



Competitive Alternatives

KPMG's guide to international business costs

2006 Edition

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A Guide to Cost Advantage

Competitive Alternatives is KPMG's guide to comparing business costs in North America, Europe, and Asia Pacific

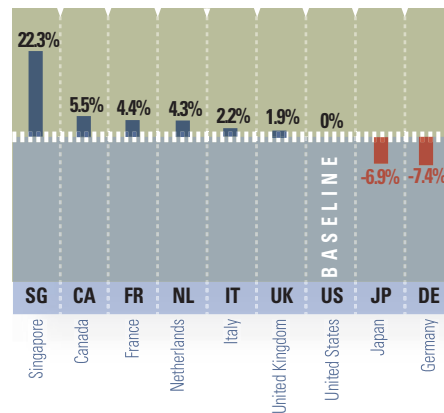
The 2006 *Competitive Alternatives* study is the most thorough comparison of international business costs ever undertaken by KPMG. This study contains valuable information for any company seeking a cost advantage in locating international business operations.

Updating and expanding upon previous *Competitive Alternatives* publications, this study measures the combined impact of 27 significant cost components that are most likely to vary by location. The eight month research program covered 17 industry operations in nine industrialized countries: Canada, France, Germany, Italy, Japan, the Netherlands, Singapore, the United Kingdom, and the United States. More than 2,000 individual business scenarios were examined, combining more than 30,000 items of data. The basis for comparison is the after-tax cost of startup and operation, over a 10-year planning horizon.

Full study results are available online at: www.CompetitiveAlternatives.com.



The Bottom Line



% cost advantage (disadvantage) relative to the US

Among the countries studied, **Singapore** has the greatest cost advantage over the United States, at 22.3 percent. With GDP per capita now on par with some western European nations, Singapore is the first newly industrialized country to be included in *Competitive Alternatives*.

Canada leads the G7 countries for low business costs, with a cost advantage of 5.5 percent over the United States.

France and the **Netherlands** have the best results among the European countries. Costs are virtually equivalent in both countries, with a cost advantage of approximately 4.4 percent over the US.

Italy and the **United Kingdom** also have very similar business costs, both holding a cost advantage of approximately two percent over the United States.

The **United States** is the study baseline against which other countries are compared, and ranks seventh among the nine countries.

Japan and **Germany** are the most expensive among the countries studied. These countries are at a cost disadvantage relative to the US, by 6.9 and 7.4 percent, respectively.

Cost Trends: Cost Differentials Narrow

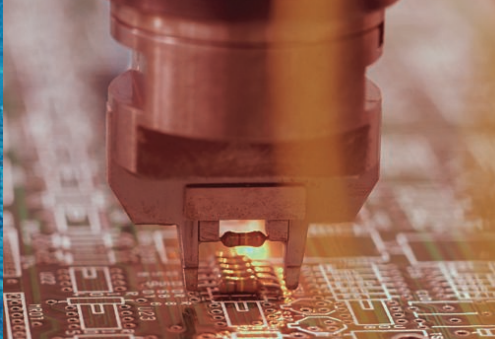
Cost differentials among the returning countries (G7 plus Netherlands) have narrowed since the previous (2004) edition of *Competitive Alternatives*, with most countries moving closer to the US benchmark:

- **Japan** has experienced the greatest gain in cost competitiveness, assisted by the weakening of the yen relative to the US dollar, and improvements in local business costs.
- **Germany**, the **Netherlands**, **France**, and **Italy** have all experienced improvement in their cost competitiveness, relative to the US benchmark.
- The **United Kingdom** has retained a cost advantage over the United States, Japan and Germany.
- **Canada** has retained its top ranking among G7 countries, although the size of its advantage has been reduced by the strong appreciation of the Canadian dollar relative to the US dollar over the last two years.

The results of this study are sensitive to exchange rates. Exchange rates used in this study, along with comparative rates from the time of the previous (2004) study, are as follows:

Exchange Rates ¹			
Currency	2004 Edition	2006 Edition	% Change ²
Euro €	0.8648	0.8410	2.8%
UK £	0.6019	0.5719	5.2%
Canadian \$	1.3328	1.1735	13.6%
Japanese ¥	111.2	117.26	-5.2%
Singapore \$	1.7364	1.6878	2.9%

1: Per US\$. 2: Two year appreciation relative to US\$.



Labor Costs Are Key

Labor cost comparisons are based on 42 job positions.

Labor costs include wages and salaries, statutory benefits (including government pension plans, medical plans, etc.), and all other benefits typically provided by employers.

For manufacturing operations, labor costs typically represent 55 to 73 percent of total location-sensitive costs. For non-manufacturing operations, this range is typically 76 to 87 percent.

Labor-related costs vary significantly among countries:

- Singapore has the lowest salary and wage costs among the nine countries examined, followed by Italy, France, and the United Kingdom.
- Costs for statutory plans, as a percentage of payroll, are lowest in Canada, followed by the United States, the Netherlands and Singapore.
- Costs for other employer-sponsored benefits, as a percentage of payroll, are lowest in Japan, followed by France, Singapore and Canada.
- Combining these three elements, total labor costs are lowest in Singapore, followed by Canada, Italy and France.

Other Major Costs

Facility costs generally represent the second-largest group of location-sensitive business costs:

- For manufacturing operations, facility ownership costs (including financing) range from 10 to 22 percent of location-sensitive costs.

Land purchase and building construction costs for a new industrial facility are lowest in Canada, followed by Italy, the United States and France.

- For non-manufacturing operations, office leasing costs range from 4 to 13 percent of location-sensitive costs. Lease costs include rent, plus all costs and taxes typically passed on by the landlord to the tenant.

Office lease costs are lowest in Italy, followed by Germany, the Netherlands and Singapore.

Transportation costs vary significantly by industry, and represent between 1 and 15 percent of location-sensitive costs for the manufacturing operations examined. Transportation costs vary by product and market, but tend to be lowest in centrally located jurisdictions such as the Netherlands, Singapore, the United Kingdom, and Germany.

Utility costs represent between two and nine percent of location-sensitive costs:

- The lowest electricity costs are found in Canada and France.
- The Netherlands and the United Kingdom offer the lowest natural gas costs.
- Telecommunication costs are lowest in Germany and the United Kingdom.

Income taxes typically represent 3 to 10 percent of location-sensitive costs:

- For manufacturing operations, Singapore, offers the lowest effective income tax rate, followed by the United Kingdom, the Netherlands and Canada.
- For R&D operations, Canada, the United Kingdom, France and the United States all offer significant R&D tax incentives.
- For other non-manufacturing operations, Singapore, the United Kingdom, the Netherlands and France offer the lowest effective income tax rates.

Detailed Results

Full results of this study, including all industries, regions and cities, can be found online at: www.CompetitiveAlternatives.com.

National & Overall Results

National results by industry & operation

Overall results by region and city

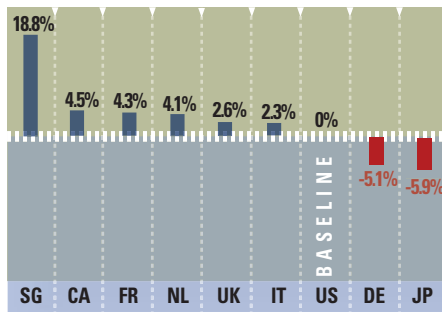
		Cost Index ¹ (Rank)								
Industry	Operation	Europe					North America		Asia Pacific	
		France	Germany	Italy	Netherlands	UK	Canada	US	Japan	Singapore
Manufacturing										
Aerospace	Aircraft parts	94.8 (3)	106.5 (8)	97.3 (5)	95.9 (4)	97.5 (6)	93.5 (2)	100.0 (7)	108.5 (9)	74.3 (1)
Agri-food	Food processing ²	95.3 (3)	101.2 (8)	96.9 (6)	95.0 (2)	95.9 (4)	96.0 (5)	100.0 (7)	104.5 (9)	84.3 (1)
Automotive	Auto parts	93.7 (2)	105.3 (8)	95.9 (6)	94.3 (3)	95.5 (5)	94.9 (4)	100.0 (7)	108.7 (9)	76.4 (1)
Chemicals	Specialty chemicals ²	97.8 (4)	106.3 (9)	98.9 (5)	96.8 (3)	99.2 (6)	95.5 (2)	100.0 (7)	101.2 (8)	86.3 (1)
Electronics	Electronics assembly ²	99.9 (4)	111.8 (9)	102.1 (6)	99.6 (3)	103.4 (7)	96.6 (2)	100.0 (5)	111.0 (8)	81.9 (1)
Medical devices	Medical device manufacturing	96.6 (3)	107.2 (9)	98.5 (6)	97.4 (4)	98.4 (5)	95.9 (2)	100.0 (7)	106.1 (8)	81.4 (1)
Metal components	Metal machining ²	93.4 (2)	105.2 (8)	95.6 (6)	94.1 (3)	94.9 (5)	94.8 (4)	100.0 (7)	109.3 (9)	74.4 (1)
Pharmaceuticals	Pharmaceutical products ²	96.6 (3)	105.4 (9)	98.1 (5)	97.1 (4)	98.2 (6)	95.6 (2)	100.0 (7)	105.1 (8)	83.9 (1)
Plastics	Plastic products ²	92.2 (2)	103.7 (8)	95.5 (6)	92.8 (3)	93.6 (4)	95.5 (5)	100.0 (7)	106.5 (9)	77.0 (1)
Precision manufacturing	Precision components ²	92.5 (3)	104.5 (8)	95.2 (4)	95.5 (6)	95.3 (5)	92.0 (2)	100.0 (7)	110.8 (9)	67.2 (1)
Telecommunications	Telecom equipment	98.7 (3)	104.6 (9)	100.1 (7)	99.1 (4)	99.9 (5)	97.5 (2)	100.0 (6)	104.6 (8)	89.3 (1)
R&D										
Biotechnology	Biomedical R&D ²	94.2 (4)	113.4 (9)	97.0 (5)	90.5 (3)	100.2 (7)	89.9 (2)	100.0 (6)	108.2 (8)	73.3 (1)
Clinical trials	Clinical trials management	85.9 (4)	116.2 (9)	94.0 (6)	77.7 (2)	91.8 (5)	84.0 (3)	100.0 (8)	95.5 (7)	63.2 (1)
Product testing	Electronic syst. dev./testing ²	86.7 (3)	105.1 (9)	89.0 (5)	84.3 (2)	93.9 (6)	88.5 (4)	100.0 (7)	101.3 (8)	65.5 (1)
Software										
Software design	Advanced software ²	97.0 (4)	109.6 (9)	101.0 (8)	95.5 (3)	99.7 (5)	93.0 (2)	100.0 (6)	100.7 (7)	70.7 (1)
Web and multimedia	Content development ²	94.7 (3)	109.5 (9)	96.5 (4)	96.5 (5)	99.0 (6)	93.8 (2)	100.0 (7)	102.0 (8)	67.4 (1)
Corporate Services										
Back office/call centers	Shared services center ²	101.8 (4)	125.9 (8)	105.9 (5)	107.9 (7)	106.3 (6)	94.7 (2)	100.0 (3)	134.8 (9)	71.4 (1)
Overall Results										
	Overall results ²	95.6 (3)	107.4 (9)	97.8 (5)	95.7 (4)	98.1 (6)	94.5 (2)	100.0 (7)	106.9 (8)	77.7 (1)

LOCATION	COUNTRY	INDEX ¹	RANK	LOCATION	COUNTRY	INDEX ¹	RANK	LOCATION	COUNTRY	INDEX ¹	RANK
Europe				North America							
Continental Europe				New England/Atlantic Canada				Midwest US/Western Canada			
Lyon	France	95.1	6	Boston, MA	United States	107.8	9	Albuquerque, NM	United States	99.6	13
Montpellier	France	92.6	1	Burlington, VT	United States	101.2	6	Billings, MT	United States	97.7	8
Mulhouse	France	93.0	3	Charlottetown, PE	Canada	91.7	2	Calgary, AB	Canada	94.7	4
Nantes	France	93.6	4	Halifax, NS	Canada	92.2	3	Cedar Rapids, IA	United States	98.4	10
Paris	France	100.2	15	Hartford, CT	United States	105.3	8	Cheyenne, WY	United States	96.4	5
Poitiers	France	92.9	2	Lewiston, ME	United States	98.7	5	Chicago, IL	United States	100.8	15
Chemnitz	Germany	103.5	16	Moncton, NB	Canada	91.1	1	Colorado Springs, CO	United States	100.8	16
Darmstadt	Germany	108.9	17	Providence, RI	United States	102.4	7	Dallas-Fort Worth, TX	United States	101.2	18
Frankfurt	Germany	109.7	18	St. John's, NF	Canada	94.3	4	Edmonton, AB	Canada	93.3	2
Florence	Italy	99.3	14	Northeast US/Canada				Houston, TX	United States	102.9	20
Friuli Venezia Giulia Reg.	Italy	97.9	10	Buffalo, NY	United States	100.9	14	Lincoln, NE	United States	96.5	6
Livorno	Italy	97.9	11	Charleston, WV	United States	94.7	7	Milwaukee, WI	United States	98.5	11
Naples	Italy	96.7	8	Detroit, MI	United States	102.7	15	Minneapolis, MN	United States	103.8	21
Turin	Italy	98.4	12	Harrisburg, PA	United States	99.8	13	Oklahoma City, OK	United States	97.8	9
Vicenza	Italy	98.9	13	Indianapolis, IN	United States	96.6	10	Phoenix, AZ	United States	101.1	17
Amsterdam Area	Netherlands	96.6	7	Lexington, KY	United States	94.1	3	Salt Lake City, UT	United States	99.6	14
Brabant Stad	Netherlands	93.9	5	Lima, OH	United States	94.3	4	Saskatoon, SK	Canada	92.8	1
East Netherlands	Netherlands	96.7	9	Montreal, QC	Canada	94.3	6	Sioux Falls, SD	United States	97.1	7
United Kingdom				New York City, NY	United States	112.6	18	St. Louis, MO	United States	101.9	19
Barnsley	England	97.1	2	Newark, NJ	United States	107.7	17	Wichita, KS	United States	99.0	12
Derby	England	99.7	3	Northern Virginia (Metro DC), VA	United States	99.8	12	Winnipeg, MB	Canada	94.1	3
Leicester	England	99.7	4	Ottawa, ON	Canada	95.1	8	Pacific US/Canada			
Lincoln	England	96.4	1	Philadelphia, PA	United States	102.8	16	Boise, ID	United States	99.2	4
London	England	109.1	8	Quebec City, QC	Canada	92.6	2	Chilliwack, BC	Canada	94.0	1
Manchester	England	101.1	7	Saginaw, MI	United States	98.4	11	Las Vegas, NV	United States	103.6	8
Northampton	England	100.1	5	Sherbrooke, QC	Canada	90.1	1	Portland, OR	United States	100.5	5
Nottingham	England	100.8	6	Toronto, ON	Canada	96.5	9	Riverside-San Bernardino, CA	United States	103.3	7
Asia Pacific				Waterloo Region, ON	Canada	94.3	5	San Diego, CA	United States	103.2	6
Fukuoka	Japan	106.3	3	Southeast US				San Jose, CA	United States	108.5	10
Hamamatsu	Japan	106.0	2	Atlanta, GA	United States	96.4	5	Seattle, WA	United States	104.4	9
Yokohama	Japan	108.3	4	Dothan, AL	United States	93.0	1	Spokane, WA	United States	99.0	3
Singapore	Singapore	77.7	1	Greenville-Spartanburg, SC	United States	93.7	2	Vancouver, BC	Canada	96.9	2
				Jackson, MS	United States	95.0	3				
				Nashville, TN	United States	95.5	4				
				Raleigh, NC	United States	97.3	7				
				Tampa, FL	United States	96.5	6				

1: Business costs are expressed as an index, with the United States being assigned the baseline index of 100.0. A cost index less than 100 indicates lower costs than the US. A cost index greater than 100 indicates higher costs than the US. For example, an index number of 95.0 represents a 5.0% cost advantage relative to the United States. 2: Overall 2006 results are based on the same 12 operations analyzed in 2002 & 2004, as indicated.

Results by Industry Sector

Results for specific business operations form the basis for comparing industry sectors

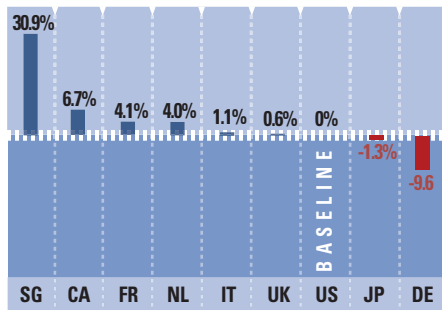


MANUFACTURING

For manufacturers, significant costs for globally sourced materials and equipment do not vary by location, resulting in lower cost differentials for most countries. In this sector, the **United Kingdom** achieves its best ranking, and **Germany** also achieves its strongest result.

Seven manufacturing operations

- Electronics assembly
- Food processing
- Metal machining
- Pharmaceuticals
- Plastic products
- Precision components
- Specialty chemicals

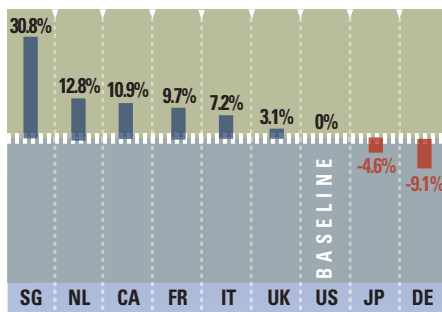


SOFTWARE

Labor costs are more significant in the software sector, and vary considerably by country and by region. This results in generally higher cost differentials in this sector. **Singapore** and **Japan** have their strongest results in this sector.

Two software operations

- Advanced software
- Content development

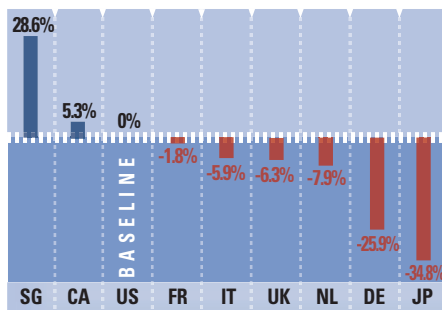


RESEARCH & DEVELOPMENT

Cost differentials are generally higher for R&D, due to differences in labor costs for scientific and technical employees, as well as differences in tax treatment of R&D costs. The **Netherlands, Canada, France** and **Italy** all have their strongest results in this sector.

Two R&D operations

- Biomedical R&D
- Electronics systems development/testing



CORPORATE SERVICES

Results for the corporate services sector are driven primarily by labor costs for entry-level workers, which vary significantly by country. The **United States** achieves its best ranking in this sector.

One corporate services operation

- Shared services center

For more information please contact the following individuals or organizations:

KPMG Member Firm Contacts

- **Canada**
Mark MacDonald
+1 416 777 8290
markmacdonald@kpmg.ca
- **France**
Bruno Lancien
+33 1 4639 4675
blancien@kpmg.fr
- **Germany**
Andreas Dressler
+49 69 9587 3407
adressler@kpmg.com
- **Italy**
Stefano Tamiazzo
+39 02 6764 3621
stamiazzo@kpmg.it
- **Japan**
Barry Hacker
+81 3 6229 8203
barry.hacker@jp.kpmg.com
- **Netherlands**
Elbert Waller
+31 20 656 7009
waller.elbert@kpmg.nl
- **Singapore**
Satyanarayan Ramamurthy
+65 6213 2060
sramamurthy@kpmg.com.sg
- **United Kingdom**
Peter Price
+44 29 2046 8129
peter.price@kpmg.co.uk
- **United States**
Hartley Powell
+1 704 335 5583
whpowell@kpmg.com

MMK Consulting Inc, Study Leaders

- **Glenn Mair**
+1 604 484 4622
gmair@mmkconsulting.com
- **Stuart MacKay**
+1 604 484 4621
smackay@mmkconsulting.com
- **Treena Cook**
+1 604 484 4623
tcook@mmkconsulting.com
- **Angela Rey**
+1 604 484 4627
arey@mmkconsulting.com

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