) and the Malawi Telecommunications Limited (MTL) in May 2000. The Malawi Government has now sold MTL, but has retained public ownership of MPC.

MEXICO

Overview

The whole IT & Telecom industry in Mexico continued to grow in 2006, triggered by new technologies, applications and regulations. In general, technological convergence and the new Convergence Agreement will generate the need for additional investment and

equipment expenditures. Different segments of the industry experienced healthy growth, including: telecom equipment, PCs, software, telecom services, supplies, IT solutions, applications, network equipment, VoIP equipment and fixed and mobile operator network infrastructure.

The industry grew over 11% during 2006 to an estimated \$37 billion. ICT expenditures in 2006 amounted to 4.4% of GDP, the highest annual rate in the Fox Administration's tenure.

In telecom services, there are 20 million fixed lines (approx. 20% penetration) with Telmex as the dominant carrier with about 93% of market share. In the mobile arena, the sector registered approximately 53 million mobile subscribers. Telcel is the leading provider with nearly 77% of market share followed by Movistar at 14%. At the end of 2006, Grupo Salinas, the controlling interest of rival Iusacell, acquired 100% of Unefon. By the end of 2007, Unefon and Iusacell will be completely merged in branding and marketing, becoming one single company. Currently Iusacell has close to 4% of market share and Unefon has a bit over 2.4%.

Best Products/Services

Best products will remain in the convergence area. Following are the main sub-sectors where a majority of new acquisitions will be focused. Each offers great opportunities for American companies to participate in the Mexican IT & Telecom market during 2007:

- CATV: Cable Television companies are rapidly expanding and are now legally able to offer telephone services.

- Wireless: Wireless technologies and applications for corporate and personal uses are the hot topics today. WiFi and the future WiMAX will provide flexibility and lower cost for connectivity.
- Mobile Services: Mobile communications will still be the main growth industry in Mexico. Mobile operators are experiencing strong growth but are looking for new technologies to generate additional revenue.
- High Definition Equipment: Mexico recently approved a new broadcasting law, which will motivate investment in HD equipment by TV and Radio broadcasters. Mexico has adopted U.S. HDTV Standards.
- Network infrastructure: Driven by a gentle opening of the market to competition, convergence and other market forces, we see significant investment in expanding and upgrading fixed-line networks. This will translate to further deployment of networks and improved technologies.
- VoIP: Most carriers are focusing exclusively on IP-based networks. VoIP is growing in demand and will continue to expand into small and medium-size businesses.

Opportunities

The following are areas where the greatest opportunities lie for 2007:

- Government procurements
- Security appliances and software
- Mobile applications
- Broadband applications
- Power Line Communications

Resources

- Select, IT & Telecom consultancy firm: <http://www.select.com.mx>

- Comisión Federal de Telecomunicaciones – Telecom Regulator: <http://www.cofetel.gob.mx>
- Cámara Nacional de la Industria Electrónica de Telecomunicaciones e Informática: <http://www.canieti.org/>
- Telecom Research Consortium: <http://telecom.cide.edu/home.html>
- US Census Bureau statistics: <http://www.census.gov/foreigntrade/statistics/product/atp/select-atpctry.html>
- Mexico Census Bureau of Statistics: <http://www.inegi.gob.mx/inegi/default.asp>
- Servicio de Administración Tributaria (SAT) Ministry of Internal Revenue: <http://www.sat.gob.mx/nuevo.html>
- Government Procurement: <http://www.tramitanet.gob.mx/>
- AMIPCI – Asociación Mexicana de Internet (Mexican Association of Internet): <http://www.amipci.org.mx/>
- CANITEC – Cámara Nacional de la Industria de Televisión por Cable: <http://www.canitec.org/>
- For more information on the telecommunications sector in Mexico, please contact:
- Juan Carlos Prieto, Commercial Specialist
- U.S. Commercial Service, U.S. Embassy Mexico City, Tel: (011-52-55) 5140-2634 Fax: (011-52-55) 5566-1111 juancarlos.prieto@mail.doc.gov

The parastatal TDM has authority to make autonomous decisions on network upgrades, expansions and the purchase of equipment. TDM has extensive expansion plans over the next several years, valued at over \$300 million. The centerpiece of the planned upgrade is the construction of an entirely new basic network for the central and northern regions valued at \$50 million. The new trunk will be based on submarine and terrestrial fiber optic cables and microwave relay stations, and will replace the current expensive satellite relay service that is unable to handle the increasing call volume.

In addition to replacing its basic network, TDM is currently expanding its national service to bring coverage to rural areas and to upgrade its urban nodes. The European Union is financing a project to bring TDM coverage to all areas of Inhambane and Gaza provinces. The Arab African Development Bank is currently completing a viability study to finance a similar project in the province of Tete.

In March 2007 TDM plans to complete extension of a fiber optic cable to Nampula and Quelimane. It has already contracted for connections in other provincial cities, including Chimoio, Tete, Cuamba, Linchinga and Pemba.

The Internet is widely available in cities, including in provincial capitals, and is largely unregulated, with ISP providers able to bring in their own bandwidth. There is significant room for growth in this sector; the ITU estimated that in

MOZAMBIQUE

Overview

According to the most recent data from the International Telecommunications Union (ITU), there were only 0.4 landlines per 100 Mozambicans in 2003. In comparison, cellular subscription is much more common, with 6 subscribers per 100 Mozambicans in 2005. Mcel was the first cellular phone company in Mozambique. In December 2003 South African cellular provider Vodacom opened a second cellular provider network. All equipment for the construction of the GSM standard

2003 there were only 0.7 Internet users for every 100 Mozambicans. TDM already has introduced ADSL (asymmetric digital subscriber line) access in Maputo, Beira and Nampula and plans to expand to all provincial capital cities in 2007. There are several smaller internet providers supplying internet access through cable and satellite technology.

NEPAL

Overview

In the last five years, telecommunications services in Nepal have witnessed significant growth. Currently there are four companies providing telephone services in Nepal. Of the four, the government-owned Nepal Telecom is the biggest operator. The other three companies, a U.S.-Nepal joint venture, a Russia-Kazakhstan-Nepal joint venture, and an Indo-Nepal joint venture are operating in very limited geographical areas. Nepal Telecom is fast expanding its geographical reach and range of services, which offers excellent investment potential. Local microwave and cable TV services depend on U.S. firms for much of their equipment, as do Kathmandu's eighteen satellite/cable TV networks. Due to Nepal's rough topography, satellite services for phone and internet will likely find a market in Nepal.

Best Products/Services

A wide variety of telecommunications equipment including switching, radio and transmission equipment, telephone sets, videophones, and networking equipment.

Opportunities

Nepal Telecom has established a mobile telephone service, is expanding its landline phone system, and will continue to issue tenders for optical fiber lines, digital switching equipment, and telephone sets. Under the GON's plans for commercialization and privatization, Nepal Telecom was converted into a public limited company in June 2004, but the GON still owns 100% of shares. Although the GON has plans to disinvest 49% of company shares, it has not yet set a timeline. When available for privatization, Nepal Telecom represents an excellent investment opportunity for U.S. companies. The World Bank has an ongoing telecommunications sector reform project, which might provide opportunities for U.S. companies.

Resources

- For information regarding Nepal Telecom ongoing and future projects, U.S. businesses may contact Nepal Telecom via email at: sugat.kansakar@ntc.net.np or visit their website at www.ntc.net.np.
- Information pertaining to GON policies and regulations can be obtained from the Ministry of Information and Communications, Telephone: 977-1-4242562; Fax: 977-1-4227310 and from the regulator, Nepal Telecommunications Authority, E-mail: info@nta.gov.np, ntra@nta.gov.np, ntra@wlink.com.np, or via website at www.nta.gov.np.
- For further information and assistance businesses may contact the Commercial Specialist at the U.S. Embassy, Kathmandu: GuptaTK@state.gov.

NEW ZEALAND

Overview

New Zealand is considered one of the most networked countries in the world with over 96% of all New Zealanders over age 15 having access to the Internet, according to ITU. New Zealand relies on the Internet for its ability to improve communication and marketing, and render the country's distance from other markets less relevant. As a result, business-to-business commerce is forecast to continue expanding, producing significant demand for competitive IT equipment and technology.

Best Products/Services

- Software for data warehousing
- Network and e-commerce security
- Hardware and software for film and television production

Resources

- Hicrowth: <http://www.hicrowth.org.nz>
- Information Technology of NZ (ITANZ): <http://www.itanz.org.nz>
- NZ Software Association: <http://www.nzsa.org.nz>

NORWAY

Overview

The market for telecommunications is fragmented, but still strong and offers great opportunities for companies with state-of-the-art technology. Norway has the world's highest mobile telephone density with more than 100% subscription/SIM card coverage - equal to that of Finland. The country has also a very well established telecommunications infrastructure that supports and carries Internet access to

some of the most remote parts of Europe. Mobility is a major driver in the market. However, although bandwidth is good, the largest service providers are reluctant to launch the latest in content and services, but rather capitalize on traditional traffic with high margins.

Best Products/Services

- Cellular technology: Norway, like the other Nordic countries, does not have debt from the well-publicized 3G auctions in the rest of Europe, which leaves a large opportunity for expansion of Virtual Mobile Operators (VMO's) trafficking on others' networks. The upside for U.S. firms addressing this market is application software for services and traffic management. The demand for wireless data connectivity is increasing as high-speed, high-quality infrastructure equipment is expected to provide better UMTS/3G, which was commercially launched in December 2004. A CDMA network was launched in 2006. The adaptation rate has been slower than expected, and the large telecom service providers have been reluctant to open up for input from the outside. Consequently, a technology gap might have grown with infrastructure outperforming the applications. It is expected that service providers will be allowed to leverage heavily from earlier investments and existing networks in the future. Competent application software, along with systems and security solutions are expected to be in demand when information is transferred real time.
- Workforce Mobility: There is an increasing need for data connectivity in the small business sector, which so far translates into LAN hardware. The

critical drivers of small business networking will need to improve management of a growing number of PCs and share access to the Internet. Wireless IP zones at airports, hotels, etc. are now commonplace, providing a more efficient workday for mobile employees. Together with GSM, GPRS, CDMA, WIMAX and UMTS, all components should be in place for an improved business operation. Mobility solutions of this kind were considered a mega trend in 2006 according to the Gartner Group. Push-services are now finding market, with Blackberry one of the last to enter the market in 2006. Open source solutions seem to get more and more popular. A CDMA 450 license was awarded Nordisk Mobiltelefon AS in 2004. This relatively low bandwidth, but long-range 3G communication vehicle will provide broadband in rural areas and introduce new services in the market. U.S. vendors using CDMA 450 technology may find opportunities moving forward, although the technology has experienced some difficulties in the initial phase of the rollout. The competing GSM standard was largely invented in Norway.

- IP Telephony: Telenor ASA, Norway's largest telecommunications company, has been developing broadband capacity through four channels: copper terrestrial network, coaxial cable, digital ground-based broadcasting network and digital satellite distribution. Other infrastructure companies offer connectivity via cable television networks, satellites or optical cables all the way to end-users in major cities. Increased bandwidth makes IP telephony interesting. The private market for IP telephony has

been expanding rapidly over the last two years. Major players now share the growing pie and smaller providers consolidate. Penetration in the business market seems to take longer time, and local analysts claim this may be a result of focus on the rapid development and urgent need to move in the private market. Being a first user was also considered risky. The B2B market will require different types of technologies and solutions and this has temporarily created an entry barrier. In sum, the B2B IP telephony market seems to have a better growth potential than the private market.

- Digital Radio: In December 2005, a selection committee recommended to develop a nationwide commercial digital radio network to replace the analogue FM band. The analogue frequency is expected to shut down entirely by 2014. Consumers and the government will therefore need to make significant procurements in infrastructure and new handsets either the current DAB technology or other solutions. The industry is currently discussing standards.
- Wireless LAN in cities: A few Norwegian cities are in the process of designing and implementing local area networks as a low-cost commodity to citizens in downtown areas. Norway's second and third largest cities, Bergen and Trondheim, are both in the forefront of this development. This is expected to take revenue from the traditional internet service providers.

Opportunities

There are opportunities to enter telecommunications services as value-added service providers. Historically, the

safest way to enter this arena is to enter into a partnership with a local company or a network license holder. This is true for both the terrestrial and wireless networks. There are also possibilities to provide services directly to the end users. Safety features securing the mobile workforce are also expected to be in demand.

Resources

- The Ministry of Transport and Communications,
<http://www.regjeringen.no/en/ministries/sd.html?id=791>
- The Norwegian Post and Telecommunications Authority, (Monitoring and regulatory responsibilities for the postal and telecommunications markets in Norway.) www.npt.no
- The Ministry of Government Administration and Reform
<http://odin.dep.no/fad/english/bn.html>
- ICT Norway (Norway's largest IT-organization with over 320 members) www.ikt-norge.no
- Abelia (Association of Norwegian ICT- and knowledge based enterprises, associated with the Confederation of Norwegian Enterprise) www.abelia.no

PAKISTAN

Overview

The telecommunication services sector has grown at a very rapid pace during the past four years and offers significant potential for future growth. The private sector is now actively involved in the expansion and development of telecommunication services. It now provides cellular telephone services, card payphone, and Internet services; with the privatization of Pakistan

Telecommunication Company Limited (PTCL), it also provides fixed line telephone services.

The Government of Pakistan accords the telecommunication industry a very high priority. It plans to expand the telephone network, increase the number of public call offices and provide its customers with new and improved services in the next 2-3 years. The government welcomes foreign private investment in this sector, especially joint ventures that bring in new technology and help improve the level of efficiency and expertise of the local partner. In February 2006, the GSM Association (a global trade association representing more than 680 mobile operators) awarded Pakistan the prestigious Government Leadership Award.

Competition for U.S. equipment manufacturers during the next several years will remain strong, particularly with the European telecommunication firms because Siemens and Alcatel have established most of the software protocols in Pakistan (which are now fully integrated with the PTCL network). However, in the cellular sector, Mobilink, the largest operator, has installed a Motorola network. The two new cellular operators, Warid Telecom of UAE and Telenor of Norway, have chosen Nokia and Ericsson networks. Also, Warid has contracted with Motorola to plan, design and deploy a nationwide wireless broadband voice and data network using WIMAX technology.

Best Products/Services

- Telecom switches
- Radio communication links
- Optic fiber cables

- Submarine cable landing center within 15 miles of the coastal area of Pakistan:

U.S. firm Tyco is working in collaboration with Saif Telecom on an undersea cable project connecting Karachi with Fujaira in the UAE. Towers, poles, ducts and pits used in conjunction with other infrastructure facilities.

Resources

<http://www.pta.gov.pk/>
<http://www.ptcl.com.pk/>

PARAGUAY

Overview

Telecommunications is potentially a key sector for investment in Paraguay, although COPACO, the state-run telephone company, would need to be reformed in order to fully realize that potential. There are five phone lines per 100 inhabitants, and an estimated unmet demand of almost one million lines. The inefficiency of COPACO has been a bonanza for private mobile communications operators, and investment in the mobile sector has been strong. There are 1.2 million mobile phone accounts, compared to only 300,000 fixed lines. With respect to the table above, reliable estimates of the size of the market are not available, and the available Paraguayan trade data is too general for use for specific line-items.

Best Products/Services

Mobile phone service, expanding internet services and eventually greater land line coverage are the most likely areas of future growth.

Opportunities

Contingent on further opening of COPACO's monopoly of international and basic telephony, which is possible, but not highly likely, in the short term.

Resources

- Paraguayan national telecom. regulatory agency:
<http://www.conatel.gov.py/>
- Paraguayan state-owned telecom. company: <http://www.copaco.com.py>
- Paraguayan public contracting office:
<http://www.contratacionesparaguay.gov.py>
- Paraguayan importers trade association: <http://www.cip.org.py>
- Paraguayan Central Bank trade statistics:
<http://www.bcp.gov.py/gee/comerc.htm>
- Paraguayan-American Chamber of Commerce:
<http://www.pamcham.com.py>
- U.S. Embassy Asuncion commercial assistant: <mailto:schaererb@state.gov>

PHILIPPINES

Overview

The telecom industry remains one of the more robust sectors in the country. Global trends determine the path local industry will take in the next three years. The only question is the pace by which the country adapts to these global trends. Currently, wireless telecommunication systems dominate the market with a 40% penetration rate while fixed line has 4% penetration. In terms of coverage area, wireless reaches 84% of the country while Public Switch Telephone Network (PSTN) reaches 58%. Industry experts project that, despite the aggressive marketing strategies of telecom

operators to boost the sagging fixed line services, the cellular mobile telephone system (CMTS) will remain the country's digital device of choice as opposed to landline systems.

Broadband subscribers posted an astounding growth in 2006 as consumers gain better understanding of the benefits of broadband services. Aggressive marketing campaigns of the telecom carriers paved the way for increased consumer awareness, leading to more demand. Reduced broadband rates is another major growth driver. Stiff competition among providers made the service more affordable.

ADSL (Full Rate asymmetrical DSL) and VDSL (very high bit rate DSL) and Fiber to the Curve (FTTC) are currently deployed in the country. ADSL is dominant because of its affordability compared to VDSL. All carriers have FTTC, which goes only until the distribution point. Fiber to the Home (FTTH) is not available. WiFi & WiMax are likewise available, with WiFi as the preferred technology.

Cellular communications dominate the Philippine telecommunications industry with mobile subscribers hitting 35 million in 2005, while fixed line subscribers languished at 3.3 million for the same period⁴. The National Telecommunications Commission (NTC) estimates mobile subscribers went past the 40 million mark in 2006 while the fixed line remains at more or less the same level. NTC only expects single-digit mobile penetration growth in 2007. They predict broadband to dominate growth numbers in the sector.

Best Products/Services

- Wireless Communication Equipment
- Broadband Technology
- Innovative Applications
- VoIP Technology

Opportunities

Opportunities in the industry would be in value-added services, content, and innovative applications for wireless and broadband. Telecom carriers have likewise announced their commitment to improve their 3G technology, investing millions of dollars in perfecting the 3G rollout which began in 2006. Two major infrastructure expansion projects were recently announced – fiber-optic backbone expansion in Mindanao and submarine cable systems.

The Telecoms Infrastructure Corporation of the Philippines (TelicPhil), a consortium of the largest telecom companies in the Philippines (BayanTel, Globe, Digitel, and Smart), has earmarked \$1.8 million for the expansion of the country's second-largest fiber-optic backbone to augment Mindanao's telecom capacity.⁵ Hong Kong-based Asia Netcom, on the other hand, has announced plans to add a new trans-Pacific portion to its regional submarine cable system. Dubbed EAC Pacific, the new 23,500-kilometer infrastructure will extend system with a new trans-Pacific ring.

For the broadcast industry, The NTC, in cooperation with the "Kapisanan ng mga Brodkasters sa Pilipinas" (Association of Broadcasters of the Philippines, or KBP), and the two major television networks, GMA Network, Inc. and ABS-CBN Broadcasting, formed a technical working group to prepare the "standards" for digital transmission.

While the NTC will not proceed in the recommendation of a specific standard, the stakeholders (broadcasters) will be requested to give final recommendations and a comprehensive justification. The broadcasters are currently conducting studies and tests on available standards. NTC aims to complete 100% migration to digital by 2010. The U.S. Advance Television Systems Committee (ATSC) is actively monitoring the Philippine situation and advocating the U.S. digital TV standard. If this is adopted by the local industry, this opens up significant opportunities for digital set-up boxes and digital broadcast equipment. The continued exponential growth of the Business Process Outsourcing (BPO) industry will also have positive effects on the telecom industry.

Resources

- For additional information on telecommunication policies and technology update, please refer to the National Telecommunications Commission (NTC) - <http://www.ntc.gov.ph>
- Aida L. Miranda, Sr. Commercial Specialist U.S. Commercial Service, Philippines, Email: Aida.Miranda@mail.doc.gov, Manila.Office.Box@mail.doc.gov

QATAR

Overview

In the last five years, Qatar's public and private sector have increasingly applied modern technologies in daily activities. The demand for these technologies will continue to grow as the Qatar economy liberalizes and modernizes. The partially privatized Telecommunications

monopoly Qatar Telecom (Q-Tel) is constantly striving to upgrade and improve services to international standards. The Supreme Council for Information and Communication Technology (ICTQatar) has ambitious plans to increase IT awareness and use in Qatar as well as play the role of regulator for the IT and Telecom sectors. Qatar has also begun a wide variety of educational reform projects, which will make increased use of modern technologies. The government has embarked upon a program to implement e-government. Given the dominance of U.S. firms in international telecommunications, there is a growing opportunity for U.S. firms to enter the local market. In 2004 Qatar Telecom won a second license for GSM network in Oman. Q-Tel is also looking into expanding to other markets in the Middle East and African region.

Best Products/Services

- GSM network equipment and supplies
- Internet solutions

Opportunities

The population in Qatar is growing and expected to double by 2010. As the needs in telecommunications emanating from the public and private sector are increasing, the growth in this sector is going to be tremendous in the short, medium and long terms.

- Al-Nawras GSM License in Oman
- Expansion of land phone network
- Expansion of the GSM network
- Multiplication of Internet users.
- Infrastructure for 3G mobile phones
- Expansion of wireless internet service
- Equipment for 140 public schools with the latest IT and telecommunications equipment

Resources

- Qatar Telecom
- Qatar E-Government
- The Supreme Council for Information & Communication Technology
- Contact the Commercial Section of the United States Embassy in Doha through: <http://www.buyusa.gov/qatar/>

ROMANIA

Overview

The telecommunications market increased from \$2.734 million in 2004, to \$3.378 million in 2005 despite declining tariffs for international telephony, mobile services and Internet access, indicating a substantial increase in consumption. The mobile telephony sector accounts for around 62% of the total market (up from 57% in 2004), fixed telephony accounts for about 34%, while Internet and data transmission services have reached 4.8%.

The main mobile telephony operators are Orange and Vodafone, and the main fixed telephony operator is Romtelecom. Although faced with strong competition coming mostly from Western European companies, US firms are well represented on the Romanian telecommunications market, especially in wireless, cable, and mobile communications, through Zapp, Astral and Atlas Telecom

Best Products/Services

- Wireless communications equipment
- Cable communications equipment and services
- 3G mobile communications (especially CDMA) equipment and services, and Internet services
- VoIP included.

Opportunities

The current situation of the telecommunications market and its main trends indicate that the sector's major procurement efforts during the next years will be related to the following projects:

- Launching of wired-telephony networks following market deregulation;
- Building of four UMTS/3G networks;
- Expansion of the CDMA 450Mhz network;
- Expansion of the SDH network of the National Radio-communications Company (SNR);
- Development of SNR's wireless point-multipoint network in the 26GHz band;
- Modernization of SNR's long, medium, and short-wave transmitters network;
- Upgrading of infrastructure for national TV channels;
- Upgrading cable communications networks to allow the supply of broadband
- Internet, VoIP, and digital TV;
- Modernization of the infrastructure used by major ISPs;
- Expansion of pilot projects related to the development of e-government (eprocurement, e-tax, e-invoice, e-referendum, e-post, info-kiosk, etc.);
- Implementation of IT projects in public administration and education.

Resources

- Monica Eremia, US Commercial Service, E-mail: Monica.Eremia@mail.doc.gov
- Ministry of Information Technology and Communications: <http://www.mcti.ro>

- National Regulatory Authority for Communications and Information Technology:
<http://www.anrc.ro/index.aspx>
- General Inspectorate for Communications and Information Technology:
http://www.igcti.ro/igcti_eng
- Professional web sites:
<http://www.broadbandconferences.ro/presentations/ANRC.pdf>.
- <http://www.agora.ro>
- <http://www.onlimedia.ro>
- <http://www.microsoft.com>
- <http://www.xtreampc.ro>
- <http://www.netreport.ro>
- <http://www.pcmagazin.ro>

SAUDI ARABIA

Overview

The telecommunications sector continues to be among the most active sectors in Saudi Arabia. Since its privatization in 1998, the Saudi Telecommunications Company (STC) has been carrying out major telecommunication projects kingdom-wide, gradually taking over this role from the Ministry of Post, Telephone and Telegraph (PTT). The latest published figures reveal the following installed network:

- Landlines 5,5 million (approx)
- GSM lines 11,4 million (approx)
- VSAT providers 4
- Internet providers 22; and,
- Internet users 2,000,000.

In line with its liberalization process, the Saudi Government will be inviting more foreign companies to invest in the information and communications sector, especially in the field of fixed and mobile telecommunications services.

Revenues from the kingdom's GSM market will soar to \$2.37 billion in 2007, due to the partial privatization of Saudi telecom and increased competition. A new study projected that the demand for landlines will drop an average of 7.6% annually over the next five years, largely due to the migration to mobile service. ADSL and other broadband technologies will open the door to voice over broadband services in the country, and that will help mitigate the effects of the contracting circuit switched telephony market.

Best Products/Services

- DSL access switch, enabling multi-service transmission equipment
- Fiber-optic satellite links
- Wideband transceivers
- Network protocol software and systems
- Broadband wireless access systems.

Opportunities

Following the licensing of the second GSM operator (United Telecom of UAE) in early 2005, the Commission for Communications and Information Technology (CITC), the country's regulator is in process of finalizing procedures to issue the following licenses:

- A license to install and operate a third GSM network and provisioning of cellular mobile service in the kingdom in early 2007. The applicant will be required to submit two separate applications one for a GSM license and the other for an associated 3G license. The license will be valid for 25 years.
- Two new identical licenses will also be issued which will entitle their holders to offer a wide range of data telecom services but not limited to IP transit

and access, leased lines and managed data network services. The licensees will be permitted to establish their own gateways.

- License to provide automatic vehicle locator
- License for a mobile broadband satellite service provider; and, - The VOIP service providers may also materialize in late 2007.

Resources

- ● www.citc.gov.sa
- ● www.mcit.gov.sa
- ● www.stc.com.sa
- ● www.mobily.com.sa

SERBIA MONTENEGRO

Overview

The telecommunications sector is probably the most dynamic component of Serbia's economy, and definitely one that is receiving priority attention from the government. Over the last five years, it has experienced impressive growth, offering Serbia the latest technologies in most branches of telecommunications. Although the telecom sector has a high annual growth rate of 18.3% and projected five-year compounded annual growth rate of 16.8%, its further development to reach the level of developed economies requires urgent improvement of regulatory environment. Expected changes in the regulatory and business environment in the next two years will bring greater than average value growth.

The dominant telecom company in Serbia is Telekom Serbia. The most current statistics (mid 2006) indicate that Telekom Serbia has 2,700,000 fixed line subscribers. Around 90% of the fixed

line telephone networks have been digitalized. In Serbia telephone penetration has reached an average 80.0 lines per 100 inhabitants. During the last five years, mobile telephone services have developed rapidly in Serbia. The average annual increase in mobile subscribers is 50%. At the end of 2006, the country's total number of subscribers exceeded 4.5 million subscribers.

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Serbia's mobile penetration has been estimated at 65%. Telenor (recently acquired domestic operator Mobtel) and Mobile Telephony of Serbia (MTS), the mobile phone arm of state telecom provider Telekom Srbija, share the mobile market in Serbia. Mobilkom Austria, which was recently awarded third license in Serbia, plans to enter this market. They are strongly competing in the introduction of new technology and new high-profit value added services. Significant opportunities for US companies in this sector will be influenced by privatization of the telecom sector and need to modernize existing, in some areas obsolete, equipment. In December 2006, MTS

introduced third generation (3G) mobile services for commercial use.

Rapidly growing cable television sector also provides opportunities for investment. There are also telecommunications equipment manufacturers with innovative solutions for the particular problems of undeveloped countries: low-cost solution for line doubles (party lines); low cost small scale digital exchanges; home grown ADSL solutions, etc. Mostly European companies are present in this sector (Siemens, Alcatel, Ericson), while there is enough space for US products presence. U.S. telecommunications equipment is very well received in the Serbian market. U.S. telecommunication equipment manufacturers represented in Serbia include Hewlett Packard, Cisco, Juniper, 3Com and Bay Networks. However, European producers such as Siemens, Ericsson, Nokia and Alcatel heavily dominate the Serbian market.

Best Products/Services

The best market prospects are for Internet-related equipment such as routers, switches, access servers, equipment for mobile telephony, cable operators' equipment for transmission and fixed wireless equipment. There are also lucrative business opportunities for U.S. companies with technical skill and expertise in Internet applications. In particular, as GPRS usage becomes widespread and UMTS cellular telephony is introduced, there will be good prospects for the business-to-consumer market for publishing via Internet.

Opportunities

Significant opportunities for US companies in this sector are related to

the modernization of equipment. Mostly European companies are present in this sector (Siemens, Alcatel, Ericsson), while there is enough space for US products presence. Three other major factors contributing to market growth are the continued increase in Internet users, the substantial increase in mobile phone use, and the increase of services offered by the cable TV operators, private radio stations and TV broadcasting operators. These factors should help create expanded demand for U.S. providers of advanced telephone service solutions, as well as value-added telecommunications services. Other best prospect sub-sectors include Internet services, wireless and broadband Internet access technologies, cable television, and voice-over-Internet.

Resources

- Serbian Ministry of Capital Investment, Ms. Dragana Curcic, State Secretary in charge of Telecommunications, Address: Nemanjina 2211000 Belgrade, Tel: +381 11 3616 273, Fax: +381 11 3616 273., E-mail: info@msotel.sr.gov.yu, Web site: <http://www.msaotel.sr.gov.yu/>
- Telekom Serbia, Mr. Drasko Petrovic, General Manager, Address: Takovska 211000 Belgrade, Tel: +381 11 3616 273, Fax: +381 11 3616 273, E-mail: mjojic@ptt.yu Web site: www.ptt.yu
- Serbian Agency for Telecommunications RATEL, Mr. Jovan Radunovic, President of Managing Board, Address: Palmoticeva 7, 11000 Belgrade, Tel: +381 11 241 786, Fax: +381 11 241 805, E-mail: ratel@ratel.org.yu Web site: www.ratel.org.yu

For more information on market entry strategies contact:

E-mail: zorica.mihajlovic@mail.doc.gov

SINGAPORE

Overview

Singapore is one of the most wired countries in the world with a nation-wide network of fiber optic cables. According to the World Economic Forum's Networked Readiness Index 2004 – 2005, Singapore was ranked number one. Third generation (3G) mobile networks and services in Singapore were rolled out in early 2005 and consumers can currently receive wireless data through their mobile phones. 'Cyber cafes' are popular, and Internet connections are available in most hotels. There are 900 public Wi-Fi hotspots island wide, which means there are more than three wireless LAN hotspots for every square mile of the country. Triple play networks (voice/data/video) are available in Singapore. Virtually every home in Singapore has a fixed telephone line, and mobile phone penetration reached 99.7% in October 2006. There were nearly 1.6 million Internet dialup subscribers and more than 728,000 broadband subscribers in Singapore.

Best Products/Services

Although relatively small, Singapore is a sophisticated market for telecommunications products and services. Major market players have set up operations in Singapore including Motorola, Lucent, Alcatel, Nortel, Nokia, Ericsson, and Agilent and these offices usually have responsibilities for the region. There are excellent opportunities to sell new applications and solutions to Singapore as it is a leading adopter in the region. In the first 10 months of 2006, U.S. exports of

telecommunication products into Singapore grew 25% to \$402 million. Areas of best prospects include wireless broadband, Internet protocol virtual private network, 3G supporting technologies and content for 3G networks.

Opportunities

The Singapore telecommunication industry was liberalized in April 2000, and the move increased competition for existing players and provided opportunities for many new market entrants. In early 2005, the Singapore telecom regulator issued six Wireless Broadband Access (WBA) spectrum rights in the 2.3GHz and 2.5 GHz frequency bands. The Government of Singapore plays an active role in the sector. It has launched two industry engagement programs that are part of the government's initiative to deploy a next generation national info communications infrastructure. The infrastructure is envisaged to comprise an ultra high-speed next generation national broadband network and a pervasive wireless broadband network.

In March 2006, the Singapore Infocomm Development Authority (IDA) issued a Wireless Broadband Market Development (WBMD) call-for collaboration (CFC) to invite interested operators to deploy the Wireless@SG networks and services for two years. Through the CFC, IDA seeks to grow Singapore's wireless broadband market and catalyze broadband adoption in the country. Recognizing that nation-wide, pervasive wireless connectivity can only be achieved progressively as wireless technologies mature, the CFC is the first phase toward this goal. In the meantime, the CFC utilizes existing wireless

technologies such as Wi-Fi to meet the needs of the growing number of datacentric device users that require wireless access to Internet.

In October 2006, the IDA accepted the proposals from three companies (iCELL Network Pte Ltd, QMAX Communications and Singapore Telecommunications Ltd) for the government's CFC to kick-start Wireless@SG. With the Wireless@SG program, the number of public 'hotspots' will grow 5-fold from the current 900 to about 5,000. The three operators will increase the number of Wireless@SG 'hotzones' in high-traffic, public areas, such as the Central Business District and downtown shopping belts to make wireless broadband a ubiquitous access mode by September 2007. Users started enjoying free wireless broadband connectivity from December 1, 2006. The three operators are extending the three-year free offering with unlimited usage to all residents and visitors in Singapore, including tourists and business travelers. The three operators will invest about S\$100 million (\$64 million) over the next two years to deploy Wireless@SG.

In March 2006, the government also issued a request-for-concept (RFC) for Singapore's next generation national broadband network. The RFC will shape the next generation national broadband network. The RFC document is available at <http://www.ida.gov.sg/broadband>. U.S. firms interested in the IDA's invitation to participate in the pre-qualification exercise and competitive dialogue for the next generation national broadband network project should review the website

<http://www.ida.gov.sg/Infrastructure/20060919190208.aspx> for details.

The Singapore government's announcement of its plans to build a next generation national broadband network and pervasive wireless broadband network offers U.S. vendors the opportunity to participate in developing the new telecom infrastructure in Singapore.

Resources

- www.ida.gov.sg
- <http://www.sitf.org.sg/marketplace/bizopp.aspx>
- <http://www.atiss.org.sg>
- http://www.export.gov/market_research/index.asp
- U.S. Commercial Service, Singapore
Contact: Ms. CHIA Swee Hoon,
Senior Commercial Specialist, Email:
SweeHoon.Chia@mail.doc.gov

SOUTH AFRICA

Overview

The total size for the South African telecommunications equipment market in 2004 was \$12 billion. This market segment has grown at just under ten% annually, with prospects of higher growth in 2007. Local production accounts for approximately fifty% of total market size, while exports account for less than a third of total market size. In 2004, fifty% of all imports were from the United States, with an annual growth rate of approximately 12% in 2005 as well as 2006.

Most high-tech telecommunications equipment is imported, and the major international manufacturers are well represented, including: Siemens, Alcatel,

Nortel, and Motorola. The notable exception is Tellumat, a local manufacturer who is a world leader in the development of private branch exchanges (PBX/PABX) and wireless radio equipment. Most players in this industry distribute imported equipment, and some have begun operating beyond South Africa.

South Africa is hosting the 2010 Soccer World Cup and industry sources predict a growth rate in telecommunication equipment of over twenty%, beginning in 2007, particularly in the area of Second Generation Network Solutions products and equipment. Fiber cable and ancillary products are also in demand for the proposed Eassy project (www.eassy.org) as the country prepares for 2010.

Best Products/Services

- Infrastructure Network (Neotel)
- Second Generation Network Solutions
- Digital Broadcasting Infrastructure Equipment
- Billing Systems
- Security and Storage Systems
- Fiber Cable

Opportunities

- As a converged network, Neotel will attract new opportunities for U.S. telecommunications equipment/product suppliers, including state-of-art billing systems, broadband over power lines, security and storage systems.
- The broadcasting industry is planning for the development of digital terrestrial television and digital broadcasting to be covered by digital television by 2010.
- The “EASSY” (www.eassy.org) project will be a fully integrated multi-

technology network, encompassing an undersea fiber optic cable that will link the countries of East Africa to the rest of the world. South Africa (Telkom) is a major shareholder in this venture.

- South Africa has been short-listed as one of two countries to host the Square Kilometer Array (SKA). Opportunities include cable requirements that will be needed for the SKA (www.ska.ac.za) bid and the development of the South African National Research Network in preparation for the 2010 Soccer World Cup.

Resources

- **FUTUREX 2007:** Futurex is a single, unified and definitive event for the Information and Communications Technologies and Electronics industries. Venue: Cape Town International Convention Center, Cape Town, September 26-28, 2007
Website: www.futurex.com
- **Communication Technologies Handbook BMI-Technowledge**
Contact: Anita Mathews
Tel: +27 (0)11 540 8000; Fax: +27 (0)11 540 8001
Email: ammmm@telkomsa.net
Website: www.bmi-t.co.za

Key Contacts

- Department of Communications (DoC), Website: www.doc.gov.za
- Independent Communications Authority of SA (ICASA), Website: www.icasa.org.za
- Telkom South Africa, Website: www.telkom.co.za
- Sentech, Website: www.sentech.co.za
- Transtel (Neotel Partner), Website: www.transtel.co.za
- Eskom Enterprises (Neotel Partner), Website: www.eskom.co.za

- Vodacom (Cellular Operator) Website: www.vodacom.co.za
- MTN Networks (Cellular Operator), Website: www.mtn.co.za
- Cell C (Cellular Operator), Website: www.cellc.co.za
- Luisa dos Santos, Commercial Specialist – ICT Sector, U.S. Embassy – U.S. Commercial Service
Luisa.D.Santos@mail.doc.gov
- Heather Byrnes, Commercial Officer, Johannesburg, South Africa, Tel +27 (0)11 778 4806; Fax +27 (0)11 268 6102, Email: Heather.Byrnes@mail.doc.gov, Website: www.ussatrade.co.za

SPAIN

Overview

Total investment in telecommunications equipment by Spanish service providers during 2006 is estimated at \$6.9 billion, with fixed-network operators representing over half that sum.

Investment has been increasing since 2004, and is expected to maintain high growth rates in the near future. Although U.S. products have a strong reputation, there is stiff competition from European and Asian companies, most notably France, Germany, Italy, the UK, Scandinavia, Japan, Korea and China. Areas expected to fuel demand are mobile telephony, where operators have continued investments in network infrastructures for UMTS deployment, investing in 2006 an estimated \$2.6 billion. Demand for new terminals or solutions offering mobility to the business environment will also generate growth.

Broadband services, mainly focused on XDSL and cable, will continue to

demand equipment and solutions as competition heats up between the major players. More than 4.7 million clients are currently connected to XDSL services in Spain, with an additional 1.3 million connected to the Internet through cable companies.

Wi-Fi/WiMax equipment is expected to maintain a robust demand. In the case of broadcast equipment, investment should pick up for the next few years due to the mandatory switch to digital technology. All equipment must be CE marked and, in some cases, certified in Spain if it is to be connected to the Public Switching Network, or if it uses the electromagnetic spectrum for transmission. Teaming with a Spanish counterpart should be considered as one option to develop a better market access strategy and product support.

Best Products/Services

- VoIP Equipment.
- Wi-Fi / Wi-Lan equipment.
- Wireless enabled devices both for businesses and consumers.
- HSDPA-enabled solutions.

Opportunities

The expected launch of Mobile Virtual Network Operators (MVNOs) in the market will provide business opportunities to equipment manufacturers, consultants, and value-added service providers.

Resources

- AETIC www.aetic.es
- SIMO TCI (Madrid, November 6-11, 2007)
<http://www.ifema.es/ferias/simo/default.html>
- BROADCAST (Madrid, November 6-9, 2007) www.broadcast.ifema.es

- Secretary of State for Telecommunications and Information Society:
www.mityc.es/telecomunicaciones
- Telecommunications Market Commission: www.cmt.es
- Commercial Service Spain:
www.buyusa.gov/spain
- Trade Specialist for Telecommunications: Jesus Garcia,
jesus.garcia@mail.doc.gov

SRI LANKA

Overview

The telecommunications sector has undergone major changes during the last decade in terms of subscriber network, private sector participation, modernization, and institutional reforms, making it one of the fastest growing sectors in the country. There has been a steady increase in the number of users of fixed telephony as well as mobile phones. There is significant competition among the existing operators consisting of four fixed line operators, four mobile phone operators, external gateway operators and Internet Service Providers, and several others providing data services, paging, pay phone, trunk radio, and leased circuit telephone facilities. In 2006, the fixed subscriber network expanded by 17%, while the mobile subscriber network expanded by 27%. The mobile telephone operators dominate the sector with a market share of over 70%.

Several telecommunication development projects are in progress. A new international submarine cable project became operational in December 2006 enhancing the bandwidth capacity of Sri Lanka's telecommunications system. Sri

Lanka introduced Code Division Multiple Access (CDMA) technology in 2005. Fixed access wire local loop services are expanding rapidly with the introduction of CDMA technology. 3G mobile services will commence soon. The Telecommunication Regulatory Authority (TRC) also invited applications in 2006 for companies interested in obtaining licenses for non-voice telephony services using cable distribution networks and satellite communication networks. Mobile operators are also expanding their services and investing heavily in infrastructure.

There is potential for increased expansion of the telecommunications sector with services such as telemarketing, call centers, data processing and internet based products. This sector stimulated demand for import of modern telecommunication equipment and transmission apparatus.

Resources

- • The Telecommunications Regulatory Commission of Sri Lanka,
www.trc.gov.lk
- Sri Lanka Telecom www.slt.lk
- Dialog Telekom www.dialog.lk
- Celltel www.celltel.lk
- Suntel www.suntel.lk
- Lanka Bell www.lankabell.net
- Mobitel www.mobitellanka.com
- ureka www.eureka.lk
- Lanka Internet www.lisl.lanka.net

SWAZILAND

Overview

Swaziland's telecommunications network is fully digital. Optical fiber and

local loop systems have been installed and link key areas throughout the country. The internet has become an integral part of the communications network in Swaziland. Internet service providers with web hosting services have been established in Manzini and Mbabane. The landline network is a state monopoly. A private company holding a state sanctioned monopoly provides cellular phone services.

Best Products/Services

U.S. suppliers/manufactures will find a market for cellular phone products.

Opportunities

By state sanctioned monopoly, only MTN Swaziland Ltd offers cellular service. The industry is scheduled to open to competition in 2008; however, the final status of the industry is yet to be determined.

Resources

Swaziland Posts and
Telecommunications Corporation
<http://www.sptc.co.sz>

SWEDEN

Overview

TeliaSonera and especially Ericsson have been the driving forces to put Sweden on the telecommunications map in general and wireless communications in particular. As a result of this, a number of global companies have established research centers in Sweden (Intel, Motorola, IBM to mention a few.) Other large players are Lucent, Nortel, Cisco, Siemens, Alcatel, and Huawei.

TeliaSonera is the largest provider of fixed telephony followed by Tele2, Telenor, TDC Song, Verizon,

Bredbandsbolaget (cable), and ComHem (cable). Mobile phone penetration is extremely high in Sweden, slightly over 100%. There are three GSM carriers that have their own infrastructure; TeliaSonera, Tele2, and Telenor. Third generation mobile telephony services are offered by four carriers; 3 (Three), TeliaSonera, Tele2, and Telenor. In addition, there are a number of service providers that use the existent infrastructure to provide mobile telephony.

The mobile telephony market grew by 7% the first six months in 2005 compared to the same period the previous year. IP telephony increased by 123% during the first six months in 2005 compared to the same period in 2004. Internet penetration in Sweden is very high. In the age group 15 to 75, over 85% use the Internet, 46% of which are broadband users. ADSL is the dominating form of broadband access, followed by cable and LAN. Fiber and radio are on the increase as well.

Around four million households in Sweden have access to at least one television set. Broadcasts are provided via terrestrial, cable or satellite means. The Swedish Parliament decided in 2003 that Sweden will discontinue analog TV broadcasting and shift to digital. The process started in 2005 and will be completed in February 2008.

Best Products/Services

- • Wireless Broadband
- • IP Telephony
- • Triple Play

Resources

- Ministry of Industry, Employment and Communication,
<http://www.industry.ministry.se>
- Invest in Sweden Agency (ISA),
<http://www.isa.se>
- ITSweden, Information site on the Swedish ICT sector.
<http://www.itsweden.se>
- U.S. Mission to the European Union, Foreign Commercial Service,
<http://www.buyusa.gov/europeanunion/>
- Local Commercial Specialist:
gunilla.laroche@mail.doc.gov

SWITZERLAND

Overview

In 2006, the Swiss telecommunications equipment and services market grew by 2.5% and was valued at \$8.7 billion. Another 2% growth is also forecast for 2007, the exchange rate adjusted equivalent of \$175 million. Mobile services and broadband Internet access continue to drive the market. The market demand for fixed line and mobile telecommunications services in 2006 generated total sales in excess of \$12.47 billion, a 3% increase over the previous year, accompanied by a 5% drop in operations costs.

Demand for ADSL was strong in 2006. The Swiss market grew by an estimated 30% to reach more than 1.5 million ADSL subscribers. However, the Swiss ADSL market demonstrates the disadvantage of being completely controlled by an ex monopolist telecom provider. With Swisscom dictating both the pricing and the speed,

Switzerland has started to lag behind in both aspects. Surrounding countries like

Germany, France and Italy offer faster ADSL connections at a fraction of the price. The Swiss Competition Commission has been investigating the high prices Swisscom charges to its competitors for the ADSL service, but no immediate result can be expected. One of the strongest competitors to Swisscom is Cablecom. With over two million cable TV connections in Swiss households Cablecom controls the second largest network and is currently the only other company besides Swisscom that offers true triple play service (data, voice and television/radio) to its customers in Switzerland. Cablecom was acquired by Liberty Global, Inc., for an estimated \$2 billion. On December 16, 2005, Sunrise TDC Switzerland, the second largest Swiss telecommunications service provider, and Cablecom entered into a strategic partnership on mobile telephony. Swisscom started its IPTV network in late 2006 and has already received over 20,000 orders for the service, resulting in a six-week installation delay for new customers.

In the mobile telecommunications market, there are approximately 97 activated subscriptions per 100 inhabitants, representing a 10% growth rate over last year. Three providers operate their own GSM (Global Standard in Mobile Telecommunications, 2nd Generation, 900 and 1800 MHz) networks, while the fourth player, Tele2, obtained a license to offer services only via third-party networks. As of December 2005, Swisscom Mobile, Sunrise/TDC Switzerland and Orange Communications controlled 63%, 18%, and 18% of the market, respectively. These market shares have changed very

little over the past four years. (Since 2003, both Sunrise and Orange have gained only one% market share each.) Forecasts for 2007 include continued growth of information technology spending in Switzerland, a further decrease in mobile communication costs, and expanded services for third-generation mobile devices, such as IPTV. Continued strong growth is expected for VOIP solutions.

Best Products/Services

- Telecommunication hardware and software
- Wireless communications hardware and software
- IT Security (software, hardware and consulting)
- Voice over IP solutions
- Virtual Private Networks Outsourcing
- Consulting
- Mobile and radio services
- Internet/Web services
- Data transmission
- Leased line business

Opportunities

Orbit/iEX Switzerland's largest IT show and conference held in Zurich from May 22-25, 2007

Resources

- Federal Office of Communications:
www.bakom.ch
- -Federal Communications Commission:
<http://www.fedcomcom.ch>
- Federal Office of Information - Technology: <http://www.bit.admin.ch>
- ICT Switzerland:
www.ictswitzerland.ch
- Swiss Association of Telecommunications Users:
www.asut.ch

THAILAND

Overview

With the wave of new information and communication technologies, the Thailand ICT market is expected to grow around 17% this year to a value of \$12.64 billion. In late 1990s Thailand's cellular phone service grew significantly and overtook the number of subscribers of the fixed line telephone service in 2001. Given the continuous fall in handsets prices and attractive sales promotion campaigns. It is no surprise that the cellular phone users are expected to reach almost 40 million by the end of 2006.

The market is presently dominated by GSM-based technologies. Previously, the competition in the telecom sector tends to be on non-price area. Major operators, particularly mobile operators, compete using product differentiation through service quality, advertising and value-added services. However price competition is now heating up. Fixed-line operators drastically cut down the price for long distance and international calls. For mobile, the price particularly for pre-paid option, went down to as cheap as two cents per minute. While mobile voice services are now a commodity in a mature market, operators need to broaden their offerings to win customer loyalty, retain their customer databases and cash in on the huge potential for new revenue. Non-voice technology such as Short Message Service (SMS) is much in demand and is now improved to be more attractive and innovative.

Mobile music is another service that generated revenues for the operators approximately \$18.34 million in 2006

and will reach \$21.19 million and \$23.92 million in 2007 and 2008 respectively. Demand for access to wireless non-voice communication grew by 30% in 2005 worth \$350 million. The major driving force was GPRS enabling mobile handsets and the growth of mobile phones and internet users.

Best Products/Services

- 2G Network maintenance
- 3G Network upgrades
- Broadband Internet Infrastructure
- Wireless communication network

Opportunities

Telecommunications is regarded as an important infrastructure for the new knowledge based economy and the ways people live, work, learn and play. The cellular mobile phone and Internet services have expanded rapidly. The supply of fixed line telephone service has not reached a saturation point, but still cannot provide service to "everywhere" in the country and there remain many people waiting to have access to the phone service, especially in the remote areas. Stronger competition among telecommunication operators in Thailand will continue in 2007 and the next few years to support their existing network and to prepare for a new technology, including 3G.

In the present circumstance, the telecommunication companies need to both strengthen their organization and expanding their new networks to prepare for future competition. The rapid expansion of the telecom market, including internet usage and the strong competition among existing operators boost demand for the infrastructure and subscriber equipment, and application software. These demands are creating

great opportunities for U.S. telecommunication suppliers. U.S. exporters are highly encouraged to appoint a local agent to deal with regulations related-issues, bureaucratic procedures, local business practices and marketing. With telecommunication equipment, foreign suppliers require a distributor to submit type approval application the National Telecommunications Commission.

Resources

- U.S. Commercial Service, # 302, 3rd Floor, Diethelm Tower A, Wireless Road, Pathumwan, BKK 10330, Tel: 662-205-5090, Fax: 662-255-2915, Contact: Oraphan Boonyalug, Commercial Specialist, E-mail: oboonyal@mail.doc.gov
- Ministry of Information and Communication Technology, 89/2 Moo 3 TOT Corporation Pcl. Building 9, ICT 2 Floor, Chang Watana Road, Laksi Bangkok 10210, Thailand, Tel: 662-568-2584, Fax: 662-568-2583, Contact: Kraisor Pornsutee, Permanent Secretary. E-mail: kpornsutee@hotmail.com
- The National Telecommunications Commission, 87 Paholyothin Soi 8, Samsennai, Payathai, Bangkok, 10400, Tel: 662-279-1842, Fax: 662-616-7499, Contact: General Chuchart Promprasid, Chairman of National Telecommunication Business Commission,
- Bangkok International ICT Expo 2007, August 1-5, 2007, Impact Exhibition Management Co., Ltd. 99 Popular Road, T. Banmai, A. Pakred, Nonthaburi, 11120, Thailand, Tel: 662-504-5050, Fax: 02-504-5079, www.impact.co.th, Contact: Khattiya Hiruntoe, E-mail: khattiyah@impact.co.th

TURKEY

Overview

In 2006, the total number of GSM cellular service subscribers exceeded 50 million with an approximate penetration rate of 70%. Total telecom equipment and service market grew to \$15 billion and is expected to expand 30% in 2007. Fixed line subscribers are approximately 19 million, reaching almost 100% penetration per house basis. The three GSM cellular operator, Turkcell, Telsim and AVEA and the fixed line operator Turk Telekom will invest in equipment and services at a total value of \$5 billion in 2007. These new investments will provide new jobs to 50,000 people in the sector. In 2007, after licenses are issued for 3G, WiMax and Cell phone number carry-on, the new licensees will launch new investments.

In 2005, Oger Telecom (a JV between Saudi Oger and Telecom Italia) won the privatization of 55% shares of Turk Telekom with a total bid price of \$7.40 billion and now took over the management of the fixed line operator Turk Telekom. Turk Telekom's business development continued and will continue in 2007 spreading the usage of high speed internet throughout the country. Turk Telekom commenced its planned investments of \$3.5 billion over the next 6 years, which will improve the quality and introduction of new enhanced services. Turk Telekom will continue to be the major buyer of fixed-line telecommunications equipment. Turk Telekom with approximately 20 million subscribers may invest in new technologies in 2007. Turk Telekom plans to expand its ADSL backbone, therefore, will continue to purchase new ADSL equipment.

Over 40 private long distance telephony companies have been also operating over the last 3-4 years, mostly using VoIP with an interconnection agreement with Turk Telekom. These companies continue establishing their own networks. If the Telecommunications Authority (TA) improves the interconnection agreements for these companies, their investment and competitiveness will continue. British Vodafone paid the privatization fee of \$4.5 billion and took over the 2nd largest GSM cellular operator, Telsim with over 10 million subscribers. Vodafone is expected to make significant new investments in Telsim in 2007 and also increase promotions to expand its subscribers. Telsim Vodafone announced recently that it would make an investment of \$1.2 billion over the next two years. Telsim plans to expand and upgrade its 900 MHz GSM cellular network. If the Telecom Authority of Turkey proceeds with the number portability license tender this year, the competition between the GSM operators will greatly increase.

Turkcell is the largest GSM cellular operator in Turkey. It has approximately 32 million subscribers. Turkcell will continue with its investments in Turkey and abroad. Turkcell's founding shareholders are Sonera Holding, formerly known as Telecom Finland Ltd. And currently owned by TeliaSonera, Çukurova Group and MV Holding. 23.4% of Turkcell shares are publicly traded in Istanbul and New York Stock Exchanges. Turkcell recently signed an agreement with Warner Bros to provide games, screen savers, alarms, tunes,

mobile applications and videos. Turkcell will continue its investments especially in these types of services in 2007.

AVEA is the third largest cellular phone operator, having approximately 8 million subscribers. Turk Telekom owns 81% of the shares of AVEA and Turkiye Is Bank owns 19%. AVEA operates at 1800 MHz GSM frequency, and Turkcell and Telsim operate at 900 MHz GSM systems. Telecom Italia being a partner of Turk Telekom sold all of its shares in AVEA to Turk Telekom in 2006. Turk Telekom being one of the major shareholders in AVEA will also be more aggressive in the market and will carry out more investments.

The above mentioned investments are inevitable as the number of subscribers in mobile telephony increased three times while the fixed line subscribers remained constant during the last five-year. Last year, Turkish subscribers purchased approximately 7.5 million cell phone handsets. The independent regulatory body Telecommunications Authority (TA) will conduct a license tender for 3G services probably in the summer of 2007. This will further increase the telecom market revenues. Turkish GSM companies will widely implement new services such as Multimedia Messaging Service (MMS), Mobile Video Streaming (MVS) and other new features by moving forward to the 3G technologies. These services, new GSM and fixed telephony players multiplied by the competition introduced through the new long distance telecom companies will boost the telecommunications services market in Turkey.

Additional opportunities exist for the Turkish market in international traffic either originating or terminating in the country. Due to the widely dispersed Turkish population there are considerable international calls being placed, primarily from Western Europe and the United States to Turkey. Cisco Systems recently announced that it is planning to invest \$275 million in internet technologies, Techno Park and education in Turkey. Nortel Networks established a Global High Technology Operation Center in Turkey and announced that it will employ 300 engineers. GSM cell phone sets suitable for video downloading and TV broadcasting equipped with wide band Internet access will be the driving force for growth in this sector. These new technologies will be the basis for the 3G and 4G operations. Over 50 million GSM subscribers keep on growing with a growth rate of over 20-30%. Many subscribers continuously change their cell phones with new models sustaining consistent growth in the handset market.

The private sector may make major investments on the establishment of new fiber-optic networks, VoIP Equipment and Wireless Local Loop networks. Due to its strategic location in Eurasia, between Europe and Central Asia and Middle East, Turkey has the potential to become a major hub for the distribution of telecommunications equipment in the region. In Turkey, Northern Telecom, Alcatel, Siemens, Ericsson and NEC supply majority of the fixed lines switches, trans-multiplexers, and other telephony equipment. U.S. companies can be competitive in software programs required for customer databases, emergency call services, corporate management and intelligent network

operation centers. Motorola, Nokia and Siemens are the main GSM switch and base station suppliers. U.S. companies can be competitive in new software products required by GSM cellular operators to provide new services to their clients and better corporate and client management.

Best Products/Services

- 3G, and other new technologies for GSM cellular operators such as MMS and Java based services, and other telecom services to enhance activities of long distance operators.
- Online visual and other data transfer over the cell phones through 3G license and transferability of cell phone numbers from one GSM operator to another will require new telecom services to be deployed in 2007.
- Other best prospects in 2007 will be new model GSM handsets with new features, VoIP equipment, ADSL equipment, switches and networks for long distance operators. SCADA systems for main natural gas transmission lines and electricity distribution networks will be the other best prospects. Depending on the timing of the 3G license tenders, the other best prospect can be the third generation GSM networks.

Opportunities

Improvements required by Turk Telekom for better customer, data and network management, expansion of Telsim's GSM network and additional ADSL networks are the potential opportunities. The TA will conduct WiMax license tenders in 2007. U.S. companies should consider this large telecom market as a hub for the region and consider establishing joint venture

companies to supply to the EU markets as Turkey is already in the European Customs Union and a candidate to join the EU. (CE certification is required by the import laws of Turkey to be able to export to the Turkish market.)

Resources

- Telecommunications Authority's web site: www.tk.gov.tr
- Turk Telekom's web site: www.turktelekom.com.tr
- Turkcell's web site: www.turkcell.com.tr
- Telsim's web site: www.telsim.com.tr
- Avea's web site: www.avea.com.tr
- Turkish Competitive Telco Operators Association (TELKODER) www.telkoder.org.tr
- Turkish Electronics and IT Industries Association (TESID) www.tesid.org.tr

UGANDA

Overview

The Ugandan telecommunications sector boasts three internationally-owned operators, MTN (South Africa), Uganda Telecom Limited (UTL) and Celtel (Kuwait). The once government owned UTL was privatized in 2000 with a 51% stake sold to a Swiss, German and Egyptian consortium for \$33.5 million. The UTL consortium has since grown to include the Israeli Zeevi Group, the African Development Bank and Telecel International, a Swiss cellular operator active in several African countries including Ivory Coast, Zambia, Zimbabwe, Burundi and Central African Republic. The remaining 49% interest was sold in a series of public offers on the Uganda Stock Exchange. Pursuant to a "duopoly" agreement signed with the GOU in 2000, MTN and UTL are

licensed to provide a full range of telecommunications services. Celtel provides mobile telephone services. The MTN/UTL duopoly expired in July 2005 providing international telecommunications companies with the opportunity to enter a variety of telecommunications sub-sectors.

A new policy governing new licensing regime is expected in 2007 from the Ugandan Communications Commission. Three categories of licenses are public service provider, infrastructure provider and general license permits. As of June 2006, Uganda's number of fixed lines had increased to 107,992 (from 87,513 in June 2005) and its number of mobile telephone subscribers had shot up to 1,937,109 (up from 1,405,395 in June 2005). Fixed line density is still very low at 0.4% of the populations. Uganda registers 200,000 internet users. There are 19 local internet service providers although quality internet service is very expensive. Dial up services being offered are about \$60 per month and service is very slow with frequent interruptions.

Best Products/Services

- Cellular and wireless telephone systems
- Data transmission equipment
- Fiber optic equipment
- Trunked mobile phone systems and paging systems
- Switchers and routers
- Wireless access equipment
- Voice over internet telephony
- VSAT
- Computers and peripherals.

Opportunities

Contact the Uganda Communications Commission to inquire about investment

opportunities following the expiration of the MTN/UTL "duopoly" in July 2005.

Resources

- Celtel: www.celtel.com
- Computer Frontiers International: www.cfi.co.ug
- MTN: www.mtn.co.ug
- Uganda Communications Commission: www.ucc.co.ug
- UTL: www.utl.co.ug
- AFSAT Communications Uganda: www.afsatug.com
- Bushnet: www.bushnet.net
- Infocom: www.imul.com

UKRAINE

Overview

The growth of the Ukrainian economy since 2000, as well as foreign and domestic investment in telecommunications over the last 15 years, has brought marked changes to the Ukrainian telecom industry, particularly in mobile wireless and Internet. However, despite obvious improvements in telecom infrastructure, the lack of transparency and slow decision-making in licensing and frequency allocation, corrupted procurement practices, continuing delays with the privatization of Ukrtelecom (the national telecom carrier), and ongoing disputes between Ukrtelecom and private telecom operators have hurt the development of the entire telecom industry.

As of November 1st, 2006, five Ukrainian GSM operators – UMC (owned by MTS), Kyivstar GSM (majority shareholder: Telenor), Astelit (majority shareholder: Turkcell, trademark: Life), Golden Telecom GSM,

and Ukrainian Radio Systems (majority shareholder: Vypelcom, trademark: Beeline) – were servicing over 41 million customers. Reportedly, the two leading mobile operators, UMC and Kyivstar, had over 16 and 18 million customers respectively, while other operators lagged far behind. The market penetration for mobile communications is almost 90%.

In 2005, regulatory authorities issued Ukrtelecom a license for 3G (UMTS) mobile network deployment, in preparation for Ukrtelecom's privatization. Although other major mobile carriers also expressed interest in obtaining 3G license and spectrum resource, their requests were refused. The Ukrainian company Telesystems announced an alternative 3G project based on CDMA2000 technology. Industry experts view WiMAX as a provisional cost effective alternative to 3G. In November 2006 the Ukrainian government sold 30 regional WiMAX licenses for a total of \$2.7 million. Three national licenses will be offered for sale later. Experts estimate that their cost may reach \$10 million each.

Best Products/Services

- 3G
- WiMAX
- Internet connectivity through digital TV cable networks.

Opportunities

- Privatization of Ukrtelecom
- WiMAX and 3G licenses
- Tender for development of the analytical information system for social protection of population:
<http://www.dgmarket.com/eproc/np-notice.do~1569875#>

Resources

- Official web site of the National Commission for Communications Regulation of Ukraine:
<http://www.nkrz.gov.ua>
- Official web site of the State Department for Communications and Information of the Ministry of Transport of Ukraine:
<http://www.stc.gov.ua/>
- Telecom Club (regular convention of telecom executives and equipment suppliers): <http://www.telecom-club.org.ua/>
- PC Week /UE:
<http://www.pcweek.com.ua/>

UNITED KINGDOM

Overview

Since opening up to competition, the UK telecoms market has become one of the most dynamic in the world, with new technologies such as wireless and broadband internet continuing to drive market growth. The Government has encouraged the use of Wi-Fi and deregulation has allowed public network operators to use certain parts of the spectrum that are exempt from licensing for Wireless LAN (Wi-Fi) type systems. The last 18 months have seen steady growth in telecoms sector revenues driven by growth in broadband Internet and mobile sectors. The level of broadband penetration in the UK, measured by subscribers per 100 population, is now comparable to most European countries although is still behind the USA, Japan and most notably Korea. The UK telecoms sector is set to evolve rapidly over the next few years. While British Telecom's (BT) digital subscriber line (xDSL) products have

consolidated its position as the main broadband wholesale delivery mechanism, BT is being forced by regulators to progress its local loop unbundling (LLU). There are currently over 1 million unbundled local loops in the UK.

BT's new next generation network (21CN or 21st Century Network) is currently under construction and a final list of eight preferred suppliers has been chosen to work with BT in five strategic domains:

- Fujitsu and Huawei have been chosen in the access domain, which will link BT's existing access network with the new 21CN.
- Alcatel, Cisco and Siemens have been selected as preferred suppliers for metronodes, which provide routing and signaling for 21CN's voice, data and video services.
- Cisco and Lucent will be 21CN's preferred suppliers for core nodes providing high capacity and cost efficient connections between metro nodes.
- Ericsson has been selected in the i-node domain – in essence the intelligence that controls the services.
- Ciena and Huawei have been chosen in the transmission domain to supply the optical electronics that will convert the signals carried at high capacity over the cables connecting the metro and core nodes.

Those companies interested in subcontracting opportunities should now contact these prime contractors rather than BT.

Best Products/Services

- Broadband Technologies – Broadband is very widely used by the UK

consumer. Companies providing devices or software that can leverage the capabilities of this technology are likely to find a market. Video and Voice over IP Technologies and Services, the nascent triple play market, is likely to grow rapidly as the bandwidth on broadband increases.

- 3G/UMTS Technologies and Services – The five cellular networks are rapidly upgrading the coverage of their UMTS service. Companies that can provide products and solutions into this market are likely to find partners. The market is developing a triple play sector and quad-play offering once Virgin Mobile (wireless MVNO) and NTL (a current triple play leader) finalize their merger and re-brand in 2007. Traditionally, it is only the cable telco's who have had a true triple play offering, but LLU has allowed pioneers to enter the market.
- Manufacturers of innovative convergence technologies should look at the UK market. The mobile telephony sector is being driven by 3G services, although uptake has been relatively slow due to the high cost of using options such as music downloads. There is scope for the introduction of new 3G products in the market. VoIP has joined the mainstream following product announcements from the leading UK telecoms providers.

Resources

Mr. Scott Hodgins
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24 Grosvenor Square
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URUGUAY

Overview

The growth of mobile communications in Uruguay greatly surpasses the growth of fixed communications (which has become almost stagnant.) In 1997 there were 761,000 landline connections and 100,000 cellular subscribers. By mid 2006, there were 998,747 landline connections and 1.5 million cellular subscribers (80% of which are prepaid.) The Uruguayan market is shared by three carriers: the dominant state-owned ANCEL (48% market share), Spain's Telefónica / Movistar (formerly BellSouth - 36% market share), and Mexico's América Móvil / CTI (16% market share.) BellSouth began service in 1991, ANCEL in 1994, and CTI in 2005.

Fueled by aggressive commercial promotions, between October 2005 and October 2006 the number of subscribers almost doubled and Uruguay will end the year with over 1.5 million subscribers (a 47% penetration.) In December 2005 the three carriers interconnected their systems to allow for the exchange of short message services (SMS.) The subsequent explosion in SMS messages resulted in network saturation and as of November 2006 the problem had not been completely resolved. An average of 115 million SMSs are sent per month among the three carriers at a cost of \$0.04 per message. ANCEL recently reported that message sending has become one of the principal uses of cell phones among teenagers -- more time is spent on

sending SMSs than in making actual calls. All three operators agree that the market will stabilize at 2 million units. ANCEL and Movistar operate on 1800MHz and CTI on 1900MHz frequencies. GSM leads the market with 58% participation; CDMA follows with 24%, TDMA with 16%, and AMPS with a 2% share. In a recent press conference, CTI reported an average return per user (ARPU) of \$12 per month (against a U.S. industry average of \$43,) but consistent with an \$11.00 average in the rest of Latin America. According to CTI, this low ARPU could be increased by offering more value-added services (SMS, MMS, mobile TV, etc.) especially to regional tourists during the summer vacation months.

The vast majority (80%) of subscribers are pre-paid. Depending on the carrier and time of day, costs per minute in U.S. Dollars range from \$0.16 to \$0.60. Plans as those offered in the U.S. which include 2,000 anytime free minutes, etc., are unheard of in Uruguay even for subscribers with monthly contracts. An average 70 minute contract fractioned every ten seconds costs approximately \$11. Except for national long distance that remains a state monopoly, Uruguay liberalized the telecommunications market in 2001. The liberalization also created a new regulatory entity (URSEC -- the Unidad Reguladora de Servicios de Comunicaciones) to regulate and oversee the Uruguayan telecommunications market. However, largely because of its significant political influence, the state-owned telephone company ANTEL continues to have a stronghold grip on the sector. ANTEL also dominates other aspects of the

country's telecommunications market through its ISP and cellular subsidiaries ADINET and ANCEL respectively. ANTEL commands a 77% market share in international long distance; the rest is divided among three major and five minor competitors. It commands a similar market share in ISP services.

Fixed line teledensity is 80%, one of the highest in Latin America. Due to its 100% digitalization, advanced telecommunications infrastructure, highly trained population, and relatively low salaries, Uruguay is quickly positioning itself as a preferred location for regional call centers. HTSUS 8525 (transmitters) and 8517 (telephone sets) command the import charts with 69% and 16% of the total values.

Opportunities

Given the strong entry of CTI in late 2004, combining beefy promotion and low prices, the market for cellular phones and transmission antennas and equipment will most likely rise considerably. Both Telefónica and CTI are increasing their network to provide national coverage. Telefónica has announced investments of \$30 million to update and expand its network and progressively change it from CDMA to GSM. CTI has announced total investments of approximately \$100 million through mid 2007. Opportunities may also exist for new cable TV operators in Montevideo (population 1.5 million.) URSEC has announced it will make a call for interested cable operators in early 2007. Foreign ownership of cable TV is allowed by law. Uruguay is in the process of selecting a HDTV standard. While the decision was to be taken in conjunction with the other MERCOSUR members, Brazil jumped

ahead in June 2006 by opting for the Japanese standard. This does not necessarily mean Uruguay will follow suit. Uruguay will favor the standard which allows it for greater in-house value added content.

Resources

- Embassy Contact: Robert Gorter, Sector Specialist – gorterrh@state.gov, <http://www.buyusa.gov/Uruguay/en>
- URSEC – Unidad Reguladora de Servicios de Comunicación, <http://www.ursec.gub.uy>
- Telefónica, <http://www.movicom.com.uy>
- CTI, <http://www.ctimovil.com.uy>
- ANCEL, <http://www.ancel.com.uy>

VIETNAM

Overview

Vietnam has become a promising destination for investors in the Information and Communication Technology (ICT) industries. Vietnam is putting considerable effort into modernizing and expanding its telecommunications systems, although its performance continues to lag behind that of its neighbors in the region. The telecommunications industry continues to be among the top priorities for development by the Government of Vietnam. Annual growth in the telecommunications sector is running approximately 25%. In the period 2005-2006, Vietnam's ICT growth rate has been double the average in the Asia region and triple the world average expansion rate. In the first 9 months of 2006 alone, the number of new phone subscribers in Vietnam was double the total number of subscribers for the period 1975-2000.

In Vietnam's "Strategy for Development of ICT Industries to 2010 with Orientation to 2020", it is predicted that by 2010 Vietnam's ICT industries will achieve an annual growth rate of 20-25% and annual revenue of \$6-7 billion, and new telecom entrants (non-VNPT – the dominant state-owned provider) will achieve a 40-50% market share. Such new technologies as 3G, 4G, WiMax, mobile TV, and NGN will be promoted in Vietnam and become major trends in the development of Vietnam's telecommunications industry.

With decreasing prices and increasing investment, the business environment has and will continue to become more competitive. Foreign telecom companies will initially be invited to enter the market by participating in the equitization/privatization of State-owned enterprises (SOEs).

In the past, Vietnam's telecommunications industry was partially opened to foreign telecommunication companies, but mainly as suppliers of equipment and finance in the building of network infrastructure for transfer to Vietnamese local operators. However, with Vietnam's accession to the WTO, limitations on foreign companies providing telecommunications services will be relaxed, resulting in increased competition. Some bumps in the road affecting the development of Vietnam's telecommunications industry could result from excessively rapid growth, price competition, problems with network connectivity and indifference to the fixed telephone market.

Best Products/Services

American suppliers should find excellent opportunities in almost every sub-sector, from equipment for telecom infrastructure to value-added services.

Opportunities

To meet increasing market demand and increased competition following Vietnam's accession to WTO, Vietnamese telecommunication operators need to enhance their competitiveness by adopting new technologies and enhancing human resource capabilities. They are seeking considerable transfer of technology and know-how via foreign involvement in the telecommunication sector, although the market is likely to open at a gradual pace in line with Vietnam's commitments. The major buyers for the telecommunication equipment and services are listed below:

- VNPT (Vietnam Posts and Telecommunications Group)
- EVN Telecom (Electricity of Vietnam)
- Viettel (Military Electronics Telecommunications Corporation)
- SPT or Saigon Postel (Saigon Posts and Telecommunications Service Corporation)
- Hanoi Telecom (Hanoi Telecommunications Company)
- VNPT (Vietnam Posts and Telecommunications Group)
- Vietnam Maritime Communications and Electronics Company (Vishipel)
- OCI (One-Connection Internet Service Joint Stock Company)
- Tienet (TIE/Trade Import Export Company)
- Netnam Company (Netnam)

Resources

- Nguyen Dzung, Commercial Specialist, U.S. Commercial Service, U.S. Embassy in Hanoi
E-mail: nguyen.dzung@mail.doc.gov
- Nguyen Hoa, Commercial Specialist, U.S. Commercial Service, U.S. Consulate General in Ho Chi Minh City, E-mail:
nguyen.hoa@mail.doc.gov
- U.S. Commercial Service:
www.buyusa.gov/vietnam
- Vietnam's Ministry of Posts and Telematics: www.mpt.gov.vn/
- Vietnam Post & Telecommunications Group: www.vnpt.com.vn/

V. Trade Events

Trade events, such as trade shows, trade missions and catalog shows, offer excellent opportunities for face-to-face interaction with foreign buyers and distributors. Of the many U.S. and international events held throughout the year, some are vertical (single industry theme) and some horizontal (many industries represented). The events organized or approved by the U.S. Department of Commerce can be especially useful for first-time or infrequent participants – they require less lead time to register and typically involve more handholding.

The Trade-Event Scheduling Web sites listed below allow selective searches for upcoming events by industry, location, type and date. They typically provide the event organizer, event descriptions and costs, and people to contact for more information. To find upcoming events for U.S. Telecommunications Equipment, use industry search terms relating to Telecommunication or Communications

Schedules for U.S. Government Organized or Sponsored Events

Domestic USDOC Events: http://www.export.gov/comm_svc/us_event_search.html

International USDOC Events: http://www.export.gov/comm_svc/us_event_search.html

USDA (Food & agriculture) Events:

<http://www.fas.usda.gov/scripts/agexport/EventQuery.asp>

Schedules for Commercially Organized Events

TSNN (<http://www.tsnn.com/>)

ExpoWorldNet (<http://www.expoworld.net/>)

Exhibition Center - Foreign Trade Online (<http://www.foreign-trade.com/exhibit.htm>)

VI. Available Market Research

Telecommunications Equipment

The reports listed below provide more detailed information about the market for the Telecommunications Equipment in the listed countries, such as demand trends, the competition, business practices, distribution channels, promotional opportunities, and trade barriers. These market research reports are written by resident U.S. commercial staff in each country.

All the listed reports, as well as newer reports released after this publication, are accessible on line, at no cost, from <http://www.buyusainfo.net/adsearch.cfm?loadnav=no>, or can be obtained in print or on disk for \$25.00 from:

CENTER FOR INTERNATIONAL TRADE DEVELOPMENT
 13430 Hawthorne Blvd, Hawthorne, California 90250 USA
 Phone: (310) 973-3173 Fax: (310) 973-3132 E-mail: mkogon@elcamino.edu

Broadcast/Telecom	Australia	3/18/2007
Telecommunications in the Caribbean Region	Barbados	3/6/2006
Broadcast and Telecom Market	China	2/16/2007
Telecommunications	Croatia	12/21/2006
Telecommunications Sector in the Czech Republic	Czech Rep	11/7/2006
Broadband Connections	Denmark	9/14/2005
Convergence of ICT & Broadcasting	Egypt	3/29/2007
IT Telecom Trends	France	10/27/2006
Broadband access Equipment	Germany	3/9/2007
Telecom and Broadcasting	Indonesia	4/13/2007
Israel ICT Sector Report	Israel	12/6/2006
Information Communications Technologies	Kazakhstan	3/2/2006
Broadcast Market	New Zealand	3/1/2007
Trends in the ICT Market	Norway	9/30/2005
Telecom and Broadcast Industry Overview	Philippines	3/4/2007
Romanian Telecommunication Market Overview	Romania	6/28/2006
Telecommunication Market	Saudi Arabia	7/23/2006
Computer Software Market	Serbia Mont	9/6/2006
Broadcast/Telecom Market Research	Singapore	3/12/2007
ICT Infrastructure	South Africa	3/1/2007
The Swedish Broadband Market	Sweden	3/15/2006
The Swiss IT Market	Switzerland	3/2/2007
Telecom/Broadcasting	Thailand	8/23/2006
ADSL Usage	Turkey	9/29/2006
Electronic Commerce	Ukraine	9/12/2005
Convergence in UK IT/Telecommunications Market	UK	4/28/2006
Sales of Cellular Phones	Uruguay	3/5/2007
Telecommunications and Broadcasting	Vietnam	2/26/2007

VII. APPENDIX

Products in Telecommunications Equipment, by Schedule B Code

HS 852520 : HS 903040 Items

Schedule B Code	Description
852520	CB (CITIZENS BAND) TRANSCEIVERS
852520	CELLULAR RADIOTELEPHONES FOR PUBLIC CELLULAR RADIOTELECOMMUNICATION SERVICE
852520	CITIZENS BAND (CB) RADIOS
852520	CORDLESS TELEPHONES
852520	RADIO AND TV TRANSMISSION EQUIPMENT
852520	RADIO WALKIE-TALKIES
852520	RADIOS, CITIZENS BAND (CB)
852520	RADIOS, TWO-WAY (TRANSCEIVERS)
852520	TELEPHONES, CORDLESS
852520	TRANSCEIVERS, CITIZENS BAND (CB)
852520	TRANSCEIVERS, RADIO
903040	DISTORTION FACTOR METERS
903040	GAIN MEASURING INSTRUMENTS
903040	INSTRUMENTS AND APPARATUS DESIGNED FOR TELECOMMUNICATIONS
903040	METERS, CROSS TALK
903040	METERS, MEGOHM
903040	METERS, RADIO INTERFERENCE
903040	PSOPHOMETERS