Best Export Markets
For
U.S. Telecommunications Equipment, 2005

Best Export Markets for U.S Telecommunications Equipment was compiled by Duru M. Cay, 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 2005 Country Commercial Guides (CCGs) prepared by United States Commercial Service (USCS) posts abroad. All those CCGs include a standard chapter "Leading Sectors for U.S. Exports." This report drew from those CCGs, which specifically recommended Telecommunication Equipment as a best prospect for U.S. exports, based on near-term growth potential or a large market receptive to additional U.S. suppliers.

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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Best Export Markets For
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I. Export Market Overview

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

This Market Brief provides an overview of the world market for US products in the HS 852520 category, based on an analysis of the latest trade statistics and market research.

Export growth: U.S. exports of products in the HS 852520 category fell from $4.7 billion in 2001 to $4.6 billion in 2004, a decrease of 1.9% over the four –year period.

Leading Foreign Markets: Canada is the leading market for U.S. exports of products in the HS 852520 category ($950 million in 2004 or 20.5% of total), followed by Mexico (16.7%). Other top markets (all valued above $100 million) were: Venezuela (5.5%), Colombia (4.3%), France (2.9%), Ecuador (2.6%), India (2.3%) and Germany (2.2%). Other significant markets (above $70 million) were: Hong Kong (2.1%), China (2.0%), Guatemala (1.9%), Peru (1.9%), United Kingdom (1.8%), Australia (1.8%), and Israel (1.5%).

Fastest Growing Markets: The large volume markets showing the highest four-year growth rates for U.S. products in the HS 852520 category were: India (+305.0%), Guatemala (+311.7%), Ecuador (+218.1%), Venezuela (+152.9%), Hong Kong (+145.4%), France (+86.1%), Colombia (+66.3%), and Germany (+51.3%). Smaller-volume, high-growth markets over the for-year period were: Trinidad & Tobago (+817.2%), Thailand (+132.0%), El Salvador (+109.2%), United Arab Emirates (+105.7%), Nigeria (+95.6%), and Jamaica (+37.1%).

Declining Markets: The large volume markets showing a declining four-year growth rate for U.S products in the HS 852520 category (2001-2004) were: China (-64.9%), Israel (-53.2%), Mexico (-28.4%) and United Kingdom (-18.0%). Other (smaller-volume) declining markets over the four-year period were: Japan (-73.2%), Algeria (-63.2%) and Chile (-61.9%).

Best Market Prospects: The markets listed below appear to be particularly promising for U.S. exports of telecommunications equipment over the next two years. Specific U.S. export statistics on telecommunications equipment products are available from the CITD for all countries, including those listed below (Source: U.S. Census Bureau). The CITD also has access to relevant trade contacts, trade opportunities and market research on each country:

Angola
Australia
Austria
Brazil
Bulgaria
Canada
Chad
Chile
China
Costa Rica
Denmark
Egypt
Ethiopia
Finland
France
Germany
Ghana
Honduras
Hong Kong
India
Indonesia
Japan
Kenya
Mexico
Netherlands
New Zealand
Nigeria
Philippines
Portugal
Russia
Singapore
Slovenia
Spain
Sweden
Switzerland
Taiwan
Thailand
Turkey
UK
Ukraine
Venezuela

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

This Market Brief provides an overview of the world market for US products in the HS 903040 category, based on an analysis of the latest trade statistics and market research.

Export growth: U.S. exports of products in the HS 903040 category fell from $1.1 billion in 2001 to $979.8 million in 2004, a decrease of 11% over the four-year period.

Leading Foreign Markets: Canada is the leading market for U.S. exports of products in the HS 903040 category ($112.9 million in 2004, or 11.5% of total), followed by Japan (9.9% of total) and United Kingdom (8.8%). Other top markets (all valued above $39 million) were: China (6.9%), Hong Kong (6.0%), Germany (5.7%), Korea (4.7%), Israel (4.7%), and Mexico (4.1%). Other significant markets (above $21.5 million) were: France (3.7 %), Taiwan (2.8 %), Netherlands (2.6%), Singapore (2.6%), India (2.3%), and Brazil (2.2%).

Fastest Growing Markets: The large volume markets showing the highest four-year growth rates for U.S. products in the HS 903040 category were: Israel (+128.0%), Hong Kong (+115.1%), India (+95.8%) and Brazil (+19.3%). Smaller-volume, high-growth markets over the for-year period were: Greece (+503.8%), United Arab Emirates (+394.5%), Austria (+148.8%), Philippines (+71.1%), Dominican Republic (+41.8%), and Malaysia (+37.2%).

Declining Markets: The large volume markets showing a declining four-year growth rate for U.S products in the HS 903040 category (2001-2004) were: United Kingdom (-42.2%), Netherlands (-39.6%), Taiwan (-36.8%), Korea (-35.1%), Japan (-21.5%), Mexico (-20.8%), and Singapore (-13.9%). Other (smaller-volume) declining markets over the four-year period were: Argentina (-70.6%), Finland (-63.4%) and Australia (-40.6%).

Best Market Prospects: The markets listed below appear to be particularly promising for U.S. exports of telecommunications equipment over the next two years. Specific U.S. export statistics on telecommunications equipment products are available from the CITD for all countries, including those listed below (Source: U.S. Census Bureau). The CITD also has access to relevant trade contacts, trade opportunities and market research on each country:

Angola	**Egypt**	**Kenya**	**Sweden**
Australia	**Ethiopia**	**Mexico**	**Switzerland**
Austria	**Finland**	**Netherlands**	**Taiwan**
Brazil	**France**	**New Zealand**	**Thailand**
Bulgaria	**Germany**	**Nigeria**	**Turkey**
Canada	**Ghana**	**Philippines**	**UK**
Chad	**Honduras**	**Portugal**	**Ukraine**
Chile	**Hong Kong**	**Russia**	**Venezuela**
China	**India**	**Singapore**	
Costa Rica	**Indonesia**	**Slovenia**	
Denmark	**Japan**	**Spain**	

II. Market Potential Indicators

A. Top 30 U.S. Export Markets for Telecommunications Equipment by Country. These tables show the leading and fastest growing markets for the U.S. products over the past several years. Source: U.S Census Bureau.

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

2. **Instruments and Apparatus for Telecommunications (HS 903040)**

B. Top 30 World Exporters of Telecommunication Equipment, by Country. This table shows the U.S. share of total world exports of Telecommunications Equipment, compared with leading competitor countries. Source: United Nations COMTRADE.

C. Market Sizes for U.S. Telecommunication Equipment by Country, including each country's total imports of Telecommunication Equipment, and imports from the U.S. Source: U.S. Commercial Staff in each country.

II. Market Potential Indicators

II .A. Top 30 U.S. Export Markets 2001–2004
(Values in US$ 1000s)

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

Country	2001	2002	2003	2004	% Change 2001 - 2004	% Change 2003 - 2004	% Share 2004
Canada	744,704	750,720	889,888	950,060	27.6%	6.8%	20.5%
Mexico	1,081,427	661,873	448,602	774,083	-28.4%	72.6%	16.7%
Venezuela	100,820	108,223	73,855	255,017	152.9%	245.3%	5.5%
Colombia	119,769	79,470	105,972	199,221	66.3%	88.0%	4.3%
France	72,374	66,536	72,628	134,708	86.1%	85.5%	2.9%
Ecuador	37,791	62,418	83,037	120,205	218.1%	44.8%	2.6%
India	25,815	27,119	51,091	104,557	305.0%	104.6%	2.3%
Germany	66,273	74,178	70,279	100,288	51.3%	42.7%	2.2%
Hong Kong	39,662	38,959	55,104	97,315	145.4%	76.6%	2.1%
China	270,064	120,412	84,370	94,730	-64.9%	12.3%	2.0%
Guatemala	21,821	53,316	58,562	89,829	311.7%	53.4%	1.9%
Peru	75,016	73,087	93,482	85,927	14.5%	-8.1%	1.9%
United Kingdom	101,125	76,118	96,763	82,943	-18.0%	-14.3%	1.8%
Australia	58,370	60,745	42,165	81,332	39.3%	92.9%	1.8%
Israel	150,715	71,214	64,403	70,472	-53.2%	9.4%	1.5%
Brazil	173,236	75,000	53,402	67,763	-60.9%	26.9%	1.5%
Jamaica	48,971	55,981	53,805	67,157	37.1%	24.8%	1.4%
Chile	172,822	87,255	76,332	65,785	-61.9%	-13.8%	1.4%
El Salvador	28,816	22,746	26,671	60,282	109.2%	126.0%	1.3%
Japan	210,366	73,391	60,614	56,292	-73.2%	-7.1%	1.2%
Argentina	119,215	9,752	35,156	49,858	-58.2%	41.8%	1.1%
Thailand	19,344	35,084	17,272	44,882	132.0%	159.8%	1.0%
Singapore	36,792	34,016	31,786	43,372	17.9%	36.5%	0.9%
Trin & Tobago	3,962	5,567	10,135	36,340	817.2%	258.5%	0.8%
Netherlands	33,812	30,242	32,336	36,080	6.7%	11.6%	0.8%
Taiwan	51,158	33,482	18,943	32,640	-36.2%	72.3%	0.7%
Algeria	88,506	35,971	4,641	32,564	-63.2%	601.6%	0.7%
Nigeria	16,592	14,915	35,873	32,460	95.6%	-9.5%	0.7%
Korea	45,166	88,150	39,855	31,319	-30.7%	-21.4%	0.7%
United Arab Em	15,076	23,979	20,677	31,004	105.7%	49.9%	0.7%
Subtotal:	**4,029,579**	**2,949,917**	**2,807,702**	**3,928,485**	**-2.5%**	**39.9%**	**84.6%**
All Other:	**702,514**	**526,273**	**591,644**	**715,695**	**1.9%**	**21.0%**	**15.4%**
Total	**4,732,093**	**3,476,190**	**3,399,347**	**4,644,179**	**-1.9%**	**36.6%**	**100.0%**

Source: US Census Bureau

II .A. Top 30 U.S. Export Markets 2001–2004
(Values in US$ 1000s)

2. Instruments and Apparatus for Telecommunications (HS 903040)

Country	2001	2002	2003	2004	%Change 2001-2004	%Change 2003-2004	%Share 2004
Canada	113,930	99,913	85,997	112,965	-0.8%	31.4%	11.5%
Japan	123,690	88,245	76,812	97,115	-21.5%	26.4%	9.9%
United Kingdom	148,861	111,183	74,994	85,973	-42.2%	14.6%	8.8%
China	77,305	46,809	41,941	68,017	-12.0%	62.2%	6.9%
Hong Kong	27,421	28,596	40,336	58,971	115.1%	46.2%	6.0%
Germany	60,546	42,513	35,985	55,606	-8.2%	54.5%	5.7%
Korea	71,591	42,817	37,515	46,432	-35.1%	23.8%	4.7%
Israel	20,051	14,697	20,323	45,724	128.0%	125.0%	4.7%
Mexico	50,161	36,274	17,948	39,724	-20.8%	121.3%	4.1%
France	41,614	23,887	23,116	36,349	-12.7%	57.2%	3.7%
Taiwan	42,946	28,533	22,655	27,126	-36.8%	19.7%	2.8%
Netherlands	42,611	23,479	24,632	25,717	-39.6%	4.4%	2.6%
Singapore	29,273	43,441	33,616	25,213	-13.9%	-25.0%	2.6%
India	11,287	12,302	13,721	22,104	95.8%	61.1%	2.3%
Brazil	18,248	35,763	16,641	21,766	19.3%	30.8%	2.2%
Malaysia	13,570	28,256	14,319	18,616	37.2%	30.0%	1.9%
Australia	27,644	12,531	10,756	16,425	-40.6%	52.7%	1.7%
Italy	20,432	12,352	16,190	15,813	-22.6%	-2.3%	1.6%
Spain	10,519	8,193	7,778	11,923	13.3%	53.3%	1.2%
Sweden	13,423	9,979	7,226	8,731	-35.0%	20.8%	0.9%
Venezuela	7,647	3,018	2,588	6,679	-12.7%	158.1%	0.7%
Austria	2,568	2,199	2,910	6,390	148.8%	119.6%	0.7%
Philippines	3,727	1,799	7,786	6,377	71.1%	-18.1%	0.7%
Argentina	21,298	1,813	1,492	6,251	-70.6%	318.9%	0.6%
United Arab Em	1,189	1,938	3,077	5,880	394.5%	91.1%	0.6%
Switzerland	9,001	12,126	4,773	5,688	-36.8%	19.2%	0.6%
Dominican Rep	3,588	2,842	1,862	5,087	41.8%	173.3%	0.5%
Greece	821	2,727	379	4,957	503.8%	1207.6%	0.5%
Finland	13,436	11,763	13,198	4,919	-63.4%	-62.7%	0.5%
Belgium	3,886	2,811	3,760	4,495	15.7%	19.5%	0.5%
Subtotal:	**1,032,285**	**792,802**	**664,326**	**897,033**	**-13.1%**	**35.0%**	**91.6%**
All Other:	**68,222**	**76,486**	**80,538**	**82,742**	**21.3%**	**2.7%**	**8.4%**
Total	**1,100,508**	**869,288**	**744,864**	**979,775**	**-11.0%**	**31.5%**	**100.0%**

Source: US Census Bureau

II .B Top 30 World Exporters & U.S. Market Share, 2000-2004
SITC 764: Telecommunication Equipment
(Values in US$ 1,000s)

World Exports by Exporting Country 2000-2004

Reporter	2000	2001	2002	2003	2004	%Share 2004
CHINA	12,368,235	15,408,678	20,104,544	27,771,568	44,122,432	17.7%
KOREA REP.	10,500,364	12,273,243	15,805,259	21,516,912	31,098,832	12.5%
GERMANY	13,945,739	15,614,175	15,937,268	15,973,534	22,400,576	9.0%
USA	25,532,256	21,873,456	17,106,384	14,992,983	18,114,800	7.3%
JAPAN	16,120,042	12,046,976	10,781,865	14,519,891	17,950,640	7.2%
UNITED KINGDOM	16,480,602	16,823,856	17,346,208	13,167,793	10,962,347	4.4%
SWEDEN	11,646,761	6,613,058	7,349,288	7,402,534	10,703,917	4.3%
MEXICO	11,323,600	10,979,952	9,283,645	7,602,683	10,005,895	4.0%
FRANCE	11,558,475	8,910,380	8,398,037	8,309,044	9,750,824	3.9%
SINGAPORE	5,860,656	4,948,125	5,487,955	6,387,402	9,299,351	3.7%
FINLAND	9,677,887	7,766,441	8,173,429	9,158,200	9,095,226	3.6%
HUNGARY	1,436,690	2,409,985	3,894,749	5,417,783	8,486,850	3.4%
NETHERLANDS	5,346,046	5,314,682	3,032,384	4,664,929	6,801,410	2.7%
MALAYSIA	5,991,125	5,961,268	5,070,693	5,230,282	6,649,719	2.7%
CANADA	11,497,588	5,821,916	4,783,651	4,558,875	5,625,096	2.3%
ITALY	3,845,292	4,559,515	3,392,038	3,471,634	4,423,453	1.8%
THAILAND	2,163,691	1,914,604	N/A	2,803,504	N/A	N/A
ISRAEL	4,008,883	3,260,245	2,394,876	2,241,814	2,714,065	1.1%
BELGIUM	3,151,612	3,508,718	2,179,906	2,167,623	2,279,625	0.9%
DENMARK	1,829,631	1,806,700	2,744,608	2,164,394	2,190,229	0.9%
SPAIN	1,528,065	1,617,558	1,444,027	1,886,223	1,865,830	0.7%
CZECH REP	318,055	602,456	699,847	1,033,363	1,464,872	0.6%
IRELAND	3,179,196	3,115,871	2,341,557	1,339,788	1,415,676	0.6%
AUSTRIA	1,091,170	1,151,537	1,317,222	1,096,800	1,389,267	0.6%
BRAZIL	1,233,285	1,437,298	1,470,494	1,410,342	1,243,867	0.5%
PHILIPPINES	1,044,204	938,234	924,542	779,840	1,232,656	0.5%
INDONESIA	1,751,550	1,521,149	1,164,409	1,404,610	1,073,942	0.4%
ESTONIA	934,148	826,884	538,627	725,533	966,259	0.4%
SWITZERLAND	838,817	830,428	660,949	682,932	888,851	0.4%
POLAND	273,633	309,145	414,134	613,862	863,184	0.3%
Subtotal:	196,477,298	180,166,533	174,242,595	190,496,675	245,079,691	98.2%
All Other:	4,543,110	4,715,596	3,886,507	3,891,161	4,509,955	1.8%
Total:	201,020,408	184,882,129	178,129,102	194,387,836	249,589,646	100.0%

Source: United Nations Comtrade

II .C. Market Sizes & U.S. Share, by Country

The best Market matrix (below) provides comparative market sizes for 41 countries considered "best prospects" for U.S. exports of Telecommunications Equipment. The countries are listed in alphabetic order, not in rank order. The data on total market, total imports, and imports from the U.S. are based on local sources and reflect best estimates of USCS commercial officers in 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.

Telecommunication Equipment
(Values in US$ Millions)

Country	Total Market Share			Total Imports			Imports from US			% US Share
	2002	2004	% Change	2002	2004	% Change	2002	2004	% Change	2004
Angola	20	130	550.0%	20	130	550.0%	5	20	300.0%	15.4%
Australia	4,360	4,818	10.5%	2,482	2,790	12.4%	549	600	9.3%	21.5%
Austria	6,032.30	6,778.10	12.4%	N/A	N/A	N/A	742	1,016	36.9%	N/A
Brazil	N/A	3,436	N/A	N/A	883	N/A	N/A	199	N/A	N/A
Bulgaria	943	1190.2	26.2%	460	585.2	27.2%	26	105	303.8%	17.9%
Canada	3924	10773	174.5%	2305	8142	253.2%	1379	4183	203.3%	51.4%
Chad	10.8	114.5	960.2%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chile	569	916	61.0%	569	916	61.0%	109	137	25.7%	15.0%
China	34,852	31,662	-9.2%	8,400	13,672	62.8%	1,253	1,142	-8.9%	8.4%
Costa Rica	107.8	130	20.6%	107.8	130	20.6%	44.8	70	56.3%	53.8%
Denmark	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Egypt	2,500	3,000	20.0%	1,750	897	-48.7%	700	358	-48.9%	39.9%
Ethiopia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Finland	10465	10990	5.0%	910	940	3.3%	90	95	5.6%	10.1%
France	12,561	14,224	13.2%	6,678	7,940	18.9%	1,181	1,325	12.2%	16.7%
Germany	14,200	17,300	21.8%	7,000	8,700	24.3%	1,300	1,500	15.4%	17.2%
Ghana	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Honduras	80	100	25.0%	80	100	25.0%	52.4	70	33.6%	70.0%
Hong Kong	14,779	16,919	14.5%	16,853	19,432	15.3%	441	510	15.6%	2.6%
India	1800	2380	32.2%	700	1400	100.0%	250	600	140.0%	42.9%
Indonesia	2,250	2,852	26.8%	1,952	2,570	31.7%	600	700	16.7%	27.2%
Japan	20,333	24,618	21.1%	3,129	25,871	726.8%	599	398	-33.6%	1.5%
Kenya	128.2	150	17.0%	128.2	150	17.0%	10.6	6.5	-38.7%	4.3%
Mexico	6,395	6,387	-0.1%	4,626	4,706	1.7%	2,767	2,824	2.1%	60.0%
Netherlands	23.3	30.1	29.2%	1.1	6.4	481.8%	0.03	0.5	1566.7%	7.8%

Country	Total Market Share			Total Imports			Imports from US			% US Share
	2002	2004	% Change	2002	2004	% Change	2002	2004	% Change	2004
New Zealand	3,117	3,600	15.5%	3,042	3,505	15.2%	66	220	233.3%	6.3%
Nigeria	5200	9000	73.1%	5200	9000	73.1%	2080	3900	87.5%	43.3%
Philippines	350	653	86.6%	1,227	1,380	12.5%	50	52	4.0%	3.8%
Portugal	2020	3006	48.8%	1580	68	-95.7%	75	230	206.7%	338.2%
Russia	8,600	20,600	139.5%	1,500	1,830	22.0%	200	600	200.0%	32.8%
Singapore	1143	1974	72.7%	3681	6615	79.7%	191	258	35.1%	3.9%
Slovenia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spain	19,408	29,781	53.4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sweden	5,165	5,132	-0.6%	665	1,002	50.7%	49*	66*	34.7%	6.6%
Switzerland	8,375	8,575	2.4%	2,626	2,625	0.0%	800	890	11.3%	33.9%
Taiwan	3,555	4,003	12.6%	2,734	2,950	7.9%	366.7	307	-16.3%	10.4%
Thailand	2902	2927	0.9%	2618	2643	1.0%	42	40.8	-2.9%	1.5%
Turkey	2,530	3,500	38.3%	1,740	2,500	43.7%	330	550	66.7%	22.0%
UK	15,447	16,163	4.6%	1,526	1,598	4.7%	208	273	31.3%	17.1%
Ukraine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Venezuela	782.5	782	-0.1%	N/A	N/A	N/A	287.5	462	60.7%	N/A

III. 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 Telecommunication 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).

ANGOLA

The two Angolan cellular phone operators have announced that they more than doubled their client base in 2004, and that they plan another doubling of customers in 2005. The cellular telephone operator Movicel has 200,000 customers, while its competitor Unitel boasts a client base of 540,000. Unitel doubled its revenues in 2004, netting a total of $240 million. Currently, the cellular phone network is oversubscribed and service can be unreliable. Upgrading service while meeting soaring demand will require substantial imports of telecommunication equipment. Unitel alone invested $100 million in 2004.

The government plans to invest in telecommunication infrastructure to increase coverage nationwide. Angola Telecom announced in 2005 that it would invest $50 million in a microwave project to be extended through three provinces. Presently Angola has 5 Internet service providers available to the public. The regulator (Inacom) announced that it has no plans to increase the number of providers in the near future.

Opportunities
Movicel currently operates in 8 provinces but aims to expand service to all 18 provinces. Angola Telecom, which operates fixed telephone lines, intends to spend $3 million to upgrade its existing network during the first trimester of 2005. The company has also expanded the telephone network to the areas surrounding Kuito, as well as the municipalities of Andulo and Kamacupa. Angola Telecom also plans to offer Internet service in these areas. In January 2004, the government announced that an international public tender will be issued for the construction of a fiber optic cable along Angola's coast between the provinces of Cabinda and Namibe.

Resources
Angola Telecom:
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info@angolatelecom.com
http://www.angolatelecom.com
Internet Service Providers and related companies:
Nilton G: http://www.nilton-g.com
Cyber Café Ncoco:
http://www.netangola.com/ncoco
Nexus, Telecommunications and Services: http://www.nexus.co.ao
NetAngola: http://www.netangola.com
IT Net: http://www.info-net.net
Supernet: http://www.supernet.ao
SNET: http://www.snet.co.ao

EBONet: http://www.ebonet.net
AngolaHosting.com:
http://www.angolahosting.com
AvKmedia:
http://www.avkalundamedia.com

AUSTRALIA

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. Revenues grew by 5% in 2003. Australia's telecommunications industry is well developed and mature. Telephone lines are connected to 96% of all Australian households, and total telecommunications revenue for 2004 is estimated at $25.5 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 100 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. Telstra's balance sheet looks as healthy as ever. 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 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 networks were 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 1,000,000 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:

- CommsWorld: http://www.Commsworld.com.au
- Exchange: http://www.exchange.com.au
- Information Superhighways: http://www.budde.com.au

Associations/Government Agencies:

- The Australian Competition and Consumer Commission: http://www.accc.gov.au The Australian Competition and Consumer Commission (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 AIIA is the industry association acting for the local IT industry.
- Internet Industry Association of Australia: http://www.iia.net.au -Australia's national industry body for internet commerce, content and connectivity.

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

Net sales of services in the Austrian telecommunications market (end-user and wholesale) increased by approximately 6%, from $6.34 billion in 2003 to $6.78 billion in 2004. In 2004, the market for telecommunications services in Austria increased in total volume. Growth was particularly strong in mobile communications. Tariffs continued to drop in the fixed and mobile network sectors. More than half of 2004 sales can be attributed to mobile communications, which grew at a rate of 8%. The Austrian telecommunications market employs more than 42,000 people. The Austrian Regulatory Authority for Broadcasting and Telecommunications (RTR GmbH) distributed 156 licenses for public telephone services in 2004, of which 77 were for leased lines, 67 were for voice telephony (fixed lines), and 12 were for mobile phone service.

Mobile telecommunication market:
For a number of years, the prices for mobile telecommunications have fallen so dramatically that mobile telephony is now the toughest competition for fixed network telephony. By the end of 2004, there were 7.76 million activate subscriber numbers, representing a penetration rate of over 90%. The new regulatory framework for electronic telecommunications markets, which is laid down in five directives from the European Union and was translated also into Austrian national law in the summer of 2003, aims for a harmonized regulatory policy that promotes competition within the Member States. Articles 14 through 16 of the framework Directive are of central importance, giving a clear mandate to the national regulatory authorities (in Austria RTR GmbH) to carry out extensive market analyses at regular intervals.

Because of a shortage of frequencies, the mobile communications market, which was liberalized in 1996, has fewer players than the fixed network. Market entry for a new company is possible only if that company is granted or, since the summer of 2003, transferred frequency usage rights. The Austrian mobile market has been quite competitive in recent years, but over the last year the market has shown signs of saturation, reflected in the restructuring of operations by some operators. The market continues to be led by Mobilkom Austria with a market share of 42.2%, followed by T-Mobile with 26.9%, "One" with 20%, Tele.ring with 10%, and"3 Austria" with 0.9% in 2004.

Fixed network market:
The estimated number of authorized public fixed voice telephony operators in Austria is 55. Of these, six major players have a share of 90%. At the beginning of market liberalization, the fixed network market opened up mainly via the carrier network operators. Relatively easy market entry with little required investment input resulted in a large number of applications for licenses. Most of the major providers are developing, or have already developed, into full service providers. In addition to providing speech, data and Internet services, they are also offering Server Hosting, Application Services, and mobile services. Providers that can offer a full range of products and services have the best chance of surviving in the long term. There were 3.2 million fixed lines in service at the end of 2004. Telekom Austria claims 3 million of these. This represents a penetration rate of over 40%. The number of fixed access lines operated by Telekom Austria has been declining in recent years as customers opt for ISDN lines or replace their fixed line with a cellular subscription. Meanwhile, the number of cellular subscribers has increased dramatically.

To sum up, the telecom services sector has been largely liberalized, is well developed, and is extremely competitive. Licenses are required for wire-bound public voice telephony, public offering of line leases, and wireless voice telephony. A single simple registration requirement applies to all other telecom services. The convergence of mobile phones, Internet, TV, satellite, and cable offer a potent mix of new services, especially to American firms, which are the most experienced suppliers for many of these services. U.S. telecom services providers present in Austria include Abovenet Communications, Airpage, AT & T Global Network Services, Equant Network Services, Facilicom International, tele.ring, UPC Telekabel, and WorldCom.

Best Products/Services:
Mobile communications will continue to increase with the drop in tariffs. Broadband penetration (expressed as a percentage of the population having it) is expected to nearly double from 8.7% (or 705,000 lines) in 2004 to 16% in 2008, while fixed network voice telephony and leased lines will decline somewhat.

Broadband as a growing sector should be an attractive target for investment by U.S. companies. An alternative operator or Internet Service Provider (ISP) can implement broadband access to end-users either by using self-operated access technologies such as optical fibre, power line, radio networks (W-LAN), and cable television networks (CATV), or by resorting to the unbundled (copper) access network of Telekom Austria and purchasing bitstreaming as a wholesale service. There exists an enormous potential for further development of the broadband market through the use of innovative technologies and products.

Opportunities:
U.S. companies interested in investing in the broadband and VOIP sectors will find good opportunities in the Austrian market.

Resources
Web Resources:
http://www.rtr.at The Austrian Regulatory Authority for Broadcasting and Telecommunication (RTR)
Contact:
Urska Hudnik, Commercial Specialist, Commercial Service, Vienna, Austria
Email: urska.hudnik@mail.doc.gov

BRAZIL

Brazil has a large and diversified economy that offers US companies many opportunities to export their goods and services. As Brazil's largest single trading partner, the US enjoys a strong reputation in a variety of sectors.

Brazil-Telecom Giant in Latin America. Despite severe currency devaluations in the past three years, Brazil remains the largest telecommunications market in Latin America, accounting for almost 35% of the region's revenues. Net revenue for telecommunications equipment and services in 2003 was approximately $27.1 billion, a significant increase as compared to 2002 ($23 billion). Services, including carriers, accounted for $24.3 billion of net revenue, while product suppliers (hardware & software) have generated $2.8 billion. Many multinational players established manufacturing plants in this country to provide products and services to major operators that set up new businesses, increasing jobs in the sector by over 40%. As a result, the country today has a telecommunications infrastructure that rivals most others in Latin America.

Trends-Wireless Mobility is Driving Growth. For 2005 sector experts predict an average growth of 11%. The Brazilian import market for telecommunications equipment and components reached approximately $883 million in 2004 and is expected to surpass $1.3 billion in 2005. The US decreased its participation in the import market from 34% in 2003 to 27% in 2004, while the Southeast Asian countries (mostly South Korea and China) increased their participation from 34% in 2003 to 42% in 2004.

Investments surged after privatization, but have slowed. The privatization process has brought Brazil unprecedented investments of over $27 billion since it started in the mid-1990s. The injection of new telecom investments slowed to approximately $2.2 billion in 2003, compared to $2.4 in companies in the fixed and wireless segments to comply with the standards established by Anatel, Brazil's telecommunications regulatory body. Some of the biggest US investors have continued to express concern about Anatel's lack of clarity regarding regulations that determine the effective viability of such business models as wireless local loop (WLL). Moreover, the turbulence of the economy and the uncertainty about the plans of the newly elected president also contributed to the slower pace. However, for 2004 the industry expects an injection of an additional $4.6 billion, mainly from carriers committed to introducing GSM services in the country. By 2005, Anatel predicts that the total investments in the telecommunications sector in Brazil will reach $53 billion; 47% of this amount will be for fixed services and 19% for mass communications services.

Wireless penetration continues to grow. According to Anatel, Brazil has now 60 million mobile lines. This represents a growth of 90% as compared to the same period last year. The country could reach 70 million users by year-end 2004. About 79.7% of the mobile phones operating in country are prepaid and

20.3% are post paid. This represents a teledensity of 33.3 telephones per 100 inhabitants, a 27% growth as compared to December last year.

Vivo is the largest mobile operator with 42.4% of the total market, followed by Claro with 20.6%, TIM with 20%, Oi with 9.9% and sister companies Telemig and Amazonia with 6.5%. TDMA is still the dominant technology with 24.4 million subscribers (40.9% of the total), CDMA has 29.7 million and GSM 28.7 million. According to market analysts, by April 2005 the number of GSM mobile phone subscribers will overtake TDMA users. Brazil's GSM and CDMA client bases are growing at an average monthly rate of 9.8% and 2.4% respectively. The GSM client base grew by 6.7% in September with 989,900 new lines from the previous month. At the same time, the CDMA client base was up 2.9%, with 325,000 new lines from August-September. The TDMA client base declined by 159,000 lines in September compared to the previous month.

Top Prospects for US companies are in wireless. US companies should be aware that, while CDMA has a narrow lead in market share over GSM, Anatel's recent interpretations of spectrum use and flexibility have explicitly favored the concept of privileging GSM nationwide. While some technology neutrality has been preserved, at least on paper, the Government of Brazil appears to favor the European approach of settling on one standard in order to speed up adoption and ease roaming. The results of this strategy have, in recent years, put over $1 billion in wireless investments at risk in Brazil, and the US government continues to monitor developments with concern.

Even as fixed line density falls. In the fixed line market, there were 39.2 million phones installed at the end of 2003, up 1.1% from 38.8 million at the end of 2002. Fixed line teledensity fell to 22.2% at the end of 2003, down from 22.6% at the end of 2002, as the fixed line market has not kept pace with population growth, which averages 2-3% a year in Brazil. In the national long distance market, the incumbent Embratel (recently sold to Telmex) lost ground, with its market share falling to 25.2% in 2003 compared to 33.2% in 2002. Telemar was second with 24.5%, Telefonica third with 24.1%, and Brasil Telecom fourth with 20.1%. Embratel retains firm control of international traffic, with 76.5% market share, compared to Intelig's 21.2% and 2.3% combined at other operators. As in the US, voices over Internet protocol (VOIP) alternatives are available, but regulations governing their use have not been clarified. Investors in this area should exercise extreme caution until Anatel clarifies the regulatory regime for VOIP and the even newer peer-to-peer telephony alternatives.

Good opportunities for U.S. companies will be found mostly in the wireless market since a significant increase of wireless data applications is expected with the deployment of GSM, and CDMA 1xRTT technologies. Trends continue to be toward convergence, i.e., adding telecommunications services, to maximize the benefits derived from investments and efficient operations.

Consolidation predicted for mobile market: According to local analysts, Brazil's mobile market will feature only four or five major players by the end of 2004, compared to seven operators today. The market expects consolidation to be driven by pending deals involving the jointly owned assets of Telecom Italia and local investment group Opportunity called Brasil Telecom PCS.

The other major players in the market are Telefonica Moviles and Portugal Telecom's joint venture Vivo, America Movil subsidiary Claro, Telecom Italia Mobile (TIM) and Oi, the mobile division of Brazil's largest fixed line operator Telemar. In order to stay competitive as the market consolidates, mobile operators must join forces with fixed line operations to broaden and bundle their service offerings.

Export opportunities for wireless and networking. Cellular telephones are expected to be the single biggest endues market for the telecommunications equipment market in Brazil. Major cell phone manufacturers such as Motorola, Nokia, Samsung, Sony-Ericsson, Siemens, LG Electronics and Gradiente are gearing up production to supply growing markets in Brazil and the South American Region and are even exporting to North America. Other best prospects include IP New Generation Networks (IP NGNs); Corporate and Virtual Private Network Services (VPNs); new revenue- enerating mobile services (preferably based on the existing network); broadband multiple services; intelligent services networks; new services merging voice, data, image and sounds; telemedicine equipment; security telecom equipment (alarm receivers and transmitters); and system integration services.

Resources:
• For more information about export opportunities in this sector contact US Commercial Service Industry Specialist Ebe Raso at: ebe.raso@mail.doc.gov.
• Anatel: http://www.anatel.gov.br/.
• Brazil's Ministry of Communications: http://www.mc.gov.br/. Companies

BULGARIA

Bulgaria has one of the highest penetrations of telephone service in Eastern Europe, with around 38 subscribers per 100 inhabitants. The Bulgarian Telecommunications Company (BTC), a formerly state-owned enterprise overseen by the Ministry of Transport and Communications, owns Bulgaria's fixed telecommunications network. The Bulgarian telecommunications market has been liberalized as of January 1, 2003 but BTC is still the main telecommunications operator on the market. U.S.-based Advent bought 65% share of BTC through its Viva Ventures subsidiary in June 2004. The long awaited privatization of BTC will bring investment of more than $910 million and speed-up the company's upgrades. Stipulations of the deal require Advent International/Viva Ventures to raise BTC's capital by $60 million. BTC is now focusing its efforts on digitalization of the network, which is much lower than elsewhere in Europe. Digitalization is projected to account for 45% of all lines by the beginning of 2005 and 80% by the end of 2008.

14 Bulgarian operators have been licensed to install and operate a network for fixed-line voice telephony. They will now be able to compete on an equal footing with the former state-owned operator BTC. The move is expected to cut the tariffs for international and long-distance calls while having only a marginal effect on BTC's market penetration. BTC and two alternative telecom companies have already signed interconnection contracts and the rest of the group is expected to do the same soon.

Bulgaria has a digital cellular telephone network operated by the Bulgarian company Mobitel that uses the Pan-European digital GSM standard (900 MHZ). Mobiltel has applied for a license to build a fixed telecommunications network too. A second GSM operator, COSMO Bulgaria Mobile, launched operations of a service called Globul in 2002. The number of subscribers of the two mobile operators exceeded 4.28 million as of January 2005. In 2004, BTC was granted a license for a third GSM operator. It is expected to launch operations in mid 2005. Bulgaria will hold tenders for 3G mobile network licenses in 2005. The license will have a starting price of $46.6 million. The country's two GSM operators MTel and GloBul, as well as the former state-owned telecom BTC, have already shown interest for the 3G networks.

Bulgaria has about 12 Internet service providers who have their own network. Current dial-up access speeds over regular lines generally offer a reliable connection up to 54,600 bps. Cable and DSL broadband are now largely available. Since the Bulgarian Telecommunications Company provides affordable ADSL access, both business and private ADSL users increase. As of September 2004, the Internet users in Bulgaria are1,545,100.

Bulgaria's broadcast and cable media are also expanding. Cable TV operators are upgrading their networks in order to be able to provide interactive services such as Pay Per View TV, Video on Demand, cable Internet and telephony services. These companies are also considering entry into the telecommunications services market. A number of companies have already started providing phone services using VoIP technology.

Best Products/Services
There is an 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, routers, switches, access servers, equipment for mobile telephony, cable operators' equipment for transmission and fixed wireless equipment.

Opportunities
The Bulgarian Telecommunications Company (BTC) has plans to upgrade its fixed-line network and build the third GSM network. While a number of U.S. companies have already contacted BTC, there will be opportunities in the future as well. BTC is expected to invest $910 million.

Resources
Ministry of Transport and Communications: www.mtc.government.bg/
Bulgarian Telecommunications Company: www.btc.bg
Internet World Stats Usages and Population Statistics: www.internetworldstats.com/europa2.htm
CS contact:
Stanislava.Dimitrova@mail.doc.gov

CANADA

Best Products/Services
Photonics and wireless are particularly strong growth sub sectors. Canadian demand for fiber optic cable was valued at $282 million in FY2000. By FY2004, the Canadian fiber optic cable sector is

predicted to have increased by 40% to $395 million. Most Canadian telecommunications companies expect to complete the conversion from copper to fully fiber optic systems before the year 2015. The wireless sector is one of the fastest growing sectors of the Canadian telecommunications industry and is approximately 22% of the total market size. It was valued at $3 billion in 2001 and has grown to $6.7 in FY2003. In fact, there are over 15 million Canadian consumers who are now using wireless products and services in a country with a total population of only 32 million.

U.S. companies dominate Canada's import market for all telecommunications equipment. U.S. companies will find lucrative opportunities in several of the Canadian telecommunication equipment sectors, including: wireless, photonics, fiber optics, satellite, multimedia applications and cable.

Opportunities

The Canadian telecommunications industry has gone through a restructuring period in the past 2 years. Despite the downturn in the telecommunications industry, it has continued to experience growth producing over $20 billion to the overall economy, accounting for 2.3% of the total GDP. This is an increase from $4,171 million in 2001. The steady growth of 1.1% (2003) in domestic production is expected to continue in the next two to five years. Employment growth has increased 5.5% since 2002, employing 110,834 persons, with an average salary increase of 0.2%.

The Canadian telecommunications industry is extremely sophisticated and fast-paced, with the largest concentrations of companies located in Montreal, Toronto, and Ottawa. Canada is home to world leaders in telecommunications, such as Nortel Networks, and Research in Motion (best known for their (Blackberry'). The Canadian telecommunications equipment industry consists of establishments primarily engaged in manufacturing telephone, telegraph, and microwave transmitting and related equipment for use in public and private telecommunications networks. Some of these products include: carrier current equipment, telephone or telegraph, switching equipment, intercommunicating telephone sets, and multiplex equipment.

The Canadian industry has strong research and development capabilities and is a world leader in telecommunications, connectivity, satellite, wireless and rural communications. 90% of Canada's R & D is located in Ottawa, Ontario. The industry is also strong in training software, multimedia applications, and advanced network infrastructure. Extensive deregulation in the telecommunications services sector, the ability of users to own terminal equipment, as well as the rapid growth in telephony and private networks have all contributed to significant expansion of the Canadian market. The widespread use of high-capacity optical fiber, the digitization of telecommunications, the emergence of new access technologies including broadband and satellite, and the exponential growth of internet usage, are a few of the factors that will continue to spur demand for telecommunications equipment in Canada. The convergence of telecommunications technologies and information technologies, in an environment of deregulation and

increased competition in Canada, will also impact market growth. Furthermore, the Canadian government has been actively involved in supporting the modernization of high-speed communication infrastructure and services.

Resources
http://strategis.ic.gc.ca
http://sitt.ic.gc.ca/sitt/portal/jsp/splash_page.jsp

CHAD

Chad's telecommunications market has expanded since two cellular companies began operating in 2000, although one provider has since ceased operations. This expansion of cellular service has surpassed all expectations, although there was controversy over the sale of the second cellular license. This controversy has complicated the privatization of the parastatal telephone company, SotelTchad, thus limiting further development of Chad's fixed network. Opportunities exist to offer additional satellite and Internet services while expanding cellular and fixed infrastructure.

After commencing operations in late 2000, the two cellular providers had signed up more than 8,000 subscribers by the end of that year. The number of subscribers reached 20,000 by the end of 2001, surpassing the number of fixed telephone lines. The first cellular license was awarded in 1999 to Mobile Systems International (MSI) through an international tender supervised by the World Bank. Operating as Celtel, MSI began building its cellular network in 2000. In 2000, the government sold a second cellular license to ORASCOM through non-competitive procedures. When international donors objected to this action, the government instead awarded ORASCOM a minority stake in SotelTchad's existing cellular license. ORASCOM used this opening to essentially develop a second cellular company, Tchad Mobile (using the Libertis brand), although Libertis was shut down in June 2004 after failing to pay taxes. SotelTchad provides Chad's only Internet services at very high rates.

As cellular service is expanding, liberalization of fixed telephone services is stalled. The privatization of SotelTchad was originally planned in collaboration with international donors, but these donors withdrew support after SotelTchad's joint cellular venture with Orascom violated structural reform agreements. SotelTchad is unable to make significant investments in its fixed line network. At the end of 2000, the Chadian telephone network possessed only 10,260 lines for an average of 14 lines per 10,000 inhabitants, one of the lowest telephone density rates in the world.

SotelTchad was formed in 1999, by the merger of the local telephone service division of ONPT and the international telephone service and Internet service provider, TIT. In preparation for this merger, the government bought out the shares of two French firms heading TIT. As an entirely public company, SotelTchad was expected to be privatized through an international tender. Though the process has stalled, the government still affirms its intention of privatizing SotelTchad and is continuing to seek support from international lenders. Liberalization and development of the telecommunications

sector offers investment or partnership opportunities for U.S. telecom firms. The government recognizes that no single operator is likely to finance the enormous investments needed to develop a modern telecommunications network in Chad.

CHILE

Chile's telecommunications sector is completely privatized and one of the most advanced and competitive in Latin America. With sizeable investment, Chile's telecom industry grew an average of 20% annually over the last decade. Chile's fixed telephony density reached 20.5 lines per 100 inhabitants. Installation of new telephone lines decreased 3.6% from June 2003 to June 2004, while cellular subscribers increased 19.7%, reaching 42.8 subscribers per 100 inhabitants. SUBTEL reports 8.4 million cell phones in use in Chile as of June 2004, an increase of 1.4 million subscribers in one year. Chile's under secretariat of telecommunications (SUBTEL) regulates the sector, sets standards and issues licenses and concessions. At present, the two main regulatory issues before SUBTEL are regulations for VoIP and unbundling of the network.

The telecommunications market in Chile is highly competitive. Mergers and acquisitions are common. During 2004, Chilesat (long-distance) was purchased by Telmex (Mexico) and Bellsouth (cellular) was bought by Telefónica (Spain). In cable TV, VTR (United Globalcom) is also merging with Metropolis (Liberty Media).

Best Products/Services
Chile does not manufacture telecommunications equipment. U.S. products are regarded for their high quality. The U.S is Chile's largest telecom equipment supplier, accounting for approximately 30% of total imports. The implementation of the U.S.-Chile Free Trade Agreement provides U.S. suppliers an additional competitive edge. The largest market potential is in mobile telephony and broadband access. WiFi is spreading rapidly and the government of Chile is also looking for technology to improve rural telephony and broadband access to remote areas.

Opportunities
Competition among telecom operators means they are looking for a competitive edge to attract more customers. This is creating more opportunities for value-added services such as 800 numbers, cellular messaging, hot lines, automatic collect-calls, home security services and others. In corporate communications services, telecom operators offer services such as videoconferencing, teleconferencing and business TV.

Resources
Chilean Undersecretariat of Telecommunications: www.subtel.cl
Chilean Association of Information Technology Companies: www.acti.cl
For more information, contact Isabel Valenzuela of the U.S. Commercial Service Santiago at isabel.valenzuela@mail.doc.gov.

CHINA

As China's 2nd generation of mobile communications equipment market is dominated by European and North American companies and because of the

unique characteristics of mobile communications, most of China's mobile communications equipment demands are filled by imports. The quickly rising Chinese manufacturers, however, led by Huawei Technologies and ZTE are turning to South American, Southeast Asian and African countries for business opportunities and are increasingly raising their market share in China.

In 2005, China's Ministry of Information Industry (MII), the most important government regulator in the telecommunications industry, projects that Chinese telecom carriers will invest $25 billion to recruit 45 million fixed line telephone subscribers and 58 million cellular phone users. MII expects the number of fixed line telephone users to reach 361 million and the penetration rate to reach 27.6% by the end of 2005 and the number of cellular users to reach 392 million and a penetration rate of 30%. With such an investment, Chinese telecom carriers expect to generate revenues of $76.5 billion, 10.4% more than that in 2004.

Best Products/Services

Expansion of Mobile Communications Networks:

China's two mobile operators, China Mobile and China Unicom, will continue to expand their mobile networks in 2005 in a way that not only increases network coverage but also gives flexibility to offer more data services to their customers. They will continue to have great demand for base stations, switches and network optimization solutions.

Online Gaming/Mobile Gaming:

Chinese fixed line telecom operators will work with their business partners, online gaming operators and ISPs/ICPs, to provide online games and mobile games in 2005. This can be a market of billions of U.S. dollars. Online gaming/mobile gaming developers can either work with the telecom operators directly or work with gaming operators and ISPs/ICPs to market their games in China.

Wireless LAN: Chinese fixed line telecom operators, China Telecom, China Netcom and China Tie Tong (formally China Railcom), may increase their efforts in building wireless LAN networks to provide their customers with fast and easy wireless access to the internet. The fixed line telecom operators will continue to promote ADSL and other broadband access technologies in China.

Public Safety System: With increasing awareness of the importance of government's ability to deal with critical situations, there is a growing demand for emergency response systems in China. Without an organization like the National Emergency Number Association (NENA) in the United States, China has not yet developed a national technical standard for its emergency response system. At present, large and economically well-off cities in China like Beijing, Tianjin, Nanning and Chengdu have started building public safety networks by introducing TETRA-based digital trunking system that integrate with their existing analogue systems. More Chinese cities will follow in 2005. There will be demand for database software, interoperability consoles and data management system and great business opportunities for U.S. firms given the fact that U.S. firms have long-standing experience in emergency response system.

Why Mobile Handsets are not a Best Prospect for U.S. exporters. Among China's total exports of telecom products for the first eleven months of 2004 (December figures were not released at the time of this report), $14.53 billion, or 51%, are telephone sets including mobile phone handsets, line phones and walkie-talkie handsets. China's largest single export in the telecom sector is mobile phone handsets. China is now the largest mobile phone handset maker and exporter in the world. As the Chinese government eased its control over the production of mobile phone handsets in 2004, the production soared. According to MII statistics, China's production of mobile phone handsets reached 230 million sets in 2004, about 50 million more than that in the previous year. Chinese Customs statistics shows that China exported $12.53 billion worth of mobile phone handsets by the end of November 2004, which is 44% of China's total exports of telecom products in the year.

Resources
CS Contacts
Beijing Office:
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Cameron Werker
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Fax: (86-21)6279-7639
Darrel Ching
Guangzhou Office:
Tel: (86-20)8667-4011
Fax: (86-20)8666-6409
Kent Guo
Chengdu Office:
Tel: (86-28)8558-3992
Fax: (86-28)8558-3991
Xu Tao
Shenyang Office:
Tel: (86-24)2322-1198x8142
Fax: (86-24)2322-2206
Liu Yang

Key Websites
- Ministry of Information Industry (MII): http://www.mii.gov.cn
- Ministry of Commerce: http://www.mofcom.gov.cn
- China Telecom: http://www.chinatelecom.com.cn
- China Netcom: http://www.chinanetcom.com.cn
- China Mobile: http://www.chinamobile.com
- China Unicom: http://www.chinaunicom.com.cn/chinaunicom/firstlist_0.html
- China Tietong: http://www.crc.net.cn
- ChinaSa: http://www.chinasatcom.com

COSTA RICA

The Costa Rican Institute of Electricity (ICE), a government monopoly in charge of the electric power generation, transmission and distribution, manages the telecommunications industry in Costa Rica. During the last five years, the telecommunications sector has experienced a significant growth, especially in the cellular telephone system and the Internet. These two technologies have dramatically increased demand for more telecommunications infrastructure in Costa Rica. The Costa Rican Government decision to limit the funding for new telecommunications projects prompted the entity to turn to a leasing scheme to obtain the necessary infrastructure needed to expand the network and meet the demand. Under the leasing scheme, ICE acquired a total of 545,000 lines of cellular infrastructure

equipment from Lucent Technologies and Ericsson, using TDMA technology.

In the year 2000, ICE awarded to Alcatel a contract for the infrastructure to operate 400,000 cellular lines in GSM technology. The lines were installed and began operations in December 2002. In 2004, ICE awarded another tender for the infrastructure to operate 600,000 cellular lines in GSM technology to the Swedish company Ericsson, which was scheduled for installation in 2005. The total value of the contract for the operation of this second tender was established to be $120 million. However, it is currently under review by the Office of the Comptroller General. In the Internet segment, ICE awarded a tender for advanced broadband Internet access, estimated in $60 million. The service is expected to begin in early 2005. The installation and operation of this cellular infrastructure has generated a great demand for cellular telephone sets and accessories. The local market has been flooded with a wide variety of cellular telephones from different brands for both TDMA and GSM technology (Motorola, Sony, Ericsson, Nokia, Siemens and Alcatel).

The market in Costa Rica for telecommunications equipment increased dramatically. In 2003 to $248 million, due primarily to the installation of Alcatel switching equipment for the 400,000 GSM cellular lines, which entered the country under the temporary admission regime. Since there is no local production of telecommunications equipment, the total import value for all telecommunications equipment equals the size of the local market. It is important to note that these statistics do not include the value of the equipment imported into the country by Lucent Technologies and Ericsson for the operation of the TDMA cellular system, which were imported under the temporary admission regime granted by the Costa Rican Customs Authority. The equipment was contracted by ICE to the companies under a leasing agreement for a period of seven years. The special temporary admission was granted to these companies on the basis that the equipment imported would be operated exclusively by ICE during the leasing period. At the end of the leasing period, ICE has the option to either purchase the equipment at a special price or return the equipment to the companies. The Costa Rican Customs Authority will not include the value of the equipment imported until ICE exerts the purchase option and nationalize the equipment.

The total value of the cellular infrastructure equipment imported under this special regime to Costa Rica rose from $29.2 million in 2000 to $113.2 million in 2002. In 2000 and 2001, the equipment was exported by Lucent Technologies (USA) and Ericsson (Sweden). In 2002 the equipment was exported also by Alcatel from France. Excluding the equipment imported under the temporary admission regime, the United States is the largest supplier of telecommunications equipment to Costa Rica. U.S. exports to Costa Rica amounted to $32.5 million in 2001, for a market share of 46.9% and $44.8 million in 2002 (41.6% market share). In 2003, U.S. exports totaled $69.8 million, for a market share of 27.9% of Costa Rican imports.

Major third country competitors in 2003 were France, with 39.1% market share; Japan with 10.7% market share; and

Israel with 5.4% market share. ICE workers unions and some political leaders have consistently opposed privatization and liberalization of the telecommunications sector in Costa Rica. However, under the Central American Free Trade Agreement (CAFTA) between the five Central American countries, the Dominican Republic and the United States, Costa Rica agreed to allow the participation of private operators in two segments of the Costa Rica telecommunications sector: cellular telephony and Internet services. If approved by the Costa Rican Congress, these two services will be open to private participation in January 2007.

Best Products/Services
The most promising sub-sectors in the telecommunications market are digital, cellular and wireless telephone systems, data transmission equipment and fiber optic networks.

Opportunities
If approved, CAFTA will open up the local telecommunications market for Internet sources and cellular networks.

DENMARK

Denmark has a comparatively high distribution of mobile telephony. There are four 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 parts.

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. While 3 initially offered Motorola's A920 handset as the only option, the handset market has expanded to many other brands, as the number of subscriptions has grown bigger. By August 2004, "3" had more than 50,000 customers in Denmark. The three other operators (Denmark's TDC, Finnish-Swedish TeliaSonera and Orange (acquired by TeliaSonera in 2004) are expected to launch their 3G services soon. 14,000 new broadcasting masts have to be raised to cover Denmark entirely. On the broadband market, the current status is that 95% of the Danish population is able to get a fast Internet connection. From October 2005, this will increase to 98%. 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. By mid-2004, well over 800,000 fast Internet connections had been established in Denmark in the form of ADSL and cable modem subscriptions and fast Internet access via local networks in housing associations and student hostels. This corresponds to 15 high-speed connections per 100 inhabitants, compared with about 6 connections per 100 inhabitants by mid-2002.

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 is rapidly increasing the country's broadband capacity. Denmark also adopted wireless technologies as a supplement to the traditional broadband solutions. At the end of 2000, the National Telecom Agency awarded seven Fixed Wireless Access (FWA) licenses, four in the 26GHz band and three in the 3,5 GHz band.

In the coming years, there will also be opportunities for U.S. telecom service operators and content providers for the 3G mobile net. Denmark awarded its 3G UMTS licenses through an auction to the following companies: "3" (formerly known as HI3G Denmark A/S) – "3" is 40% owned by the Swedish investment company Investor AB and 60% owned by Hong Kong-based conglomerate Hutchison Whampoa Limited TDC Mobile International - TDC Mobile International is part of TDC Denmark, the incumbent Danish telecommunications company. Telia Mobile AB - Telia Mobile is a wholly owned subsidiary of Telia AB which is 70.6% owned by the Swedish State. Telia has acquired Orange in Denmark and is currently (Feb. 1, 2005) considering what to do with Orange's license. The licenses have a fifteen-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).
More information, please contact Bjarke Frederiksen, Senior Commercial Specialist

EGYPT

The Egyptian telecommunication sector is one of the most developed in the Middle East/North Africa region. Telecom Egypt (TE), Egypt's state telecommunications company, expects to add one million telephone landlines each year through 2007. The capacity of local public switch exchanges is 11.7 million lines and 9.2 million telephone main lines are in operation. The Telecommunication Regulatory Authority (TRA) is the governmental regulatory arm for the country's telecommunications sector. Two private sector companies (MobiNil and Vodafone) provide services for the

country's GSM 900 cellular telephone system. As of December 2004, cellular phone users numbered 7.5 million. There are 52,670 public pay phone cabins operated by three companies. The Internet has been active since the early 1990's; and after free Internet access was announced in January 2002, many additional Internet-related services were introduced and the number of Internet subscribers rose to 3.9 million by December 2004.

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

Opportunities

The Egyptian market is growing for the full range of telecommunication equipment and components comprising of copper and fiber optic cables, central office switches, cellular stations, data communications satellite, and microwave communication equipment. As the Telecom Egypt's monopoly of fixed lines will end by 2005, new entrants will find business opportunities in wireless technologies, Wi-fi, Wi-Max, VoIP, CDMA, GSM solutions and applications. Wireless technologies are slowly spreading around Cairo with hotspots installed in a number of hotels, coffee shops and restaurants. The Telecommunication Regulatory Authority (TRA) is currently studying VoIP for nationwide use. Topics discussed during the ICT 2005 exhibition and conference focused on ways to apply new telecommunication technologies in Egypt, such as telecommunication services via satellites, connectivity services, global peering, GPS and IVR.

Resources

- Commercial Service in Egypt: http://www.buyusa.gov/egypt/en/
- U.S. Embassy: http://usembassy.egnet.net
- 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: www.tra.gov.eg/english/Main.asp
- MobiNil: http://www.mobinil.com
- Vodafone: http://www.vodafone.com/

Contact for the Commercial Specialist in charge of the Telecommunication Sector:
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ETHIOPIA

Ethiopia continues to invest and seek foreign assistance in expanding and upgrading its telecommunications network. With the lowest telephone line density in Africa, the Ethiopian Telecommunication Corporation has

advertised the need for 760,000 new telephone lines over the next ten years. In addition, it plans to award a series of contracts for the provision of wireless local loops. Other projects contained within the ETC's development program include DRMAS stations, VSAT stations, coin- and card operated telephones, expanded internet, mobile telephones, and voice mail. All of these projects will require the necessary installation machinery, switches and equipment.

FINLAND

The telecommunications market in Finland is fully liberal - no licenses needed, except for digital television networks and building mobile networks. Finland's Ministry of Transport and Communications is responsible for licensing. The fact that Finland was among the first to open its telecommunications market has resulted in the lowest mobile tariffs in the OECD countries. In mobile phone penetration, Finland is among the world leaders. According to a survey commissioned by Statistics Finland in March 2004, 96% of households had at least one mobile phone.

Finland has also the highest number of computers per capita worldwide connected to the Internet and is the world's leading country in electronic banking. The two major operators in the fixed-line telecommunications market, Elisa Communications Group and TeliaSonera are in the process of acquiring smaller local companies. Most smaller Finnish telephone companies operate under the Finnet group, which is the third largest player in the fixed line market. The major players are facing increasingly strong competition from newer providers of fixed line, mobile and Internet services, the most important of which are Saunalahti, Tele2 and Song Networks. The development of the market for third generation services has been slower than expected. A fact, which led, in April 2004, the Ministry of Transport and Communications to ease the terms of its UMTS licenses in Finland. Licensees are allowed to jointly construct and use a portion of their networks with each licensee's own network covering a minimum of 35% of the population.

The popularity of broadband connections has increased rapidly. The number of broadband Internet access installations total approximately 750.000 of which nearly 600.000 are for households. The goal of the national broadband strategy is that every Finn will have access to high-speed, easy-to-use and affordable data transfer connections by the end of 2005 and that Finland will become a European leader in availability and use of high-speed telecommunications. By the end of 2005 there would be one million broadband subscriptions in Finland.

Best Products/Services

Although highly competitive, the telecommunications sector is also growing fast, with high demand for Internet and mobile services and content expected to continue. With the increasing numbers of broadband Internet connections, e-commerce is expected to benefit. Due to high technical standards and the liberalized telecommunications market, Finland serves as an excellent test base for new technologies for U.S. IT companies. U.S. IT companies wishing to enter the Baltic

markets and Russia (especially St. Petersburg) should view Finland as a natural gateway and Finnish companies as experienced partners in any such effort.

Opportunities
Please see the Supplement to the European Union Official Journal
http://ted.publications.eu.int/official/
www.e-finland.fi (E-business projects)

Resources
www.finnexpo.fi (Helsinki Fair Center)
www.mintc.fi (Ministry of Transport and Communications)
www.ficom.fi (Finnish Federation for Communications and Teleinformatics)
tarja.kunnas@mail.doc.gov (local contact)

FRANCE

The population of France ranks among the most technology-savvy in the world. The information technology and telecommunications sectors play a central role in the French economy. The rapid expansion of the mobile sector, wireless technology, and the Internet should increase the need for new equipment and technology. The French market is the world's fourth largest for equipment manufacturing. The telecom equipment market has remained steady in recent years, mainly due to the increase in wireless equipment sales that have offset a decline in wire line equipment sales.
The market for telecom equipment has grown steadily due to increasing demand for broadband equipment. Costs have decreased drastically due to competition, resulting in more accessible fixed lines and mobile phones. As competition increases, technology will be forced to advance at a faster rate. Thus, manufacturing and service providers in the telecom market will have to decrease prices in order to compete.

Best Products/Services
The Internet Over the past six years, Internet networks have diversified and new technologies combine Internet and mobility. The market, previously dominated by a handful of servers has become highly competitive fast growing. Public demand for high-speed access is strong: more than one-third of home connections are now broadband. A number of technologies are used to provide this high-speed Internet access: xDSL technologies (primarily ADSL), cable, and other technologies such as WLL (wireless local loop), optical and satellite networks.

Mobile (M)-Commerce:
According to most m-commerce experts in France, the m-commerce revolution will not simply involve the mobilization of existing applications; the change to m-commerce is expected to also increase productivity while enhancing business transactions. Mobile phones have also been one of the main principal sources of growth in the equipment market. As mobile phones continue to integrate new technologies, their potential uses will grow exponentially. However, security remains an issue even as these high-tech capabilities become available. Telecom companies should deal with these issues by creating secure connections.
Third Generation (3G)/UMTS:
Third Generation (3G) and Universal Mobile Telecommunications System (UMTS) promise to offer consumers the ability to engage in much more advanced activities via their mobile phones, including high-speed Internet access and the capacity to send messages containing

color images and audio files. Therefore, this technology, along with the adoption of high-speed wireless Internet service and the increase in mobile commerce, should fuel significant growth in the future.

Unbundling: The Internet market has been stimulated by the development of high-speed access, particularly with the introduction of local loop competition via unbundling. Since 2002, the consumer high-speed market has seen the development of a new type of residential ADSL offer based on unbundling. Alternative operators use their own high-speed equipment end-to-end, thereby maintaining better control over the economic and technical parameters of their ADSL offers. This allows them to differentiate their offer from that of the incumbent operator.

Wireless: Wireless products have been the major sources of growth in the telecommunications sector, with mobile telephony and Internet services almost entirely supporting it. The intense competition among major operators (France Télécom's Orange, Cegetel's SFR & Bouygues) has led to falling prices in equipment and improvements in service.

Wireless Fidelity (Wi-Fi):
Experts claim that this year will undoubtedly be the year of Wi-Fi technology takeoff in France, replacing cable connections with radio waves. Paris is positioning itself to be the Wi-Fi city of choice. Hundreds of hotels have been Wi-Fi equipped--300 hotspots are soon to be deployed, so there will be over 1,000 Wi-Fi hotspots by year-end. There are now several antennas outside each of the 372 Paris Metro stations, linked through an existing fiber optics network in subway tunnels.

Opportunities
Though the leading French manufacturer dominates the production of the equipment market, American and foreign companies reap the benefits of their leverage in the mobile sector. The French market is somewhat more inclined to use an American company because of the fact that the United States was at the forefront of the creation of the Internet and all the technologies associated with it. French buyers know that American made products are of high quality and are backed by reliable after-sales service.

Resources
- ART - Autorité de Régulation des Télécommunications, the French telecommunications regulation authority: Website: [http://www.art-telecom.fr]
- Embassy U.S. Commercial Service Trade Specialist:
  [Myrline.Mikal-Goide@mail.doc.gov]
  Phone: (33-1) 43 12 26 98
- Website: www.buyusa.gov/france/en

GERMANY

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. Thousands of miles of high quality fiber optical cable make the country ready for the application of the future. The United States is Germany's most important import source for telecommunications equipment.

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 overcome, broadband technologies (DSL and TV cable) will offer considerable opportunities for suppliers of technology and services.

Resources
German Government Agencies:
German Regulatory Authority: www.regtp.de
Trade Fairs:
CeBIT, the world's largest trade fair for ICT products and services: www.cebit.de
Trade Associations:
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

As a result of the government's liberalization of its telecommunications sector, annual growth has been significant. There are two land providers and four cellular companies. Imports are mainly for landline projects, private mobile telephone services, and broadband data transfer services. Major imports include switching and transmission equipment, telephone, and fax machines, radio and television equipment, and cellular radiotelephones. Landline density is very low, estimated in 2000 to be only 2.9 lines per hundred people. Cellular companies with prepaid cards have had major success. Rural areas remain largely unserved by landline and cellular companies.

The national network operators have programs underway to meet the performance targets under their licenses. Ghana Telecom is undertaking and expansion program and is expected to increase the amount of landlines by 400,000 by the end of 2005.

HONDURAS

Best Products/Services
The telecommunications sector in Honduras is undergoing a major restructuring process, evolving towards competitive markets led by the private sector. On September 2003, the Government of Honduras formally launched the project "Telephony for All". An Executive Decree containing the conditions for the modernization, development and expansion of the telecom services market was ratified on October 2003. Through this Decree, the state-owned telecommunications company (Hondutel) may subscribe nonexclusive and non-discriminatory commercialization contracts with multiple telecom providers. Among the services that can be provided by telecom sub-operators are: local fixed telephony,

national long distance, public telephones, carrier services and long distance international service. Best Sales Prospects: Most promising telecom sub sectors include wireless telephone systems and equipment; PCS; cellular telephones; internet; data transmission equipment; fiber-optic equipment and trunked mobile radio systems.

Opportunities
Access to telecommunications service in Honduras remains well below the Latin American average. As of October 2003, total unmet demand was 342, 191 lines, with only 4.6 lines per one hundred inhabitants. Estimated telephony demand for 2006 is 752,605 lines. By encouraging private sector participation, this new program is expected to modernize, expand and upgrade the Honduran telecommunications network; service the growing unsatisfied demand; introduce competition for voice fixed services; and stimulate the provision of new telecom services. At the same time, Hondutel has embarked in an important $144 million investment plan for the period 2002-2004, which attempts to improve the network's capabilities. Modernization investments are foreseen in the areas of fiber optics; PCS; microwave network; fixed wireless bandwidth access; telephone operating-center expansion; submarine cable network expansion; and trunking system expansion.

HONG KONG

Hong Kong has one of the world's highest market penetrations for mobile phones and telephone services. As of October 2004, Hong Kong had 3.8 million fixed telephone lines in service, a tele-density of 55%. At the same time, Hong Kong boasted 8 million mobile phone subscribers, representing a market saturation of 117.1%. There had been a slight decline in fixed line subscribers while mobile phone subscribers increased. This is due, in part, to the very competitively priced service subscriber charges in Hong Kong's mobile phone market.

The fixed-line market opened up to competition in 1995, and this was followed by the full liberalization of the fixed telecommunications network services (FTNS) in 2003. By January 2004, nine companies had obtained FTNS licenses. According to the Government's Office of the Telecommunications Authority (OFTA), the previous sole telecom services provider, Pacific Century Cyberworks (PCCW), has seen its market share reduced by 25 to 30%. Earlier this year, PCCW was reported to be in talks with China Netcom, China's second largest fixed line operator, regarding the possibility of China Netcom investing in PCCW's fixed line operation in Hong Kong. Hong Kong's mobile market has some of the cheapest subscriber fees in the world. The six Hong Kong mobile operators have become increasingly reliant on providing nonvoice value-added services (VAS) to maintain margins. Wireless Internet services are expected to grow beyond 100% market penetration. All mobile operators have deployed SIM-card technology and launched wireless application protocol services. Key handset suppliers include Motorola Inc., which accounts for 20% of all imports. Third Generation (3G) services were rolled out by the end of 2003. OFTA announced the four provisional 3G mobile license winners in September 2001. They were Hutchison

Telecom, CSL, SmarTone and Sunday. The 3G licenses all have duration of 15 years, and the Government made a commitment not to award any additional mobile licenses before 2005.

Exports of telecommunications equipment to Hong Kong are estimated to have increased by approximately 10% from approximately $17.6 billion in 2003 to $19.4 billion in 2004. U.S. suppliers maintain a small market share; about 3% of the total, or $510 million. (Note: These statistics may understate the total Hong Kong market for U.S. telecommunications products because U.S. exports of telecom networking equipment such as co-axial cables, optic fiber cables and switches are not captured by these statistics.)

Best Products/Services
U.S. companies such as Intel and Cisco have advantages in wireless local area network (WLAN) deployment due to their well-regarded authentication solutions. PCCW has deployed WLAN access points manufactured by Intel. In addition, U.S. companies have excellent prospects in WLAN deployment in Macau. A relatively small number of WLAN access points already cover the whole Macau market. (The total population is 448,500.)

Other best prospects include broadband technology, system integration services, network management software and services, telecommunications equipment such as switches and other transmission equipment, network hardware (including routers and storage devices), and application software.

Opportunities
Both fixed and mobile telecommunications operators have made significant commitments to expand their networks and provide new services to attract and retain customers. With carriers seeking to differentiate themselves in an intensely competitive market, there are opportunities for U.S. companies that have experience in deploying new technologies and in innovative services such as electronic commerce, interactive broadcasting services, telemedicine, broadband data delivery, and long-distance education. As networks become increasingly complex and diversified, there will also be a constant demand for telecommunications integration, network management, and consulting services. In addition, there are significant opportunities to partner with local operators to provide telecommunications services in Hong Kong and the region. These developments in the market and technology provide significant opportunities for U.S. companies to bring their telecommunications services to Hong Kong.

Resources
Major Trade Shows:
ITU Telecom World 2006 (December 4-8, 2006): http://www.itu.int/world2006/
Associations and Related Organizations:
Office of the Telecommunications Authority: http://www.ofta.org.hk
Internet and Telecom Association of Hong Kong: http://www.itahk.org
Hong Kong Wireless Technology Industry Association: http://www.hkwtia.org
Hong Kong Commercial Specialist:
Alice Lai
Email: alice.lai@mail.doc.gov

Tel: (852) 2521-4638; Fax: (852) 2845-9800

INDIA

India's 92 million-line telephone network (fixed plus cellular) is among the top 10 networks in the world and the second largest among the emerging economies, after China. India has one of the fastest growing telecommunications systems in the world, with system size (total connections) growing at an average of more than 20% per annum over the last 4 years. The network consists of more than 27,400 telephone exchanges, equipped with a capacity of nearly 48 million. According to the Government of India (GOI) telecom plan (1997-2007) prepared by the Bharat Sanchar Nigam Limited (BSNL), the demand for new telephone lines during the period up to 2007 is estimated at 81.8 million. This projected demand will generate a requirement of approximately 64 million telephones during the next eight years. The BSNL and Mahanagar Telephone Nigam Limited (MTNL) will provide about 43 million telephones, while private operators will provide 21 million telephones. The industry is considered as having the highest potential for investment in India. The growth in demand for telecom services in India will be highest in basic services, followed by national long distance, international long distance and the cellular services sector.

India has a relatively low tele-density of 8.62 per 100 persons, with plans of increasing this to 15 by 2010. Tele-density in India rural areas is 1 per 100 people and the government plans to increase this to 4 per 100 by 2010. A total of 528,105 out of 607,491 villages have been provided with village public telephone (VPT), i.e. one telephone per village. Considering India's population of 1 billion, it is estimated that to achieve these objectives, approximately 175 million telephone connections by the year 2010 need to be established. At current prices, this translates to an additional investment of approximately $68 billion by 2010.

The total subscriber base of cellular subscribers is currently at 48 million, up by 80% from the previous year. The subscriber base should reach 100 million by 2010 (Source: Cellular Operators Association of India), thus resulting in huge opportunities for U.S. telecom equipment vendors.

The installation base of direct exchange lines (DELs) was at 53 million in 2004 and is which should grow to 82 million DELs by 2007. Of the additional DELs, DoT/ MTNL will provide about 80% of DELs. It is estimated that each DEL will cost about $900. India has created a strong manufacturing base for producing telecom products. Indian firms typically manufacture telecom switches with technical and financial collaboration from foreign firms. Around 19 Indian firms manufacture small and medium-sized switches and 7 joint ventures produce large capacity switches. The government-owned BSNL and MTNL are the largest end users of telecom switches.

The annual growth rate of net switching capacity of the recently privatized BSNL for the period 1992-97 was around 16-18%. However, the growth rate speeded up after 1997, registering 22-24% annually. Value-added service providers are growing by the day, and are

demanding good infrastructure. E-mail, Internet services, frame relay services, video conferencing, electronic data interchange and voice mail have been accorded value-added services status. These value-added services interface with basic telecom services and increased telecom traffic several fold. With the increased investment in the value-added services, the demand for other switching products such as cellular switches, ISDN switches, gateway switches, ATM switches, is bound to grow sharply. Digital switching system technologies of multinational companies – Alcatel, Siemens, Fujitsu, Lucent, Ericsson and NEC – have been introduced in India. In addition, switching systems based on the indigenous technology developed by state-owned Center for Development of Telematics (C-DoT) are also used.

Best Products/Services

Sub sector	**Market Size ($Millions)**
Mobile Headsets	550
Switching Equipment	950
Transmission Equipment	180
Enterprise Equipment	100
Optical Cables	320
T&M Instruments	70

Opportunities

Several market players are planning to upgrade their telecom networks and are planning to source transmission equipment, switches, fiber communications network, and VSATs

Resources

Key websites:

Indian Department of Telecom
http://www.dotindia.com
Telecom Regulatory Authority of India
http://www.trai.gov.in
Cellular Operators Association of India
http://www.coai.com
Telecom Equipment Manufacturers Association http://www.temetelecom.org

INDONESIA

Indonesia is a good market for international telecommunication companies and local service providers. The telecommunications sector has seen double-digit growth in recent years, outperforming all other sectors and exceeding the national growth rate of around 5%. This indicates that the demand for telecommunications infrastructure will remain strong.

Indonesia faces many challenges in developing its telecommunications infrastructure. It has the fourth largest population in the world (220 million) spread out over thousands of islands. Currently Indonesia has around 9 million fixed telephone lines, representing a telephone density of 4 lines per 100 persons, which is very low compared to other Asian countries. To stimulate improvement of country's teledensity rate, PT Telkom, PT Indosat and PT Bakerie Telecom have emphasized fixed-wireless service. These services incorporate Code Division Multiple Access 2000 1X (CDMA) technology.

The cellular market in Indonesia has seen spectacular growth over the past three years, and the demand for mobile phones continues to grow. However, the market penetration rate still remains the lowest in the Asia Pacific region at around 8.1%. In 1997, only about 1 million Indonesians were cellular subscribers; in 2001 the number grew to 5.7 million. By the end of 2002 there were 11.3 million subscribers,

surpassing the fixed phone line market, which stood at 7.6 million at the end of 2002. The market grew 59% in 2003 -- to 18 million subscribers -- but there is still plenty of headroom. In 2004, the number of subscribers was estimated at 29.5 million. The number is likely to reach 40 million subscribers in 2005. Indonesia is expected to have 60 million subscribers by 2007.

Best Products/Services
Base transceiver stations, switching, ancillary and transmission equipment, and cellular handsets.

Opportunities
Indonesia's telecommunication infrastructure market has good potential for wireless equipment and services 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

JAPAN

Under the Government of Japan's "e-Japan" strategy, which aims to make Japan "the world's most advanced IT nation" by 2005, Japan has established an impressive broadband network nationwide. According to the Ministry of Internal Affairs and Communications (MIC), as of August 2004, there were 16.9 million households with broadband connections, with roughly 12.6 million using ADSL, 2.7 million utilizing cable, and another 1.6 million households gaining access via Fiber-To-The-Home (FTTH). FTTH growth has been most impressive, with a 700% increase in users since 2001.

The primary telecommunications manufacturers association, the Communications and Information Network Association of Japan (CIAJ), has about 200 members including leading Japanese manufacturers such as NEC, Fujitsu, Oki, and Hitachi. Most major European and North American telecom equipment suppliers also have offices in Japan, including Avaya, Cisco, Lucent and Nortel.

Japan's telecom equipment market is very competitive with world-class domestic manufacturers willing to engage in aggressive price competition. Even so, Japan remains a strong market for telecommunications network equipment including "last mile" solutions. Japan's 16.9 million broadband subscribers in Japan make it the second largest in the world.

Best Products/Services
Carrier/enterprise products (FTTH, FWA, Router/Switch, WDM/DWDM/CWDM); wireless products; voice, DV and HD over IP; network security; IP telephones and load balancers.

Resources
CS Japan Contact: Manabu Inoue (Tokyo) Manabu.Inoue@mail.doc.gov

KENYA

Overview
The Kenyan telecommunications market in 2004 is estimated at about US $150 million. In July 1999, the telecommunications sector was largely liberalized when the Kenya Posts &

Telecommunications Corporation was split into three autonomous entities – Telkom Kenya; the Postal Corporation of Kenya; and the Communications Commission of Kenya (CCK). Total Kenyan telecommunications market growth for the period 2003-2007 is expected to range from 5 to 10% annually in real terms. Although there is some assembly of telephone sets and PABXs, there is no significant local production of telecommunications equipment. While U.S. technology is highly respected for quality and performance, U.S. firms have a continuing problem in matching the financing terms (concessionary and mixed credits) offered by their competitors.

The Kenyan government is keenly focused on further reforming the telecommunications sector, as it is one of the keys to sustained economic development in Kenya. The government plans to increase urban and rural teledensities from the current unsatisfactory level of 4 lines per 100 persons and 0.16 lines per 100 persons, respectively, to 4 lines per 100 persons in the rural areas and 20 lines per 100 persons in urban centers by 2007. In pursuance of these objectives, Telkom Kenya's monopoly came to an end in June 2004, although the GOK has still to license a second national operator to provide competition in the fixed-line telephony market segment.

The GOK has also stated that Telkom Kenya will be restructured to improve its performance in preparation for eventual privatization planned for completion by 2006. (In 2001, the privatization of Telkom Kenya began in earnest under the Moi administration with Solomon Brothers as the transaction advisors. However, towards the end of 2004, the process was abruptly halted under controversial circumstances). The GOK issued a third GSM license in September 2003 to a consortium including local entities Rapsel Ltd. and the Kenya National Federation of Cooperatives (KNFC), Econet and Wireless International, a firm jointly owned by South Africa's Altech group and Zimbabwe's Econet Wireless Group. However, the GOK in November 2004 under controversial circumstances cancelled this license after the local entity, KNFC, failed to raise the equity needed to meet the shareholding requirement. Econet Wireless contested the government's decision in Kenya's High Court, which reinstated the license in December 2004 by ruling that the GOK had no legal authority to cancel Econet's 15- year license granted by the CCK.

Other recent significant developments within the sector include the licensing of six additional companies in November 2004 as internet gateway providers, bringing the total to 16, the licensing of 3 public data network operators (PDNO) and 2 local loop operators (LLOs), and the liberalization of the use of VSAT services following the licensing of 3 VSAT providers. Authorities licensed Kencall, Kenya's first call center, In November 2004.

Best Products/Services

The demand for telephone receivers and cellular telephones is expected to grow at a high rate owing to the removal of tariffs for these categories of products. In February 2004, Safaricom, Kenya's first cellular service provider, awarded its fourth successive contract of US $1.3

million to U.S. company Interwave Communications, a compact wireless communications systems firm, for the expansion of Safaricom's GSM network. Although growth in Kenya's mobile telephony sector since 1998 has been phenomenal, from just over 10,000 subscribers to about 2.8 million in 2004, statistics from the CCK show that current demand stands at between 4.7 million and 9.4 million. Other best sales prospects include computers, data terminals, modems, payphone terminals, routers, broadband equipment, and VSAT equipment.

Opportunities

Opportunities should continue to develop in strategic alliances or joint ventures, especially in cellular telephony and value add-ons to the traditional telephone system. Cellular telephony remains the fastest growing telecommunication subsector. Vodafone PLC of the UK and Vivendi Telecom of France made a successful debut in the market through joint partnership with local firms, Safaricom and Kencell, respectively. However, in 2003, Vivendi Telecom pulled out of the cellular telephony market in Kenya and the Sameer Group, the majority shareholders in Kencell, held negotiations with several firms that eventually saw Celtel International acquire Vivendi's shares in 2004. In four years, Safaricom and Celtel have built a subscriber base estimated at 2.8 million subscribers and with a projected growth of up to 3.2 million in 2005. With the continued liberalization of the telecommunications sector, Kenya is expected to play more of a regional role.

Resources

- Communications Commission of Kenya – www.cck.go.ke
- Telkom Kenya – www.telkom.co.ke
- Safaricom Limited – www.safaricom.co.ke
- Celtel Communications – www.ke.celtel.com/en/index.html
- Telecommunications Service Providers Association of Kenya – www.tespok.co.ke
- Ministry of Information and Communications – www.information.go.ke

MEXICO

In 2004 the different segments of the IT & Telecom industry grew from 2003 with the exception of local telephony services, which decreased by 4%. Mobile services had the most significant growth at almost 35%, along with Virtual Private Networks (VPNs) such as X.25 and ATM, and Internet access. Telecom equipment experienced moderate growth at almost 4% to reach a total market value in 2004 of $6.408 billion.

The equipment sector in Mexico has a high level of imports, mainly dominated by the United States, which has about slightly more than half of the import market, but it has been losing market share to other countries. Mexico's exports are about 30% of the total. Despite the overall market slow down in previous years, 2005 is expected to show a healthy recovery for the equipment segment, and the industry overall. It is expected that the total market will grow at about 9% in 2005. Growth is foreseen in all segments of the industry, except in long distance services. Several factors contribute to this growth:

1) Increased government spending;
2) Greater IT and telecom adoption by small and medium size companies, (PyME)s;
3) Introduction of new technologies based on broadband; and
4) Higher requirements for security. The increase in demand of new services and applications will further increase the demand of telecom equipment from both operators, who need to increase capacity and security; and by end-users, mainly companies, as they are becoming more technology-savvy, better informed and finding various price competitive options in the market.

Best Products/Services
VoIP (Voice over Internet Protocol): Mexican companies are now convinced that the technology, as well as broadband Internet access, is mature and secure enough to implement VoIP solutions. This will increase the demand for equipment from large corporations to small and medium-sized businesses, PyMEs, which will be a focus niche for equipment vendors this year as they try to increase sales. However, this niche requires significant market development such as product information, counseling, specific and low-cost solutions.

Wireless and Broadband: Demand for enterprise wireless networks will be greater in the coming year. Wi-Fi technology will be more greatly used in the corporate segment. In the home people are migrating from dial-up connections to ADSL are also installing wireless home networks. Also, WiMAX will be another wireless technology that will start moving forward in 2005. Broadband will be the key enabler for growth of the wireless equipment market, with main products such as, cable modems, on-demand and prepaid technologies, wireless network equipment, and content as well. Also, products to add and guarantee network security will be highly demanded. Network equipment such as switches and routers also have good growth potential in Mexico.

Opportunities
Federal Government projects such as the e-Mexico initiative, which has a goal of installing 10,000 Digital Community Centers with Internet connectivity around the country, will generate strong demand for equipment in the next two years.

The Mexican Government will continue to be the highest spender, by far, in IT and telecom infrastructure. At local, state and federal levels, the government is spending to implement e-government initiatives to serve citizens electronically. The most important will be the Servicio de Administración Tributaria (SAT), which is the equivalent to the Internal Revenue Service in the US, with a multi-million dollar yearly budget for IT. The SAT is aiming at collecting taxes electronically. Currently all enterprises are required to pay electronically and, in the near future, individuals will be obligated to pay electronically as well.

Resources
- Juan Carlos Prieto, Commercial Specialist U.S. Commercial Service Juancarlos.prieto@mail.doc.gov
- 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 Informaáica http://www.canieti.org/
- Telecom Research Consortium: http://telecom.cide.edu/home.html
- Mexico Census Bureau statistics: 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 – Asociacion Mexicana de Internet (Mexican Association of Internet) http://www.amipci.org.mx/

NETHERLANDS

The Netherlands has a well-developed transportation infrastructure that offers access to the rest of Europe via air, road and waterways. The Dutch highway and secondary road system is an integral part of this infrastructure and offers an extensive network of well-maintained roadways. Maintaining and improving this network means that the Netherlands is constantly engaged in a wide range of road infrastructure projects. These projects include regular maintenance and upkeep as well as the introduction of new and innovative traffic management systems to handle the growing traffic congestion in Europe's most densely populated nation.

Best Products/Services
Innovative, state-of-the-art technology is best. Currently, the following products are particularly high in demand:

- Communication devices and systems that enhance road safety and the flow of traffic.
- Traffic monitoring systems which: track accidents; direct traffic in such a way that further congestion can be prevented; and/or prevent large traffic jams by requiring a temporary speed adjustment on the roads.

The Dutch market is open both in terms of access for foreign businesses and in terms of its willingness to adopt new technologies and solutions to infrastructure and environmental concerns. There are a substantial number of active players in the market and it is essential that U.S. firms interested in entering the market be familiar with local and EU guidelines.

Major infrastructure projects include:
- *Betuwe Route:* a freight-only, railway line between Rotterdam and the German Ruhr area. Aside from the laying of rails, a significant investment is required in the construction of tunnels, bridges, coverings, railroad crossovers, etc.
- *Custom-made Infrastructure* ("Infra op maat"): Custom-made infrastructure is a future image of the traffic and transport system in 2030. The idea has its origins in the innovation program "Roads to the Future", which aims to explore and develop new themes. These themes are geared towards a better and smarter long-term use of the existing main road network, in which the DG of Public Works and Water Management searches for creative solutions to traffic congestion problems. One of the solutions is to make better use of the existing infrastructure by offering custom-made infrastructure. That is to say, a dynamic infrastructure that can be

attuned to the changing amounts of traffic.

Upcoming trade shows in 2006 include Intertraffic 2006 in Amsterdam, the Netherlands. Show organizer:
Amsterdam RAI
Address: P.O. Box 77777
1070 MS Amsterdam
The Netherlands
T: +31-20-5491212
F: +31-20-5491889
E: Intertraffic@rai.nl
http://www.amsterdam.intertraffic.com/intertraffic2004/e

NEW ZEALAND

New Zealanders spend the highest per-capita on information and communications technology in the world: approximately 14% of GDP is spent on IT and telecommunications. Industry growth has been driven by wireless technology, with more than 75% of New Zealanders owning a mobile phone, compared with only 20% in 1998. However, less than 10% of households have broadband. The relatively high cost has slowed residential broadband expansion, but this service is forecast to provide 90% of telecommunications revenue by 2010. New Zealand spent $2.9 billion on telecommunications services in 2003. There are large projects planned and underway to bring broadband "the last mile," through wireless technologies, particularly in New Zealand's many rural areas. Telecommunications revenue was expected to grow 7.8% in 2004. Most telecommunications equipment can be imported duty-free.

Best Products/Services
New wireless technologies (Wi-Fi; Wi-Max) Broadband Internet technologies

Resources
Ministry of Economic Development:
http://www.med.govt.nz
Paul Budde Communications:
http://www.budde.com.au
Statistics New Zealand:
http://www.statistics.govt.nz
Telecommunications Users Association:
http://www.tuanz.co.nz

NIGERIA

The International Telecommunications Union (ITU) has described Nigeria has one of the fastest growing telecommunications markets in the world. In its mid-year report in June 2004, MTN Nigeria, one of four mobile cellular operators, declared a half-year profit of approximately 25 billion Naira. According to industry reports, Nigeria has already exceeded its target to increase its mobile and wire lines from 800,000 to over 4 million functional telephone lines before the end of 2005. As of December 2004, Nigeria had reportedly installed a little over 8 million lines, up from 800,000 fixed and wireless lines in August 2001. In a short space of three years, Nigeria emerged from relative obscurity in relation to information and communications technology to become a clear regional leader. Market watchers and industry experts predict that if current rate of growth continues, Nigeria will surpass 20 million functional lines within the next 2 years.

Nigeria joined the world's digital mobile network in January 2001. Competing operators were selected through a public

auction that began on January 17 and ended on January 19, 2001. Four firms successfully concluded the auction but only three met the mandatory deadline for payment of the license fee of $280 million each. The successful firms were Econet Wireless (now known as Vmobile Nigeria Limited), MTN Nigeria, and NITEL, the Nigerian government owned telecommunications parastatal. Econet Wireless launched its services on August 6 followed by MTN on August 8, 2001. NITEL began skeletal services using its associate, M-Tel, in Abuja, the capital city. The Nigerian mobile networks operate in the GSM900 MHz and GSM 1800 MHz frequencies.

Nigeria licensed and launched a Second National Operator (SNO), Globacom Mobile Limited in 2002. The SNO has a bundle of licenses to provide services related to wireless telecommunications including digital mobile (GSM), fixed-line services, data, Internet and IP services, business and carrier solutions. The second national operator or carrier is expected to provide national and international gateway services in competition with the former Public Switched Telecommunications Network. Pursuant to de-regulation programs, Nigeria reviewed its telecommunications policy, first published in October 1999 and issued operating licenses to several private operators in the 350 MHz frequency range for zonal, regional and/or community telephony.

The Nigerian Communications Commission (NCC) is the industry's regulator. NCC has approved more than 500 operating licenses and permits for various telecommunications services across the country, including over 50 Internet service providers. This has generated a pent-up demand for telecommunications equipment, accessories, consulting and technical partnerships. The replacement of Nigeria's out-dated telecommunications infrastructure through both multilateral and Nigerian funding is a priority program of the Nigerian government. For more information about NCC, refer to www.ncc.gov.ng

The market reforms that started in 1993 have unleashed private sector-led innovations that are generating demand for telecommunications equipment, accessories and services. Topping the list of equipment are digital and mobile phone sets including 2G personal communications handsets; cellular, transmission and switching equipment; 220V PABX and voice mail facilities. Services such as Internet cafés, voice mail, and prepaid calling cards are exploding in Nigeria.

Best Products/Services

The best prospects in mobile telecommunications services include value-added services such as equipment rentals, consulting services and training programs. Interested U.S. Service Providers should target wireless applications, rural and community telephony, local and wide area network design and management, spectrum management, transaction management using wireless applications, data network design and performance optimization, Internet and Intranet security services, electric and alternate power supply services, and deployment and strategic marketing of wireless solutions.

There are also opportunities in consulting services and training in

project management and corporate leadership in this sector.

Nigeria is a strategic gateway to the West African markets (ECOWAS-Economic Community of West African States markets) and offers U.S. firms a tremendous growth opportunity that may be difficult to equal or exceed elsewhere.

Web Resources
www.ncc.gov.ng,
www.buyusa.gov/nigeria
www.Nig.org.ng
Email Anayo Agu, Senior Commercial Specialist, U.S. Commercial Service, Lagos, Nigeria anayo.agu@mail.doc.gov

PHILIPPINES

The Cellular Mobile Telephone System (CMTS) is the Philippines digital device of choice. Today, 26% of Filipinos (over 22 million) carry cell phones, far outstripping the number of landlines and wired phones combined. In 2004, the total number of CMTS subscribers grew 34% to over 30.2 million. The Philippines continues to be the world leader in the Short Messaging Service (SMS) market. Carriers process more than 200 million text messages per day. At year's end 2004, Smart Telecom counted a client base of 19 million, while Globe carried 12 million and Digitel (through Sun Cellular) serviced an additional 1.2 million subscribers. Industry experts project the subscriber base to grow by another 10 million in 2005.

In 2003, the major CMTS providers introduced Wireless Multimedia Message Service (MMS), which gained significant ground in 2004. In 2005, carriers are expected to enhance their MMS capability and to provide cell sites to areas outside Metro Manila, particularly to those areas not covered by fixed telecom services.

Best Products/Services
-GPRS (Global Packet Radio Service), ADSL (Asynchronous Digital Subscriber Line) and Enhanced Data Rates for GSM (EDGE) related equipment and services
-Network tools, such as billing systems, network management, subscriber's analysis, and messaging platforms, among others.
-Demand for wireless communications equipment, handsets, cell sites, base stations and mobile switching equipment, antennas, cables, transmitters, rectifiers, batteries, GSM repeaters and terminals, microwave links, network management tools, voice management systems and MMS platforms will continue to be high.
-High-end wireless data content and applications at a higher speed and capacity.

Opportunities
GSM and GPRS (Global Packet Radio System) will likely remain as the country's cellular technology standards. In coming years, Lucent's and Qualcomm's 3rd Generation (3G) Code Division Multiple Access (CDMA) and Wide CDMA technology will be a desirable alternative to GSM, given their greater capacity to provide additional services such as videoconferencing and faster data transmission. Currently, the National Telecommunications Commission (NTC) is holding several public hearings on the introduction of 3G-technology. Moreover both smart and Globe introduced Enhanced Data Rates for GSM (EDGE) to the market in

2004, which should open the equipment market up to greater competition.

PORTUGAL

Data transmission services are fully liberalized in Portugal. Mobile telephone service was privatized in 2000 and fixed line telephone service at the beginning of 2001. Portugal Telecom, the former Government telecommunications monopoly and the largest market player, became a private entity. Nevertheless, two years after the full liberalization of the Portuguese telecommunications sector, most of the new fixed operators are now out of business and Portugal Telecom controls 92% of the market. New private operators blame the failure to privatize the fixed net on GOP mismanagement, especially regarding the lack of access to the local loop, the last link in the fixed telecommunications net that permits access to the final customer. Some of these operators have suggested mergers to create new companies, which could compete with Portugal Telecom in the fixed telecommunications business. Many experts feel that only one strong competitor can exist with Portugal Telecom in this small market of 10 million people. The Portuguese mobile telephone market keeps growing. In 2003, revenues generated by the three major Portuguese operators were over $3.2 billion. Actual mobile phone market penetration is over 85% of the population (roughly 8.6 million people).

In 2001, Portugal also inaugurated the most ambitious and innovative television project on an international level. TV Cabo, part of Portugal Telecom, and the major television operator in Portugal, partnered with Microsoft Corporation to launch digital interactive TV. This revolutionary technology, which Microsoft is piloting in Portugal, permit home TV shopping, home banking, TV Internet navigation, and even access to one's home utilities via remote Internet.

Best Products/Services
-Automatic answering machines
-Call blocking devices
-Paging, call forwarding, messaging, and voice mail
-Alarm receivers and transmitters
-Electronic banking networks
-Broadband ISDN voice data and image transmission
-Software/hardware to upgrade customer billing and assistance services
-Submarine fiber optic cable
-Cable TV and decoding systems

Opportunities
The telecommunications market in Portugal is expected to continue to grow. Imports constitute 73% of the total market and the U.S. real share is much higher than the 3.5% reported because most U.S. exports to Portugal come through other European Union countries. There are many opportunities for American companies to expand their business in this area. The most promising sub sectors within the sector and corresponding market size are:
-Cellular terminals
-Switching equipment
-Fixed terminals

RUSSIA

The Russian telecommunications market has demonstrated strong growth over the last year driven by Russia's continuing strong economic performance, and the need to upgrade the generally inadequate

telecommunications infrastructure throughout the country.

In 2003, the Russian market for telecommunication equipment sales reached $1.9 billion. It grew 37% to $2.6 billion in 2004. Cellular communication services revenue reached $3.31 billion in the first half of 2004, which was a 58% increase over the same period for 2003. Revenue from cellular services is estimated at $7.6 billion for 2004, which represents the lion's share of the telecom services market. The number of cellular subscribers reached 35 million in 2003, and increased by 216% to 66.05 million by November 2004. The penetration rate nationally grew from 30% to 45.5%. The cellular communication market is very concentrated, with 88% of total revenue belonging to three major national cellular operators: MobileTeleSystems (MTS), VympelCom and Megafon. The number of subscribers to fixed-line connections reached 36 million in 2003, and grew 6% in 2004 to 38.2 million. The total revenue for fixed-line connection services increased by 30% from $ 6.1 billion in 2003 to $ 7.9 billion in 2004.

The number of Internet subscribers reached 12 million in 2003 and grew 35% to 16 million in 2004. Total revenue for Internet services increased by 20% from $650 million in 2003 to $780 million in 2004. In June 2003, the Ministry of Communications adopted a new federal communication law "O svyazi" (On Communications). The new law, with its many contradictions, is highly controversial. Due to a number of unclear clauses, the law has not functioned effectively since it was introduced. Experts claim the communication law will still not operate properly into 2005. Some of the burning issues are incomplete licensing procedures, a universal service tax, and unequal rights for current market players, lack of transparency, and the more general need to change the Ministry of Communications from an active market player into a regulatory body.

Best Products/Services

The highest market growth is expected for VAS (value added services). Total revenue grew 62% and reached $ 600 million in 2004 in comparison to $370 million in 2003. The most popular services are ring tones and logos (44%), media-projects (22%), information and entertainment (14%). Continued growth in the Russian telecommunications services market will yield business opportunities for competitive U.S. telecommunications equipment suppliers. The best sales prospects are digital switching equipment, high-speed, broadband Internet access technologies, multi-service and multimedia solutions, including SDH, xDSL, ISDN, DWDM, BWA, and call center equipment. Companies entering the market should be prepared to compete with major foreign equipment manufacturers and deal with a complex regulatory environment.

Opportunities

One opportunity for U.S. companies is the modernization of payphone systems in Russia. Payphone system modernization is a government level priority project, mentioned in the new federal communication law "O svyazi". Companies affiliated with Svyazinvest (major state-owned telecom holding) are developing business plans as a part of this effort and U.S. payphone equipment

companies are welcome to bid on these projects.

Resources
Official site of Ministry of Communications:
http://english.minsvyaz.ru/enter.shtml
SvyazExpoCom, 2005 Trade Show web link: http://www.svyazexpo-online.ru/ring/ring_e.php
Cable & Satellite TV, Teleradiobroadcasting and Broadband Exhibition site:
http://www.cstb.ru/index_eng.php

SINGAPORE

Singapore has one of the most advanced info-communications infrastructures in the world. This has been possible due to the small size of the country, the high national income, and the government's commitment to develop the country into a premier telecommunications and broadcasting hub in the region. Virtually every home in Singapore has a fixed telephone line. Mobile phone penetration reached an all-time high of 90.8% in November 2004, with nearly 3.8 million mobile subscribers in a country with a population of only four million. By the end of 2004, all three mobile operators in Singapore had rolled-out their 3G networks with 98% street-level 3G radio coverage using a signal strength of at least 100 decibel mill watts

Best Products/Services
The Singapore market for traditional telecommunication hardware is saturated as its infrastructure is already very well developed. There are opportunities, however, to sell new applications and solutions to Singapore, as it is a leading adopter of new applications and technologies in the region. Areas of best prospects include broadband services, Internet protocol virtual private network and wireless communications.

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. The telecommunication services industry is rapidly transitioning into one that comprises many segments with a combination of niche players as well as full service providers.

In 2001, the IDA awarded 3G licenses to three mobile operators in Singapore and they have rolled out their 3G services end 2004. With its high mobile phone penetration rate, Singapore is an ideal test bed for the development and launch of new wireless applications, products and services. The IDA plans to allocate the 2.3 GHz and 2.5 GHz frequency bands for wireless broadband deployment in Singapore in the first quarter of 2005 and aims to have wireless broadband deployed in Singapore by the end of the year.

Resources
Singapore Government Offices
Infocomm Development Authority
www.ida.gov.sg
Industry Organizations Singapore infocomm Technology Federation
http://www.sitf.org.sg/marketplace/bizopp.aspx
U.S. Commercial Service, Singapore Contact
CHIA Swee Hoon (Ms.), Senior Commercial Specialist
Email: Sweehoon.chia@mail.doc.gov

SLOVENIA

Modernization and expansion of local telecommunications facilities is an ongoing activity of the state-controlled national telecommunications provider, Telekom Slovenije (TS). TS still holds a de facto monopoly over fixed voice telephony in spite of liberalized regulations harmonized with the EU as of May 2004. All other telecommunications fields are open to competition according to the Law on Telecommunications adopted in May 1997. However, because supporting legislation (bylaws) to comply with the new EU laws still needs to be passed, competition is still limited. In April 1999, a second GSM operator, Simobil, began operations in Slovenia. The government awarded a third license for GSM 1800 MHz in 2000 to Western Wireless' subsidiary VEGA and is also considering expanding other telecommunications services, including advanced satellite services. Telekom Slovenije is 62,5% state owned. Plans to privatize TS have been repeatedly postponed and are now being discussed for 2005. The government is likely to select a buyer on the basis of its ability to help TS maintain its leading position in the market.

SPAIN

Telecommunication services have been undergoing a process of consolidation that will probably continue in the near future. Investment, especially in fixed networks, has diminished, and companies are focusing on their core business. Wireless networks, Broadband access and VoIP will be stimulating growth in the market.

Telefonica will continue to be the dominant player in most market niches, but there will be increased pressure on the company to provide breathing space to other carriers. An overview of the different sub sectors shows a general trend towards structural changes in the industry: In fixed networks, Telefonica is the dominant player, but competitors have been able to achieve a 20% of market-share. Auna and Uni2 are the runner-ups. There are two main cable companies, the Ono Group and the Auna Group, together serving over 1.7 million residential clients, out of which one million are accessing Pay TV and Internet services.

Investment in fixed networks has been reduced significantly. There are over 17.8 million lines in service. Three companies control the Spanish mobile market. GSM, GPRS and UMTS services are available. The major cellular operator in Spain is Telefonica, with over 50% of the market, followed by Vodafone and Amena (part of the Auna group). The three operators combined have 37.3 million users. Three factors are to be considered in the Spanish market; the high number of prepaid clients, the importance of messaging, with over 12,000 million SMS sent in 2004, and finally the reluctance by city officials to allow the deployment of new antenna sites, due to health concerns, which could become a serious drawback to network development plans and the quality of services. The leading trend in the Spanish Broadcasting market has been the consolidation of large media groups (for example, a single Digital Satellite TV operator is left in the market), and the preparations for the mandatory switch to Terrestrial Digital Television.

Best Products/Services
VoIP services
Value-added services for mobile telephony and broadband

Opportunities
The Spanish Government's drive to regulate the upcoming digital broadcasting market (radio and TV) is opening new license opportunities for broadcasters, especially at the regional and local level.

Web Resources
- Association: AETIC www.aetic.es
- Association: ASTEL www.astel.es
- Secretary of State for Communications and Information Society www.setsi.min.es
- Telecommunications Market Commission: www.cmt.es
- Trade Specialist for Telecommunications: Jesus Garcia, jesus.garcia@mail.doc.gov

SWEDEN

By deregulating the Swedish telecommunications market in the early 1990s, the country took a major step forward in developing a sophisticated and modern telecommunications market. TeliaSonera and especially Ericsson have been the driving forces to put Sweden on the telecommunications map in general and on the wireless communications map in particular. As a result, a number of global companies have established research centers in Sweden (Intel, Motorola, and IBM to mention a few.)

The largest investments last year were in networks, switches and other equipment for fixed line telecom traffic representing 51% of total investments while the equivalent figure for mobile equipment was 42%. Total investments in network management were $1.4 billion with 72% for 3G expansions. TeliaSonera is the largest provider of fixed telephony followed by Tele2, Glocalnet, ACN and MCI. The mobile phone penetration is very high in Sweden, at over 90%. There are three GSM carriers that have their own infrastructure: TeliaSonera, Tele2, and Vodafone. Third generation services have been launched with four service providers: TeliaSonera, Tele2, and Vodafone. All told, there are over 20 service providers in the mobile telephony market, which is expected to grow by 23% in 2004. Internet penetration in Sweden is also very high. In the age group 15 to 75, well over 70% have access to the Internet at home and around 40% have access to broadband.

ADSL is the dominating form of broadband access, followed by CaTV and LAN. Use of W-LAN is expanding in Sweden. The largest operator, Telia Homerun, has more than 15,000 hotspots throughout the country. Other service providers are Defaultcity, Powernet and The Cloud Nordic. 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 would discontinue analog TV broadcasting and shift to digital. The process will start in 2005 and be completed in February 2008. Digital radio has been introduced in Sweden, but broadcasts reach listeners in four metropolitan areas only, representing 35% of Sweden's population.

Best Products/Services
Wireless Broadband
IP Telephony
Triple Play
Wlan

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, gunilla.laroche@mail.doc.gov

SWITZERLAND

Switzerland's industry, service and business sectors rely on fast, efficient telecom services with the United States and the rest of the world. More than 600 U.S. companies maintain international European headquarters or subsidiaries in Switzerland. A similar number of Swiss companies operate in the United States. This high level of cross investment requires a highly developed telecom infrastructure for global business.

The Swiss telecommunications equipment and services market in 2004 grew by 2.5%; adjusted projections for 2005 run at 3%, the exchange-rate adjusted equivalent of $415 million. Mobile services and broadband Internet access continue to drive the market. The market demand for fixed line and mobile telecommunications services in 2004 generated total sales in excess of $12 billion, a 2% increase over the previous year accompanied by a 3.5% drop in operations costs. Further to liberalization of most areas of the domestic telecommunications market in 1998, the Swiss federal government on April 1, 2003, decreed that Swisscom must also give up its last monopoly, the "Last Mile" in fixed-line telecommunications as of January 1, 2006. In the meantime, Swisscom's main competitor in broadband Internet access services, Cablecom, launched its cable telephony service in 2003 as a cable-based alternative to the incumbent's monopoly in copper wire.

With 60% of all television households already using Cablecom as their cable TV service provider, this new offer of telephony service has so far attracted approx. 80,000 new clients. Close to 50% of all Swiss households now have broadband Internet access, making Switzerland one of the fastest growing markets in the world. Swisscom's successful testing of ADSL service via above ground phone lines has made the technology available to 95% of the country's 3.8 million subscribers (of a total population of 7.2 million). In addition, Cablecom has already signed up 250,000 of its cable TV subscribers to high-speed Internet access via a cable modem. ISP leader Bluewin (Swisscom) has cornered more than 50% of the market; its 29 competitors simply resell Swisscom's wholesale product. Swisscom and Orange launched Public Wireless Local Area Network (PWLAN) services on December 2, 2002.

Currently, Swisscom has installed over 800 hotspots in airport terminals, train stations, conference centers and hotels. The incumbent has also acquired two

foreign companies for its newly incorporated European operation, Swisscom Eurospot. Swisscom effectively controls the domestic market and is able to draw on its large cash reserves to invest in PWLAN. Wireless local area networks (WLAN) for home and business use is also very popular. Growing awareness of the networks' vulnerabilities drive the market for security hardware and software.

In the mobile telecommunications market, there are currently 87 activated subscriptions per 100 inhabitants. Three providers operate their own GSM (Global Standard in Mobile Telecommunications, 2nd Generation, 900 and 1800 MHz) networks, while the 4th player, Tele2, only obtained a license to offer services via third-party networks. As of December 2003, Swisscom Mobile, Sunrise/TDC Switzerland and Orange Communications controlled 65%, 17% and 17% of the market, respectively. These market shares have changed very little over the past four years. Combined, the mobile phone subscriber base grew by 5% to 6.26 million users by year-end 2004. The three operators grossed approximately $5.4 billion in 2004. The high average monthly revenue (ARPU) of over $72 is partly due to a smaller share of prepaid customers (38%), generally higher prices in Switzerland, and on average longer calls. As of 2001, mobile telecom subscriptions outnumbered fixed lines for the first time.

Mobile telephony infrastructure currently covers over 80% of the terrain, and 99% of the population. Ericsson, Nokia, Siemens, Alcatel, Ascom and ABB are the largest suppliers of infrastructure equipment. For reasons of economy, difficult terrain, as well as strict environmental and health regulations, the three operators share about a third of all base stations. Mobile data services as yet account for only a few percent of total sales. Short Message Service (SMS, up to 160 characters) has been the most successful product on the market. Most users make do with voice and SMS services. Approximately four billion messages were sent in 2004, with more than half of all the connections made from mobile handsets, and representing a 20% increase over 2003. Daily, 11 million short text messages are sent. All three operators offer General Packet Radio Service (GPRS, 2.5G), while High-Speed Circuit Switched Data (HSCSD) service is available from Swisscom and Orange only.
Multi Media Services (MMS) were officially launched on October 1, 2002. Users pay four to five times the rates of SMS to exchange or download color photos and audio files and to play online games. MMS has been adopted by a small group of business users; however, young and affluent consumers are expected to adopt it once service quality improves and MMS handsets become compatible, more affordable and more easily available. Combined sales of entertainment services via mobile phones - logos, ring tones, SMS and MMS services - in 2004 totaled approximately $110 million, or three times the revenue generated in 2002. Four third-generation (3G or Universal Mobile Telecommunications Services, UMTS) mobile licenses were auctioned in late 2000 at just over $31 million each, an average of $17 per user. One license is back on the market as its holder, 3G Mobile of Spain's Telefónica, withdrew in 2002. Sunrise

(TDC Switzerland) plans to launch UMTS service this year, while Swisscom started to offer UMTS services in December 2004.

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

Resources
- Federal Office of Communications: www.admin.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

TAIWAN

Given the on-going network infrastructure projects of Taiwan based telecom networks (including fixed-line and 3G), and digital upgrades of broadcasting networks (terrestrial TV, radio and CATV networks), Taiwan's market demand for telecom equipment is expected to remain constant through 2006. The majority of Taiwan-produced telecom equipment is for export, mainly cellular phone handsets, WLAN, ADSL, LAN switches, modems, cable modems, and GPS devices. However, many advanced products must be imported. European firms have led the market for wireless network infrastructure equipment (2G/3G) and handsets. Korean firms are taking a very aggressive approach in the handset market.

Best Products/Services
U.S. suppliers are expected to have good sales opportunities in the Taiwan market in the areas of digital switching and transmission system, last-mile solutions, hi-end handsets, next generation broadband equipment, broadcasting transmission equipment and parts, audio production equipment, and test equipment.

Opportunities
In 2004, Taiwan proposed an M-Taiwan Project (part of E-Taiwan Project) with a budget of NTD37 billion ($1.2 billion) aiming to enhance its wire line and wireless broadband infrastructure over the next four years. The budget is pending approval from the legislature. The M-Taiwan Project focuses on resolving the last mile problem, implementing fiber to the home in both fixed-line and cable television networks, as well as enhancing wireless infrastructure and applications.

Resources
- E-Taiwan Project Office: http://www.etaiwan.nat.gov.tw
- Directorate General of Telecommunications: http://www.dgt.gov.tw

- Information on major trade shows in Taiwan that is related to the telecom and networking industries are available at the website http://www.taipeitradeshows.com.tw.
- Firms interested in the relevant trade shows should contact Taiwan External Trade Development Council at taitra@taitra.org.tw for detailed information.
- U.S. firms wishing to learn more about the TEL market are also encouraged to contact CS Taiwan, Frances Li, Commercial Specialist, at frances.li@mail.doc.gov or visit the website http://www.buyusa.gov/taiwan/en.

THAILAND

Thailand's telecommunications market has experienced steady growth during the past few years even though there was a delay in establishing an independent agency regulatory body. The National Telecommunications Commission (NTC) was successfully selected in August 2004. The 7 key NTC committees represent various entities working to complete new regulations that will enable Thailand to liberalize the telecommunications industry effectively as a member of the World Trade Organization (WTO). The telecommunications market is expected to be freely open for competition in 2006.

Fast-changing technology, competitive prices, and the entry of new strong financial players have intensified the competition in Thailand's telecommunications market. The growth rate of fixed line telephones is relatively slow at 5-7% due to high acquisition costs. The penetration rate of fixed-line telephones is 13.57 per 100 people, while the subscribers are 6.3 million from 8.5 million available lines. For this reason, this affects the growth of Internet subscribers countrywide due to the limitation of infrastructure that is only one channel for people to access the Internet. However, the growth of the Internet in 2004 rose sharply from 3 million subscribers to 6.3 million by the end of 2004. Although the rapid increase in the number of Internet subscribers seems to benefit to the ISPs, unfortunately, revenue did not boost, as it should because of the price competition and high fees for international links from CAT TELECOM PUBLIC CO., LTD. However, TOT Corporation Public Co., Ltd, still plans to invest in a 560,000 fixed-line project, which is expected to be completed in 2005.

Mobile phone operators were enjoying the high revenue mostly increasing from non-voice services like Short-Messenger-Services (SMS), which become more and more popular among mobile phone users. Revenues generated by non-voice services were $2.6 billion in 2004 and expected to grow 7-11% in 2005. Non-voice revenue mostly comes from personal messaging and participation in TV and radio programs. In addition, mobile phone tariffs are inexpensive in Thailand. Prices have been cut dramatically to persuade new subscribers to join the carriers, and long term will require continued high investment by carriers to retain these new members. Furthermore, the first 3G operator: Hutchison CAT Wireless Multimedia Co., Ltd, a joint-venture between CAT Telecom and Hutchison HK to operate CDMA 2000 1x mobile phone in Thailand, will invest $175

million for its network expansion in 2005. This will enable Hutch to become a major player for data/voice/video service via mobile phones in this country.

The popularity of hi-speed and broadband Internet grew in 2004. Users increased sharply to 220,000 customers, less than one year since the Ministry of Information and Communications Technology launched the low-cost broadband and trimmed down fees for international links from CAT Telecom Public Co., Ltd, which owns the country's international backbone service for internet operators. This campaign-encouraged people to leave 56 Kbp modem for the hi-speed Internet at the price of $14.50 (Bt. 590) per month provided by True Corporation Public Co., Ltd in metropolitan Bangkok and $24.5 (Bt. 990) per month from TT&T Public Co., Ltd in provincial areas. The recently successful establishment of the National Telecommunications Commission is expected to change Thailand's communications regulation effectively and provide for fair competition among existing service carriers and new entrants. In the meantime, many telecommunications experts say that the market will continue to grow and present significant opportunities to equipment suppliers.

Best Products/Services
- Fixed-line expansion projects
- Improvement of government call centers
- Phone-to-School project: to install fixed-line telephones for schools countrywide
- Launching the new mobile phone service "Thai Mobile" in 1900 MHz
- GSM network improvement and upgrade
- Increasing capacity for broadband Internet, hi-speed, fixed-wireless hot spot services

Resources
Government Agencies:
-Ministry of Information and Communication Technology (MICT)
www.mict.go.th/
-National Telecommunications Commission (NTC)
www.ptd.go.th:8000/ptdinfo/ntc/index.jsp

Fixed and Mobile phones carriers:
-TOT Corporation Public Co., Ltd.
http://www.tot.co.th
-CAT Telecom Public Co., Ltd.
http://www.cattelecom.co.th
-True Corporation Public Co., Ltd.
http://www.truecorp.co.th
-Advanced Info Services Public Co., Ltd. http://www.ais900.com
-Hutchison CAT Wireless Multimedia Co., Ltd.
http://www.hutch.co.th/index_th.htm
-Total Access Communication Public Co., Ltd. http://www.dtac.co.th

TURKEY

The Telecommunications Authority issued licenses for over 40 companies for long distance telecommunications services. Some of these companies are establishing their own networks. The telecommunications equipment required by them and by the GSM cellular companies, Turkcell, Telsim and Avea will be the dominating factors for the growth of the market. Turk Telekom, the incumbent operator will continue to be major buyer of telecommunications equipment. Push to talk type GSM cell phone sets and new models will have a

major market. The 30 million GSM subscribers keep on growing with a growth rate of over 20%. Existing and the new subscribers will purchase new model GSM handsets. The private sector may make major investments on establishment of new fiber-optic networks, VoIP Equipment and Wireless Local Loop networks. Depending on the timing of license tenders, the other best prospect can be the third generation GSM networks.

Due to the proximity Turkey has with a liberated Iraq, Turkey can be a hub-market for the telecommunications equipment needed in the Iraqi Reconstruction and improvement of the existing telecom network in Iraq. Turk Telekom being the incumbent fixed line operator with over 19 million subscribers may invest in new technologies in 2004. Turk Telekom plans to expand its ADSL backbone, therefore, will continue to purchase new ADSL equipment.

Best Products/Services
Push to talk GSM handsets, new model GSM handsets with new features, VoIP equipment, ADSL equipment, switches and networks for long distance operators.

Opportunities
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
- Turkish Competitive Telco Operators Association (TELKODER) www.telkoder.org.tr
- Turkish Electronics and IT Industries Association (TESID) www.tesid.org.tr

UNITED KINGDOM

The first half of 2004 saw steady growth in the telecom sector driven by growth in broadband Internet and mobile sectors. The level of broadband penetration in the UK, measured as 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 progressing its local loop unbundling (LLU).

Ofcom, the UK communications watchdog, recently completed a seven-month consultation process and confirmed a new set of charges that will establish the future of LLU in the UK. The regulator essentially ended BT Group's monopoly over the vitally important "last-mile", which connects households and businesses directly to cable or telephone companies. As yet, only a few companies are actually taking full advantage of the potential, and many companies are simply reselling BT Wholesale offerings. The market is showing signs of an evolving 'triple-play' sector offering IP based Internet, voice and video services. 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.

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. 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. As a result, "hotspots" have developed in sites throughout the country, such as coffee shops, transport hubs and hotels.

Best Products/Services
Broadband Technologies Video and Voice over IP Technologies and Services 3G/UMTS Technologies and Services

Resources
Ofcom, the UK Communications Regulator http://www.ofcom.org.uk
For more information contact Scott Hodgins
Commercial Specialist
U.S. Commercial Service
American Embassy
24 Grosvenor Square
London W1A 1AE
UK
Tel: 011 44 20 7408 8019
Fax: 011 44 20 7408 8020
Email: scott.hodgins@mail.doc.gov

UKRAINE

Telecommunications and IT are important infrastructure sectors for Ukraine. The revival of the Ukrainian economy after 2000, as well as foreign and domestic investments in telecommunications made over the last 10 years, has brought marked changes in the Ukrainian telecom industry, particularly in mobile wireless and Internet. Obsolete analog networks are circumvented by a growing number of wireless mobile and fixed "overlay" networks. During January – October 2004, telecom industry revenues reached UAH 17.41 billion or $3.28 billion (compared to $2.54 for all of 2003). The average level of teledensity reached 24%. Revenues from long distance and international calls account for 28% of total services provided by the industry. Two leading wire-line operators Utel and Ukrtelecom process 95% of long distance and international calls. The local loop accounts for 13% of industry services. Private wire line telecom providers are slowly overcoming Ukrtelecom's monopoly, although their market share is still too small to trigger major changes that would reshape the market. A lack of transparency and slow decision making in licensing and frequency allocation, continuing delays with privatization of Ukrtelecom, ongoing disputes between telecom authorities and private telecom operators seriously hurt the development of the whole telecom industry which is far behind the rest of the national economy in its movement toward liberalization, transparency and openness for foreign investments.

Mobile Communications
Five Ukrainian operators - UMC, Kyivstar GSM, Golden Telecom GSM, DCC, and Wellcom - offer wireless mobile services in Ukraine in the following standards:
GSM900/1800 (UMC, Kyivstar GSM, Wellcom, Golden Telecom GSM), and D-AMPS (DCC). Late in 2003 the mass media announced that a major Turkish investor will form a joint venture with DCC to deploy a third nationwide GSM

network. In the second half of 2004, JV Astelit started deploying the network. Wellcom was also actively expanding its existing network to cover new territories and regions.

In 2004 wireless mobile communications (MC) for the first time became the biggest sub sector of the telecom industry in Ukraine. From January – October 2004 MC revenues amounted to UAH 7.58 billion or $1.43 billion, which is almost 100% more than for all of 2003 (UAH 3.83 billion or $736 million). These revenues represent 43.59% of total telecom industry revenues. This successful financial performance for the first time ranks MC as the first communications sub sector in terms of revenue ahead of the long distance and international wire line communications that historically led other industry sub sectors. The number of MC customers also doubled reaching 12 million (compared to 8-10 million customers of wire line telecom services). The market penetration for MC is 25.5%.

Internet & Data Transfer:
Internet services are one of the leading, albeit small (in monetary terms), sub sectors of the Ukrainian telecom industry. Reportedly, there are 5.9 million Internet users and 28,800 web sites registered in Ukraine. Industry performance in 2004 was very strong and its revenues (for January-October only) reached UAH 749 million or $141 million.

Best Products/Services
This includes equipment and software for MC, value-added services for MC and wire line telecommunications.

Opportunities
The privatization of Ukrtelecom is still on the agenda. This privatization may represent a great opportunity and when implemented will reshape the market. There also may be a major breakthrough in TV and radio broadcasting market development due to the expected liberalization of the market after major political changes in early 2005 and in view of forthcoming parliamentary elections scheduled for 2006.

Resources
- Official web site of the State Department for Communications and Informatization of the Ministry of Transport of Ukraine: www.stc.gov.ua/
- Telecom Club (regular convention of telecom executives and equipment suppliers): www.telecom-club.org.ua/
- UMC: /www.umc.ua/index_e.html
- Kyiivstar: www.kyivstar.net/site.php/en
- Golden Telecom: http://www.goldentele.com
- Wellcom: http://www.welcome2well.com/eng/main/index.htm
- DCC - http://www.dcc-ua.com
- Ukrtelecom: www.ukrtelecom.ua/
- Utel: http://www.utel.com.ua/english

VENEZUELA

2003 was a very hard year for the Venezuelan telecom sector. The global contraction of the sector, the country's economic contraction, politicization of the regulatory agency, and exchange controls has severely affected this sector. However, there are promising indicators for these two sectors. One positive factor is the telcom sector's increased

contribution to GDP. In 1993 it represented 1.24% of the GDP, and in 2003 it represented 4.28%. This shows the importance of this sector to the general economy even after the deep structural and legal changes made to the sector in 1991. Another positive factor is the projects that are planned, but not implemented at this time. The following table provides a sense of the scope of these major projects.

There are three key developments that we see driving growth in this sector. The Venezuelan Central Government recently announced its plan to develop a government-owned National Telecommunications Network (NTN). This network will be developed largely by interconnecting the networks currently used by PDVSA (Venezuela's oil company), Edelca (the national electric company), and Sicodena (the national armed forces and law enforcement integrated crime information system). The NTN mission is to"increase the participation of the less privileged with telecommunications tools for education, health, community programs…"

Best prospects from this project include: wireless Internet solutions and other last mile solutions, VoIP, video, telephony, and data communications. CANTV, Venezuela's largest telephone company has announced an investment of $300 million for 2004. CANTV will focus on mobile services and broadband. Best prospects from this project include: last mile equipment, front and back office solutions, added value IP solutions, added value wireless equipment, satellite equipment, and ADSL based solutions. Two major international players in the telecommunication industry have entered the Venezuelan market, Telefonica from Spain and TIM from Italy. The first acquired a leading wireless telephone company from Bellsouth, and the second bought cellular company stock from local investors. Entry of these companies will intensify competition with CANTV. Both companies are known for aggressive marketing strategies. In a country where the mobile phone penetration more than doubles the fixed line penetration, we anticipate heavy spending in the competition for wireless infrastructure and added value IP solutions. The Commercial Service office in Caracas closely tracks developments in this key, but rapidly changing sector. For more information on this sector, please contact Commercial Specialist Ms. Dalia Dorta at dalia.dorta@mail.doc.gov

IV. 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 telecommunications 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)

V. Available Market Research

Telecommunications Equipment

The reports listed below provide more detailed information about the market for **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 reports 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**

IP Telephony - Market Overview 2005	Argentina	9/30/2005
E-Commerce 2005 - Market Overview	Argentina	9/2/2005
Wi-Fi Market in Argentina	Argentina	6/30/2005
Recent Developments in Telecom Industry	Argentina	2/5/2004
Telecommunications Equipment	Argentina	3/28/2003
Voice Processing Equipment and Systems	Australia	5/31/2005
Refurbished Networking Equipment	Australia	4/21/2005
The Australian Telecommunications Market	Australia	1/27/2005
IT Distribution in Australia	Australia	9/24/2004
Australian Telecommunications Market	Australia	5/12/2004
Cellular Telecommunications Equipment	Barbados	5/16/2005
Customer Premises Equipment	Barbados	11/2/2004
Bolivian Telecom Sector	Bolivia	10/28/2005
Brazilian Accredited Laboratories for Telecom Equipment	Brazil	11/26/2004
Internet Services and e-commerce in Brazil	Brazil	6/2/2004
Telecommunications Market in Brazil	Brazil	6/2/2004
Telecommunications Market Analysis	Brazil	10/5/2005
Wireless Telephony Market Update	Brazil	6/24/2005
Cayman Telecom Update	Cayman Islands	7/29/2004
Telecommunications	Chile	7/20/2004
China's Telecom Market	China	5/23/2005
Convergence in China- 2005 update on Market Situation	China	1/24/2005
Telecommunications & Broadcasting- China Market Brief	China	3/20/2004
Wireless Communications Equipment and Services	China	1/13/2004
Telecommunications Equipment Market in China	China	1/1/2004
Telecommunications Equipment	Colombia	8/1/2005
Telecommunications Equipment/Services in Central America	Costa Rica	6/1/2005
Telecommunications Equipment	Costa Rica	9/1/2004
Telecommunications and IT services market in Croatia	Croatia	5/17/2005

Trends in the ICT-Sector-Broadband Connections	Denmark	3/26/2003
Broadband Connections in Denmark	Denmark	9/14/2005
Telephone Sets	Dominican Rep.	5/13/2005
The Telecommunication Market in the Dominican Republic	Dominican Rep.	4/22/2005
Telecommunications	Ecuador	9/30/2004
Telecom: Market Brief for Egypt	Egypt	11/2/2004
Wireless Communications and IT	Finland	05/18/05
The Telecommunications Industry in Western France	France	9/20/2005
Information Technology and Telecommunications Trends	France	3/19/2003
Mobile Communications	Germany	08/18/05
Broadband Access	Germany	1/24/2005
Wireless Telecommunication Equipment	Germany	9/16/2004
Telecommunication equipment and services	Guatemala	8/17/2005
Telecommunications Equipment	Haiti	11/3/2003
Hong Kong Telecommunications Market	Hong Kong	9/30/2005
Hong Kong - Telecom and Broadcasting Market Brief	Hong Kong	5/12/2004
Telecom/broadcasting regional market briefs from Asia	Hong Kong	5/24/2005
Call Center Equipment	India	07/24/05
Telecommunication Equipment	India	9/13/2005
Market Brief for Telecommunications and Broadcasting Sectors	Indonesia	06/15/05
The Wireless Communications Market in Ireland	Ireland	9/30/2005
Israel's Cellular Market	Israel	9/29/2005
Telecom Infrastructure	Israel	3/25/2003
Broadband Technologies	Italy	10/7/2003
Submarine Fiber Optic Cable	Jamaica	9/3/2004
Jamaica Telecom Update, April 2004	Jamaica	5/14/2004
Japan Market Brief 2005: Telecommunications & Broadcasting Sectors	Japan	5/5/2005
Convergence India 2004 Post Market Brief: JAPAN	Japan	1/31/2005
Data Communications	Japan	3/26/2003
Telecommunication Sector Market Research	Jordan	5/3/2005
Information and Communication Technologies (ICT) Overview in Kazakhstan	Kazakhstan	06/17/05
Telecommunications Sector in Kenya	Kenya	5/17/2005
Digital Radio in Luxembourg	Luxembourg	09/29/05
Broadband Technology in Malaysia	Malaysia	06/01/05
Telecommunications and Broadcasting Asia Now Market Brief: Malaysia	Malaysia	5/5/2005
Broadband Technology	Malaysia	11/23/2004
Information and Communication Technology Market Review: Mexico 2005	Mexico	8/3/2005
Telecom Equipment	Mexico	5/13/2005
Call Center Equipment and Services: Double-digit Growth Opportunities	Mexico	9/17/2003
Trends in the Dutch Information and Communication Technology Market (ICT)	Netherlands	6/3/2004
Trends in the Dutch ICT Market	Netherlands	3/25/2003
The Dutch Mobile Telecommunications Market	Netherlands	3/18/2003
Telecommunications Equipment	New Zealand	9/5/2004
Trends in the ICT Market	Norway	9/30/2005
Telecommunications Equipment	Panama	3/27/2003
Internet Access and IP Telephony	Poland	10/16/2004
Broadband Business in Portugal	Portugal	1/24/2005
Mobile Telephone Overview	Portugal	3/24/2003

2004 Results of the Cellular Communication Services Market in Russia	Russia	6/7/2005
Telecommunication Equipment	Russia	5/20/2005
Fixed-line Communication Market in the Urals Region	Russia	1/19/2005
Trends in the Russian Telecommunication Market	Russia	3/16/2004
Telecommunications Industry in Primorsky Kray	Russia	1/31/2004
Russian Broadband Fixed Wireless Market Developments	Russia	12/30/2003
Telecommunication Equipment Subject to Compulsory Certification in Russia	Russia	8/16/2005
Switching Systems	Saudi Arabia	4/3/2003
Wireless Broadband (BFWA) Market Overview	Singapore	7/15/2005
Telecommunication Equipment	Singapore	5/4/2005
Telecommunication Services in Slovakia	Slovakia	6/30/2005
Trends in the ICT Market	Slovakia	10/14/2003
Broadcasting Equipment for Satellite TV	South Korea	6/12/2003
Opportunities for U.S. Suppliers of Digital Cable TV Equipment at the KCTA Ex...	South Korea	6/12/2003
E-commerce Solutions	South Korea	3/18/2003
Korean Market for Point-of Sales Equipment and Solutions	South Korea	2/28/2003
New Opportunities with Telecommunication Service Providers	Spain	7/27/2005
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VI. APPENDIX

Products in Telecommunication Equipment, by Schedule B Code
HS 852520 and 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 TELEPHONES FOR PUBLIC CELLULAR RADIOTELECOMMUNICATION SERVICE
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	CROSS TALK METERS
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