

11. Telecommunications

The telecommunications industry includes both service providers and equipment manufacturers, with equipment manufacturers producing both transmitting and receiving equipment for traditional wired networks and modern optical and wireless networks. In the United States alone, employment in the communications equipment industry grew by almost 20 percent between 2006 and 2007, to a total of more than 150,000 employees.

a) Representative Operation – Telecom Equipment Manufacturing

The representative operation modeled is a manufacturer of specialized telecom equipment in either a wired or a wireless environment. As illustrated in Exhibit 3.42, this operation is characterized by:

- Moderate land, building, and equipment requirements
- A workforce heavily weighted toward highly skilled professional/technical staff and skilled operators
- Modest energy requirements
- Relatively high costs for materials, reflecting the significant use of components and sub-assemblies
- Modest in-house R&D activities.

The business is assumed to operate as a stand-alone profit center.

b) International Results

International results are illustrated in Exhibit 3.43. These results reflect the combined impact of 26 location-sensitive cost components applied to the modeled operation. Detailed results, by key cost component, are presented in Exhibit 3.44.

c) Selected Cities

Exhibit 3.45 profiles results for selected cities, by country, from among the 95 cities featured in this report. Results for all other featured cities can be found in Chapter 4, Exhibit 4.7.

EXHIBIT 3.42 – TELECOMMUNICATIONS	
Telecom Equipment Manufacturing – Summary of Operating Parameters	
Facilities Requirements	
Leased industrial facility	4 acres (16,187 m ²)
Size of factory built	60,000 ft ² (5,574 m ²)
Other Initial Investment Requirements	
Machinery and equipment – US \$'000	\$17,000
Office equipment – US \$'000	\$400
R&D equipment – US \$'000	\$500
Inventory – US \$'000	\$5,000
Equity financing – % of project costs	50%
Workforce	
Management	7
Sales and administration	20
Production/non-dedicated product development	
- Professional, technical	34
- Operators	30
- Unskilled laborers	25
Other	4
Total employees	120
Energy Requirements	
Electricity monthly consumption/peak demand	200,000 kWh and 680 kW
Gas monthly consumption	5,600 CCF (15,864 m ³)
Other Annual Operating Characteristics	
Sales at full production – US \$'000	\$40,000
Materials and other direct costs – % of sales	45%
Other operating costs – % of sales	8%
Investment in tax-eligible R&D – % of sales	5.3%

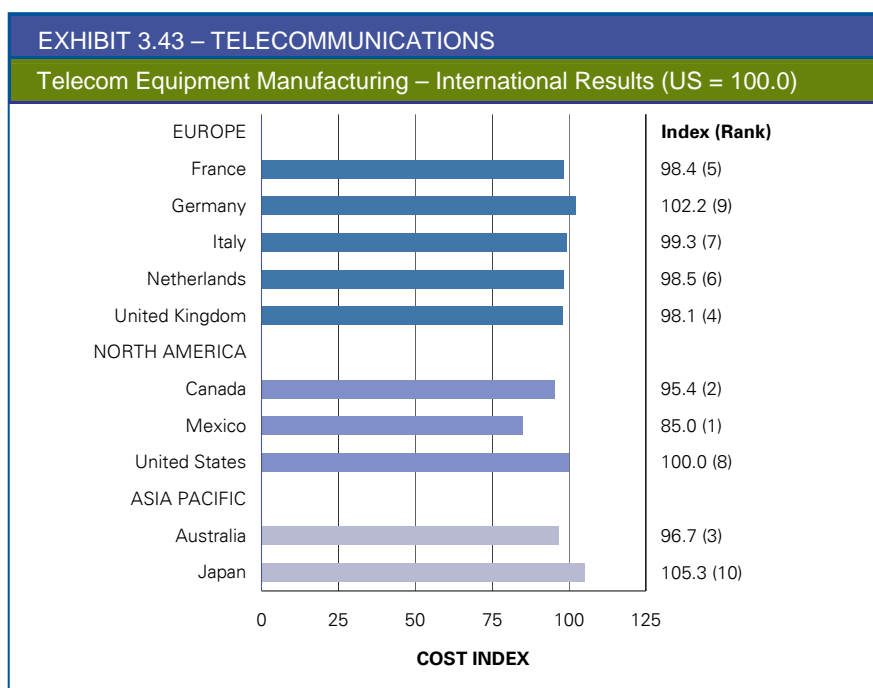


EXHIBIT 3.44 – TELECOMMUNICATIONS

Telecom Equipment Manufacturing – Costs, by Major Component, US \$'000

	Europe					North America			Asia Pacific	
	France	Germany	Italy	Netherlands	UK	Canada	Mexico	US	Australia	Japan
Revenues	37,700	37,700	37,700	37,700	37,700	37,700	37,700	37,700	37,700	37,700
Costs										
- Salaries & Wages	5,570	7,714	6,061	6,707	6,104	6,445	2,530	6,601	6,714	8,426
- Statutory Plans	2,533	1,332	1,295	888	581	564	185	598	882	818
- Other Benefits	1,168	1,648	1,752	1,835	2,054	1,647	746	2,565	1,527	2,129
- Total Labor & Benefits	9,270	10,694	9,108	9,429	8,740	8,657	3,461	9,764	9,122	11,373
- Facility Lease	410	512	492	546	837	318	290	304	431	951
- Transportation	1,103	1,145	1,247	1,392	1,057	1,358	1,399	1,250	1,361	882
- Utilities	305	419	622	394	395	266	272	248	439	397
- Interest & Depreciation	2,939	3,068	2,967	2,963	3,008	2,901	2,155	2,949	2,652	3,092
- Non-Income Taxes	587	179	40	36	518	288	60	689	127	793
- Location-Insensitive Costs	19,981	19,981	19,981	19,981	19,981	19,981	19,981	19,981	19,981	19,981
Profit Before Income Tax	3,106	1,703	3,244	2,960	3,165	3,932	10,084	2,515	3,587	232
- Income Taxes ¹	539	508	1,013	435	494	311	2,744	520	414	116
Effective Rate	17.4%	29.9%	31.2%	14.7%	15.6%	7.9%	27.2%	20.7%	11.5%	50.5%
After-Tax Profit	2,566	1,195	2,231	2,525	2,671	3,621	7,341	1,994	3,173	115
Total Annual Costs	35,134	36,506	35,469	35,176	35,031	34,080	30,360	35,706	34,526	37,586
Index (US=100.0)	98.4	102.2	99.3	98.5	98.1	95.4	85.0	100.0	96.7	105.3
Rank	5	9	7	6	4	2	1	8	3	10

1 Income taxes may be either positive or negative, irrespective of whether profit before income tax is positive or negative, due to the impact of specific expense deduction rules, minimum taxes, and refundable income tax credits. Effective tax rates are not shown where results are not meaningful because of low profitability.

EXHIBIT 3.45 – TELECOMMUNICATIONS

Telecom Equipment Manufacturing – Results for Selected Cities, by Country

Country and City	Index	Rank ¹	Country and City	Index	Rank ¹	Country and City	Index	Rank ¹
International Locations – All Cities						North America – Lowest Cost Cities		
AU Adelaide	96.2	22	JP Osaka	104.6	94	CA Moncton, NB	92.7	3
Brisbane	96.4	23	Tokyo	105.9	95	Fredericton, NB	92.9	4
Melbourne	96.0	20	MX Mexico City	85.0	2	St. John's, NL	92.9	5
Sydney	97.4	38	Monterrey	85.0	1	Sherbrooke, QC	93.6	6
FR Lyon	97.8	50	NL Amsterdam	98.5	57	US Shreveport, LA	95.6	17
Paris	99.0	72	Brabant Stad	98.4	55	McAllen, TX	96.1	21
GE Berlin	101.6	88	The Hague	98.6	63	Cheyenne, WY	96.5	24
Frankfurt	102.9	91	Utrecht	98.5	60	Sioux Falls, SD	96.6	25
IT Milan	98.8	69	UK London	100.2	85	Tampa, FL	96.7	26
Rome	99.9	82	Manchester	96.0	19	Lexington, KY	96.7	27
						Oklahoma City, OK	96.7	28
						Billings, MT	96.8	29

1 Rank among 95 cities.