

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, the value of shipments for the communications equipment industry totaled over \$70 billion in 2006, up by more than 19 percent from 2005.

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 materials and other costs, reflecting the significant use of components and sub-assemblies

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 27 location-sensitive cost components applied to the modeled operation. Detailed results, by key cost component, are presented in Exhibit 3.44.

c) Leading Cities

Exhibit 3.45 profiles results for the leading (lower-cost) cities, by country, from among the 102 cities featured in this report. Results for all other featured cities can be found in Chapter 4, Exhibit 4.10.

EXHIBIT 3.42 – TELECOMMUNICATIONS	
Telecom Equipment Manufacturing – Summary of Operating Parameters	
Facilities Requirements	
Industrial site purchased	6 acres (2.4 hectares)
Size of factory built	60,000 ft ² (5,574 m ²)
Other Initial Investment Requirements	
Machinery and equipment – US \$'000	\$5,000
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 (15,857 m ³)
Other Annual Operating Characteristics	
Sales at full production – US \$'000	\$35,000
Materials and other direct costs - % of sales	45%
Other operating costs - % of sales	12%
Investment in tax-eligible R&D - % of sales	4.3%

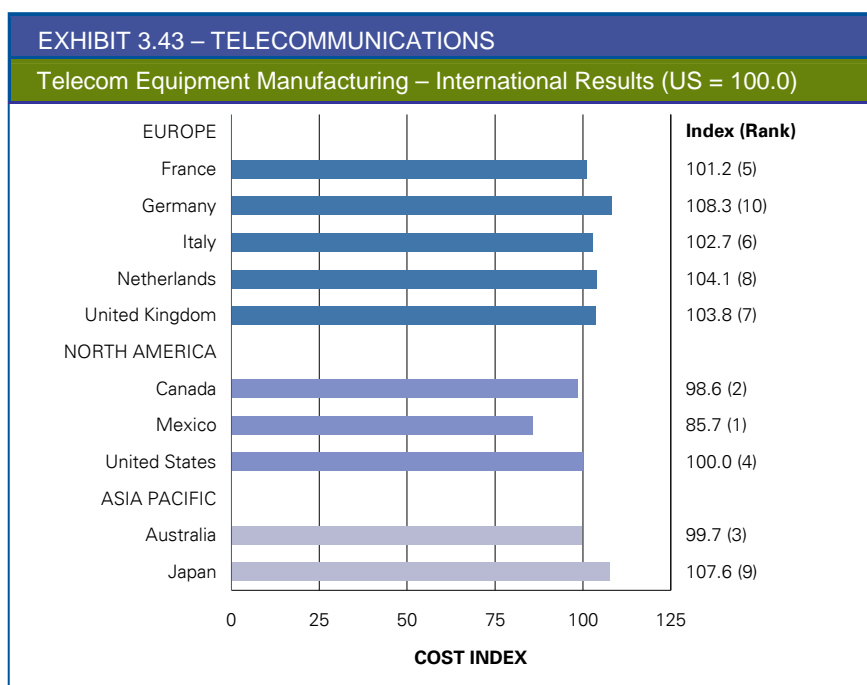


EXHIBIT 3.44 – TELECOMMUNICATIONS

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	32,700	32,700	32,700	32,700	32,700	32,700	32,700	32,700	32,700	32,700
Costs										
- Salaries & Wages	5,306	8,085	5,364	6,987	6,435	6,246	2,821	5,783	6,188	7,432
- Statutory Plans	2,258	1,315	1,752	901	778	482	350	539	817	681
- Other Benefits	1,070	1,623	1,430	2,136	2,010	1,331	636	1,612	1,312	2,352
- Total Labor & Benefits	8,635	11,023	8,546	10,024	9,223	8,059	3,807	7,934	8,317	10,465
- Transportation	384	402	504	396	448	484	505	444	338	473
- Utilities	368	517	669	489	435	279	425	224	411	564
- Interest & Depreciation	1,139	1,604	1,221	1,447	1,615	1,106	(350)	1,071	1,045	1,497
- Non-income Taxes	306	125	45	31	448	405	40	422	77	339
- Location-insensitive Costs	18,639	18,639	18,639	18,639	18,639	18,639	18,639	18,639	18,639	18,639
Profit Before Income Tax	3,229	390	3,076	1,933	1,892	3,727	9,634	3,981	3,874	723
- Income Taxes ¹	900	188	1,203	220	347	624	2,672	1,285	1,104	323
Effective Rate	27.9%	48.1%	39.1%	24.8%	18.3%	16.7%	27.7%	32.6%	28.5%	44.9%
After-tax Profit	2,329	202	1,872	1,454	1,545	3,103	6,961	2,682	2,770	399
Total Annual Costs	30,372	32,497	30,828	31,246	31,155	29,597	25,738	30,018	29,931	32,301
Index (US=100.0)	101.2	108.3	102.7	104.1	103.8	98.6	85.7	100.0	99.7	107.6
Rank	5	10	6	8	7	2	1	4	3	9

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 Leading Cities, By Country

Country	City	Index	Rank Among 102 Cities	Country	City	Index	Rank Among 102 Cities
France	Toulouse	100.3	52	Canada	Sherbrooke	95.5	7
	Mulhouse	100.7	59		Moncton	95.8	8
Germany	Halle	106.3	94		St. John's	95.9	9
	Erlangen	108.7	100		Fredericton	96.0	11
Italy	Vicenza	102.0	73	Mexico	Reynosa	84.2	1
	Livorno	102.9	83		Aguascalientes	85.7	2
Netherlands	Utrecht	104.1	88	United States	San Juan	91.1	6
United Kingdom	Barnsley	102.2	75		Shreveport	95.9	10
	Plymouth	102.3	76		McAllen	96.2	12
					Little Rock	97.1	16
Australia	Adelaide	98.6	31		Oklahoma City	97.1	18
	Brisbane	99.3	42		Greenville-Spartanburg	97.4	20
Japan	Fukuoka	107.2	97		Montgomery	97.5	21
	Yokohama	107.7	98		Lexington	97.8	22
					Jackson	98.0	23