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Competitive Alternatives

KPMG's Guide to International Business Location Costs

2014 Edition

competitivealternatives.com

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KPMG LLP has conducted an analysis of the relative costs of doing business in 10 countries in North America, Europe, and Asia Pacific. This report was made possible through the support of our research contributors and sponsors, as identified in this report.

The analysis in this publication is based on cost information collected primarily between July 2013 and January 2014. Taxes reflect tax rates in effect on January 1, 2014, and also incorporate any announced changes at that time to take effect at specified later dates. Exchange rates and other cost factors will, of course, change over time. Tax rates and other tax-related information are also subject to change as a result of new legislation, judicial decisions, and administrative pronouncements.

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Competitive Alternatives

KPMG's Guide
to
International Business Location Costs

2014 Edition

Produced in association with

MMK CONSULTING

Contributions from

MERCER

Colliers INTERNATIONAL

ECONOMIC RESEARCH INSTITUTE

Preface and Study Contacts

About KPMG International's Global Location and Expansion Services

In most industries today, companies have to operate internationally to stay successful and grow. The need to enter new markets, serve major customers, or reduce costs and risks are just some of the reasons why businesses decide to establish a presence overseas. KPMG International's Global Location and Expansion Services (GLES) group was formed to assist clients in the location and establishment of operations around the world. GLES professionals can provide objective advice that can help companies:

- Develop an approach for international expansion that can support overall business objectives
- Determine the requirements of a new operation and translate these into criteria for evaluating locations
- Identify and compare countries, regions, and cities as potential locations for relocating or establishing new operations
- Select and evaluate potential properties, buildings, or sites for a new facility
- Negotiate and secure grants, tax breaks, and other types of government incentives and support
- Set up new operations in a tax-efficient manner.

Based in all regions of the globe, KPMG International's network of GLES professionals offer locally relevant, industry-specific knowledge that can help support expansion and relocation decisions.

Competitive Alternatives Contacts

Key organizations and individuals involved in developing the 2014 edition of *Competitive Alternatives* are detailed below.

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- **Colliers International** supplied real estate costs for all locations examined.
- **Mercer** supplied labor cost data for all study countries.
- **ERI Economic Research Institute** supplied labor cost data for Canada and the United States.
- **Galaxy Transport Corp.** coordinated the collection of freight cost data for all study countries.
- **Cosmex International** supplied operational cost data for Mexico.

KPMG also thanks the many other individuals and organizations that assisted in developing the information on which this study is based. Selected bibliography and data sources are detailed in Appendix D.

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Contents

The following appendices are contained in Volume II of this report, and can be accessed online at CompetitiveAlternatives.com

A. Details of Study Methodology and Business Model Assumptions

B. Tax Rate Assumptions and Comparisons, by Jurisdiction

C. Other Competitiveness Factors: Regional Data and Data Source Notes

D. Selected Bibliography and Sources of Data

Executive Summary

Competitive Alternatives is a biennial KPMG study that focuses on business locations in the NAFTA marketplace, as well as leading mature market countries in Europe and Asia Pacific. This study contains valuable information for any company considering international business location options.

Competitive Alternatives 2014 compares business costs and other competitiveness factors in more than 100 cities, in 10 countries: Australia, Canada, France, Germany, Italy, Japan, Mexico, the Netherlands, the United Kingdom, and the United States. For 2014, *Competitive Alternatives* further expands its coverage in the US, and for the first time includes every US metro area with a population of two million or more.

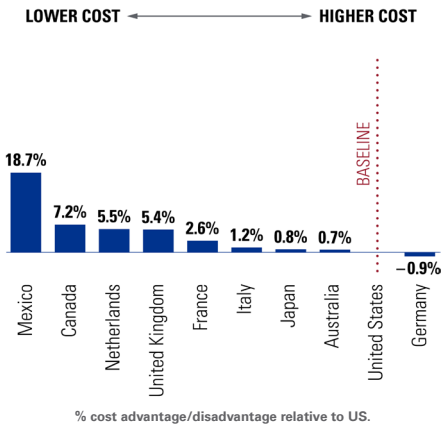
The primary focus of *Competitive Alternatives* is international business costs. The study measures the combined impact of 26 key cost components that vary by location, over a 10-year analysis horizon starting in 2014. The study compares 7 different business-to-business (B2B) service sector operations and 12 different manufacturing sector operations. The overall cost comparisons for each country and city are based on the average results for these two sectors.

Competitive Alternatives also provides important information on non-cost factors that influence the business attractiveness of different locations. Aspects addressed by the study include labor availability and skills, economic conditions, innovation, infrastructure, regulatory environment, cost of living, and personal quality of life factors.

Further details on methodology, study resources, and full study results are available online at CompetitiveAlternatives.com.

2014 Findings

The four largest US metro areas—New York City, Los Angeles, Chicago, and Dallas-Fort Worth—form the US baseline against which costs for major cities in other countries are compared to determine the national results.



% cost advantage/disadvantage relative to US.

Mexico, the lowest-cost country examined, is the only high growth (emerging) country included in the study. As a NAFTA member, Mexico's 18.7 percent cost advantage over the United States in 2014 is similar to 2010. With little change in the value of the Mexican peso over that four year period, Mexico's cost advantage relative to its northern neighbor has been holding steady.

Canada ranks second among the 10 countries, with business costs 7.2 percent lower than in the United States. Moving ahead of both the Netherlands and the United Kingdom, Canada re-establishes a competitive advantage over these countries seen in 2010 and earlier editions of *Competitive Alternatives*.

Costs in the **Netherlands** (third) and the **United Kingdom** (fourth) are similar, at 5.5 and 5.4 percent (respectively) below the US baseline—essentially unchanged from 2012 although their rankings swap in 2014.

France and **Italy** rank fifth and sixth in the standings, and continue to represent mid-cost countries among the mature market nations.

The final four countries are tightly grouped, with a significant convergence of business costs in recent years and all with business costs within one percent of the US baseline. **Japan** and **Australia** have moved ahead of the **United States** since 2012, leaving **Germany** as the only country with business costs higher than the US.

Big Gains for Japan

The most dramatic change in the international cost competitiveness rankings in 2014 is a big gain for Japan. Japan now ranks in seventh place among the 10 nations, and ahead of the United States for the first time since Japan joined *Competitive Alternatives* in 1999.

Years of low inflation allowed Japan to gradually improve its competitive position during the 2000s, even as the yen appreciated. Now, with a significant drop in the value of the yen over the last two years, we are witnessing a new paradigm in Japan's global cost competitiveness.

Results by Sector and Subsector

Results for specific business operations form the basis for comparing major sectors and subsectors.

Services Sector

Digital Services

Results for the digital services subsector are based on the analysis of two representative business operations—a software development firm and a video game production studio. Costs in this subsector primarily reflect salary levels and benefit costs associated with hiring creative and technical IT professionals.

Among the countries, **Canada** demonstrates its strongest relative results in this subsector, ranking second among the 10 countries with a cost advantage of 17.8 percent relative to the US baseline. This significant advantage is due in part to substantial incentives that some Canadian provinces provide to digital media production firms.

Research & Development

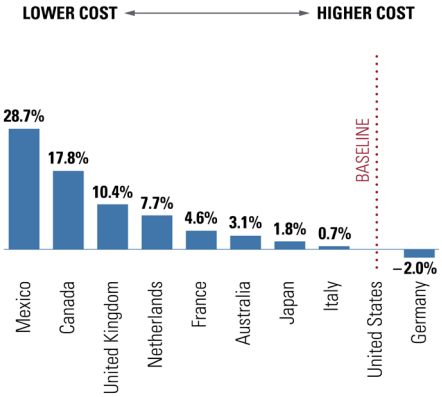
Results for the R&D services subsector are based on three representative operations—a biomedical research firm, an electronic systems design/test facility, and a clinical trials management firm. Cost differentials for R&D are generally higher than for the digital subsector, reflecting differences in labor costs for scientific and technical employees, as well as differences in the tax and incentive treatment of R&D costs.

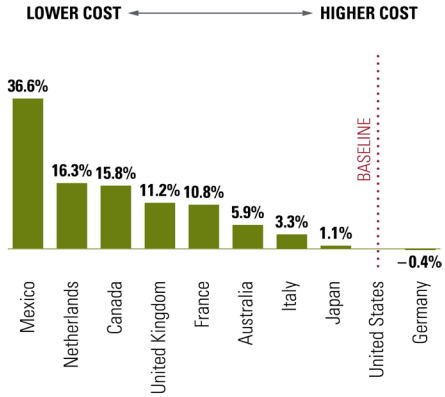
The **Netherlands**, **France** and **Australia** all achieve their best relative results in this subsector, achieving both their highest rankings among the countries and their largest cost advantages relative to the US baseline. These three countries all offer government incentive support for R&D activities.

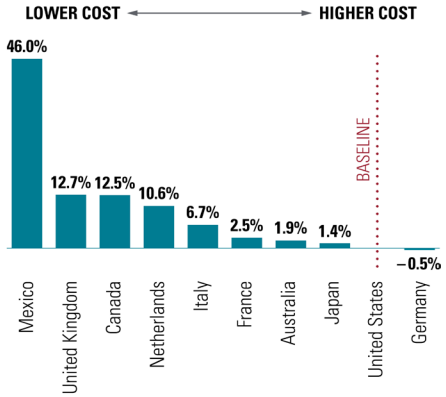
Corporate Services

Results for the corporate services subsector are based on two representative operations—a shared services center and an international financial services firm. Labor costs for both entry-level admin and customer service employees, as well as finance professionals, are significant in this subsector. These costs vary considerably by country and region, resulting in high cost differentials in this subsector.

Mexico ranks first among the 10 countries in all sectors but sees its greatest cost advantage relative to the US baseline in this subsector, with costs 46 percent lower than in the United States. The **United Kingdom** ranks second and **Italy** ranks fifth among the countries—representing the strongest relative results for these two countries among the sectors examined.





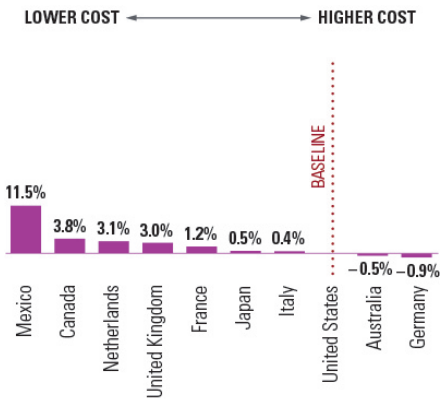


Manufacturing Sector

Manufacturing

Results for the manufacturing sector are based on 12 representative industry-specific operations, as listed in Chapter 1. For manufacturing firms, costs for globally sourced machinery, materials, parts, and subcomponents are similar by location, resulting in lower cost differences among countries in this sector.

Japan and the **United States** both achieve their best rankings among the countries in this sector, ranking sixth and eighth respectively. This stronger showing for the United States in manufacturing is timely given the upswing in re-shoring of production from China to the US in 2013. Major US-based hardware manufacturing announcements from Apple and Google in 2013 affirm that re-shoring is now gaining momentum.



Major US Cities

In 2014, for the first time *Competitive Alternatives* includes coverage of every US metro area with a population of two million or more—a list that has grown to 31 cities. Las Vegas is the latest addition to this group, having surpassed two million residents in 2012. The ranking table for these large US cities follows, with costs expressed as an index relative to the US baseline of 100.0.

Major US Cities Index

Rank	City	Index[1]
1	**Atlanta, GA**	94.7
2	**Cincinnati, OH**	94.9
3	**Orlando, FL**	95.1
4	**Charlotte, NC**	95.2
5	**San Antonio, TX**	95.6
6	**Tampa, FL**	95.8
7	**Cleveland, OH**	96.3
8	**Pittsburgh, PA**	96.4
9	**St. Louis, MO**	96.6
10	**Phoenix, AZ**	96.7
11	**Kansas City, MO**	96.8
12	**Dallas-Fort Worth, TX[2]**	96.8
13	**Miami, FL**	97.0
14	**Baltimore, MD**	97.1
15	**Houston, TX**	98.0
16	**Portland, OR**	98.1
17	**Detroit, MI**	98.2
18	**Minneapolis, MN**	98.2
19	**Las Vegas, NV**	98.2
20	**Denver, CO**	98.4
21	**Riverside-San Bernardino, CA**	98.7
22	**Chicago, IL[2]**	99.1
23	**Philadelphia, PA**	99.4
24	**Sacramento, CA**	99.5
25	**San Diego, CA**	99.9
	US BASELINE[2]	**100.0**
26	**North Virginia (Metro DC), VA**	100.1
27	**Los Angeles, CA[2]**	100.5
28	**Boston, MA**	101.1
29	**Seattle, WA**	101.4
30	**New York City, NY[2]**	103.6
31	**San Francisco, CA**	104.2

1 Business costs are expressed as an index. An index below 100 indicates lower costs than the US baseline. An index over 100 indicates higher costs than the US baseline. (e.g., an index of 95.0 represents costs 5.0% below the US baseline.)

2 US Baseline is the average of the four largest US metro areas.

Stable Business Costs In Slow Economic Times

One notable finding of *Competitive Alternatives* 2014 is the stability of underlying cost fundamentals in most countries over the last two years.

Consistent with the low growth, low inflation environment that most countries are experiencing, total costs for the sample business operations examined in *Competitive Alternatives* have barely moved since 2012.

Excluding Mexico, the nine mature market countries examined showed an average increase in costs of just 1.2 percent between 2012 and 2014. Only in France did costs rise by more than 2 percent over the last two years.

Expressed in local currency, labor costs for the nine mature market countries (excluding Mexico) rose by an average of just a quarter percent between 2012 and 2014. The largest increase in labor costs was in the United States, where total labor costs increased by only 3.2 percent over two years. In contrast, labor costs decreased marginally in most European countries, mainly through reductions in employer-paid benefit costs.

Interest rates are at "rock bottom" in most countries, resulting in low financing costs and contributing to the stable total cost picture.

This stability in total costs comes despite some large cost increases in certain areas, including freight costs on certain routings, utility prices in many countries, and some increases in local tax rates.

All of these factors combine to result in a very low net increase in total business costs over the last two years.

Key Cost Factors

Labor costs represent the single largest location-sensitive cost factor for all industries examined. For service operations, labor typically represents approximately 75 to 90 percent of total location-sensitive costs, while the typical range for manufacturing operations is 45 to 60 percent of location-sensitive costs.

Labor comparisons are based on a mix of 42 job positions, which vary by industry. Labor costs comprise wages and salaries, statutory costs (payroll taxes, government pension plans, medical plans, etc.), and other benefits typically provided by employers. Combining these elements, total labor costs are lowest in Mexico by a wide margin, followed by the United Kingdom, Canada, and Italy.

Facility costs vary both by location and type of business operation:

- For services operations, office lease costs average approximately 9 percent of total location-sensitive costs. Office lease costs are lowest in the Netherlands, Mexico, and Germany.
- For manufacturing, factory lease costs average approximately 4 percent of total location-sensitive costs for the operations examined. Industrial lease costs are lowest in the United States, the Netherlands, and Mexico.

Transportation costs vary widely by industry, typically representing 7 to 24 percent of location-sensitive costs for manufacturing operations. Transportation costs vary by product and markets served. The countries with the lowest transportation costs for the business operations examined are Japan, the United States, and Germany.

Utility costs represent up to 8 percent of total location-sensitive costs. Electricity costs are lowest in the United States, Canada, and the Netherlands, while natural gas costs are lowest in Mexico, the United States, and Canada.

Taxes, Taxes, Taxes

Taxes typically represent up to 14 percent of location-sensitive costs across the locations and operations examined. Effective **corporate income tax rates**, calculated net of generally applicable tax credits and incentives, vary by business sector:

- For **digital services** operations, Canada, the United Kingdom, and France offer the lowest effective corporate income tax rates.
- For **research and development** operations, many of the countries studied offer significant R&D tax incentives. France, the Netherlands, and Canada offer the lowest effective tax rates in this subsector.
- For **corporate services**, the United Kingdom, Canada, and the Netherlands offer the lowest effective rates of corporate income tax.
- For **manufacturing** operations, the United Kingdom, Canada, and the Netherlands also offer the lowest effective corporate tax rates.

Property-based taxes represent the other major category of taxes that are widely applied in all study countries. Property-based taxes are lowest in Mexico, the Netherlands, and Australia.

Taxes are also the subject of a companion KPMG report, *Competitive Alternatives Special Report: Focus on Tax*, which analyzes international tax issues in greater depth. The updated *Focus on Tax* report is expected to be available from June 2014 at CompetitiveAlternatives.com.

Exchange Rates

All study results are sensitive to exchange rates. The exchange rates used in this edition of *Competitive Alternatives* are as follows:

Exchange Rates[1]

	2012 Edition	2014 Edition[2]	Change[3]
Australian $	0.99	1.08	-8.3%
Canadian $	1.02	1.05	-2.9%
Euro €	0.74	0.73	1.4%
Japanese ¥	77.33	100.43	-23.0%
Mexican peso	13.64	13.02	4.8%
UK £	0.64	0.62	3.2%

1 Per US$.
2 Average exchange rates for October-December 2013.
3 Two-year appreciation/depreciation relative to US$.

Business Cost Trends

The following table tracks the change in business costs over the last two years for all 10 countries. Japan and Australia have seen the greatest changes in business costs, consistent with the depreciation of their currencies shown in the table above.

Business Cost Index

	2012 Edition	2014 Edition	Change[1]
Australia	103.7	99.3	-4.4
Canada	95.0	92.8	-2.2
France	96.1	97.4	+1.3
Germany	100.1	100.9	+0.8
Italy	97.9	98.8	+0.9
Japan	109.4	99.2	-10.2
Mexico	79.0	81.3	+2.3
Netherlands	94.7	94.5	-0.2
United Kingdom	94.5	94.6	+0.1
United States	100.0	100.0	–

1 Increase in cost index represents an increase in relative business costs since 2012.

"To be competitive in the current global economy, countries must make sure that they have the right environment to attract new investment and new business. Cost competiveness is one of many factors businesses consider when selecting a country to locate in."

Greg Wiebe, KPMG Global Head of Tax

Objectives, Scope & Methodology

1

Selecting the best location for a business operation requires careful consideration of a wide range of factors, including business costs, the business environment, cost of living, and quality of life.

Study Objectives

The relative importance of cost and other competitiveness factors varies both between different industries and among individual firms within a particular industry. The final ranking and prioritization of relevant site selection criteria will vary for each unique location project.

For many firms, a logical first step in locating or relocating a business operation is to perform an initial scan of:

- How jurisdictions compare in terms of business cost competitiveness
- How jurisdictions compare in terms of other key competitiveness factors.

The 2014 edition of *Competitive Alternatives* is designed to provide valuable information to business executives, economic developers, and policy makers. This study:

- Measures the cost competitiveness of 131 locations, for total business costs and specific cost components
- Provides sector-specific cost analysis for 19 industries
- Provides information on important non-cost competitiveness factors
- Provides a detailed model for undertaking customized location cost analysis of specific business opportunities
- Provides a tool for evaluating the impact of taxes and incentives on the cost-competitiveness of jurisdictions.

Key Site Selection Factors

	Cost Factors	Other Key Factors
Business	**Business Costs** ◆ Facilities: industrial, office ◆ Labor: wages, salaries, benefits ◆ Transportation and distribution ◆ Utilities ◆ Financing ◆ Federal, regional, local taxes	**Business Environment** ◆ Labor availability and skills ◆ Access to markets, customers, suppliers ◆ Road, rail, port, airport infrastructure ◆ Utility, telecom, internet services and reliability ◆ Suitable sites and facilities ◆ Regulatory environment
Personal	**Cost of Living** ◆ Personal taxes ◆ Cost of housing ◆ Cost of consumer products and services ◆ Healthcare costs ◆ Education costs	**Quality of Life** ◆ Healthcare facilities ◆ Schools and universities ◆ Crime rates ◆ Climate ◆ Culture and recreation

This report provides an overview of the study results for all countries, cities, and major business sectors. Interactive access to more detailed results, including all cities, industries, and cost factors, is available online from the study website at:

CompetitiveAlternatives.com

Scope of the Study

This report is developed from a 6-month research program. The scope of the study includes:

- More than 50,000 individual data items
- 26 location-sensitive cost factors
- 50 non-cost competitiveness factors
- 19 industries and business operations
- 131 cities in 10 countries, including the following featured cities:

North America

Canada

Atlantic
Charlottetown, PE
Fredericton, NB
Halifax, NS
Moncton, NB
St. John's, NL

East
Montreal, QC
Niagara Region, ON
Quebec City, QC
Sudbury, ON
Toronto, ON

West
Edmonton, AB
Saskatoon, SK
Winnipeg, MB

Pacific
Kamloops, BC
Vancouver, BC

Mexico

Mexico City
Monterrey

United States of America

New England
Bangor, ME
Boston, MA
Burlington, VT
Hartford, CT
Manchester, NH
Providence, RI

Northeast
Baltimore, MD
Buffalo, NY
Charleston, WV
Cincinnati, OH
Cleveland, OH
Detroit, MI
Indianapolis, IN
Lexington, KY
New York City, NY
North Virginia (Metro DC), VA
Philadelphia, PA
Pittsburgh, PA
Saginaw, MI
Trenton, NJ
Wilmington, DE
Youngstown, OH

Southeast
Atlanta, GA
Baton Rouge, LA
Charlotte, NC
Gulfport-Biloxi, MS
Jackson, MS
Little Rock, AR
Memphis, TN
Miami, FL
Mobile, AL
Montgomery, AL
Nashville, TN
New Orleans, LA
Orlando, FL
Raleigh, NC
Shreveport, LA
Spartanburg, SC
Tampa, FL

Midwest
Albuquerque, NM
Austin, TX
Beaumont, TX
Billings, MT
Cedar Rapids, IA
Champaign-Urbana, IL
Cheyenne, WY
Chicago, IL
Dallas-Fort Worth, TX
Denver, CO
Fargo, ND
Houston, TX
Kansas City, MO
Madison, WI
Minneapolis, MN
Oklahoma City, OK
Omaha, NE
Phoenix, AZ
Salt Lake City, UT
San Antonio, TX
Sioux Falls, SD
St. Louis, MO
Wichita, KS

Pacific
Anchorage, AK
Boise, ID
Honolulu, HI
Las Vegas, NV
Los Angeles, CA
Portland, OR
Riverside-San Bernardino, CA
Sacramento, CA
San Diego, CA
San Francisco, CA
Seattle, WA
Spokane, WA

Europe

France

Marseille
Paris

Germany

Berlin
Frankfurt

Italy

Milan
Rome

Netherlands

Eindhoven
Twente Region

United Kingdom

London
Manchester

Asia Pacific

Australia

Adelaide
Brisbane
Melbourne
Sydney

Japan

Osaka
Tokyo

Countries and Cities

This study represents an analysis of business costs in nine mature market countries—the G7 countries, Australia, and the Netherlands; and one high growth country—Mexico. Within North America, the range of cities examined includes at least one city from each of the 50 US states and the 10 Canadian provinces, plus two major cities in Mexico.

Of the 131 cities examined, this report presents an analysis and discussion of 107 featured cities, as listed on the previous page. Results for each of these cities are discussed in Chapter 3. Results have also been developed for 24 additional cities, on the same basis as the featured cities. A summary table of results for these cities is presented in Chapter 7.

The analysis is based on the greater metropolitan area of each city. This approach allows for a realistic comparison between locations, recognizing that many business facilities choose to locate in suburban or urban-fringe areas.

Sectors and Industries

The study compares 7 different business-to-business (B2B) service sector operations and 12 different manufacturing operations. The overall cost comparisons for each country and city are based on the average results for these two sectors.

Each of the business operations examined reflects a representative, industry-specific business that has been defined in detail and modeled to analyze its pro forma operating costs in each of the study locations.

The 19 business operations cover a wide range of operating requirements, including labor, facility, and capital requirements.

For services firms, the analysis is based on leasing Class "A" space in a suburban commercial office building, except for the international financial services operation which is assumed to locate downtown. For manufacturing operations, the analysis is based on leasing a modern facility in a suburban industrial area.

Sectors, Industries and Business Operations

Services Sector	Business Operation Modeled
Digital Services	
Digital entertainment	Video game production
Software design	Software development
Research & Development	
Biotechnology	Biomedical R&D
Clinical trial administration	Clinical trials management
Product testing	Electronic systems development and testing
Corporate Services	
Professional services	International financial services
Support services	Shared services center
Manufacturing Sector	**Business Operation Modeled**
Aerospace	Aircraft parts
Agri-food	Food processing
Automotive	Auto parts
Chemicals	Specialty chemicals
Electronics	Electronics assembly
Green energy	Advanced batteries
Medical devices	Medical device manufacturing
Metal components	Metal machining
Pharmaceuticals	Pharmaceutical products
Plastics	Plastic products
Precision manufacturing	Precision components
Telecommunications	Telecom equipment

Location-Sensitive Cost Components

The 26 location-sensitive cost factors studied generally represent between 35 and 90 percent of total operating costs for the service sector and manufacturing sector operations examined in this study.

Some significant costs (major plant and equipment; commodity raw materials, parts, and subcomponents for the manufacturing process) tend to be governed by world market prices or are fixed at other levels of the supply chain, and therefore do not vary substantially by location. These fixed costs are more substantial for manufacturing operations than for service operations, and are held constant (in US dollars) for comparison purposes.

A number of less significant cost factors, such as advertising, accounting services, and office supplies, may be location-sensitive, but do not have a material impact on the overall comparison and are not examined in this study.

26 Location-Sensitive Cost Components

Labor costs

Wages and salaries:

1. Pay rates for 42 job positions

Statutory plans:

2. Government pension plans
3. Public medical plans
4. Unemployment insurance
5. Workers' compensation

Other employee benefits:

6. Paid time not worked (holidays and vacation)
7. Private health insurance
8. Other discretionary benefits

Facility costs

9. Office leasing
10. Factory leasing
11. Industrial land
12. Industrial construction

Transportation costs

13. Surface freight (road & sea)
14. Air freight

Utility costs

15. Electricity
16. Natural gas

Cost of capital

17. Financing costs (interest)
18. Depreciation charges

Taxes other than income

19. Property taxes
20. Sundry local business taxes
21. Capital taxes
22. Sales & transaction taxes

Income taxes

23. Federal
24. Regional (state, provincial, etc.)
25. Local
26. Tax incentives

Key Assumptions

Currency Exchange Rates

All figures in this report are expressed in US dollars unless otherwise stated. Exchange rates used in this study, along with comparative rates from the 2012 edition of *Competitive Alternatives*, are illustrated in the table below. The rates used in 2014 are based on average daily rates reported by the US Federal Reserve Board for October through December 2013.

The results of this study are sensitive to exchange rate changes. Exchange rate sensitivity is discussed further in Chapter 2 and can also be analyzed online at CompetitiveAlternatives.com.

Exchange Rates Used in this Study

	Exchange Rates		Two-Year Appreciation Relative to US$
	2012 Edition	2014 Edition	
Australian dollar	AU $0.99 (US $1.01)	AU $1.08 (US $0.93)	-8.3%
Canadian dollar	CA $1.02 (US $0.98)	CA $1.05 (US $0.95)	-2.9%
Euro	€ 0.74 (US $1.35)	€ 0.73 (US $1.37)	1.4%
Japanese yen	¥ 77.33 (US $0.01)	¥ 100.43 (US $0.01)	-23.0%
Mexican peso	MX $13.64 (US $0.07)	MX $13.02 (US $0.08)	4.8%
UK pound	£ 0.64 (US $1.56)	£ 0.62 (US $1.61)	3.2%

Source: US Federal Reserve average rates for October - December 2013.

Cities Used in National Results

National results are based on the average results for comparable cities within each country. Two major cities are used to calculate the national results for each country, with the following exceptions:

- In the United States, the four largest metro areas—New York City, Los Angeles, Chicago, and Dallas-Fort Worth—are used to calculate the US national results. These cities form the baseline against which business costs in other countries and cities are compared.
- In the Netherlands, costs are compared for two mid-sized regional cities. Past editions of *Competitive Alternatives* have shown that business costs are quite homogeneous among Dutch cities—thus the use of regional cities does not influence the relative national results for the Netherlands.

Cities Selected for Calculation of National Results

North America		
Canada	Toronto	Montreal
Mexico	Mexico City	Monterrey
United States	New York City	Chicago
	Los Angeles	Dallas-Fort Worth
Europe		
France	Paris	Marseille
Germany	Frankfurt	Berlin
Italy	Milan	Rome
Netherlands	Eindhoven	Twente Region
United Kingdom	London	Manchester
Asia Pacific		
Australia	Sydney	Melbourne
Japan	Tokyo	Osaka

Methodology

KPMG's Cost Model

This study is based on KPMG's proprietary *Competitive Alternatives Cost Model* which analyzes costs for many different types of business operations across multiple geographic locations. The model applies current business cost data for each location to a set of business operating specifications that are held constant for all locations. The result is a comparison of the estimated cost of establishing and operating an equivalent facility in each location.

Using standard financial assumptions, the model generates 10-year pro forma reports, including income statements, cash flow statements, and detailed tax calculations. These reports form the basis of the cost comparisons presented in this study.

Income Statement Analysis

The comparisons presented in this report are based on income statement analysis. All items are treated on a cash basis, except for the initial investment in capital assets, which is reflected in annual depreciation, as well as in interest on the debt associated with facility start-up.

This measurement approach has been chosen in part due to its widespread use in business, and its usefulness in highlighting the sources of cost differences among locations.

Physical Productivity

This study compares specific types of business operations from the viewpoint of a business investor. It should not be interpreted as comparing overall levels of economic productivity among countries.

For this report, three key sources of productivity variations—paid time not worked, core technology employed, and core workforce training—have been standardized in the analysis for all locations. For Mexico, this means hiring workers from the top end of the talent pool—those employees capable of working with sophisticated technology similar to that employed in production facilities in mature market countries. Existing advanced automotive and aerospace production facilities operating in Mexico lend support to this assumption.

With these factors equalized, the residual physical productivity of labor (output per hour) has been treated as being equal in all locations.

A more detailed discussion of physical productivity is contained in Chapter 5.

This analytical approach is unchanged from prior editions of *Competitive Alternatives* for the nine mature market countries examined.

This analytical approach is also consistent with that used to compare Mexico to the United States and other mature market countries in the 2008 and 2010 editions of *Competitive Alternatives*. While a different methodology was used in *Competitive Alternatives* 2012 to compare Mexico to the BRIC countries (Brazil, Russia, India, and China), the relative results for Mexico in this edition of *Competitive Alternatives* are quite similar to those presented in 2012.

Incentives

Significant, generally-accessible incentives, with clearly defined eligibility criteria, are included in the scope of this study. These incentives include certain tax rate reductions, tax abatements, sales tax exemptions, favorable interstate income apportionment rules, investment tax credits, research and development incentives, and job tax credits available in various jurisdictions.

For major business investments, it is not uncommon for governments to also offer incentive packages negotiated on a discretionary basis. These packages typically comprise a complex set of financing assistance, infrastructure support, and/or tax abatements tailored to specific investment and job creation proposals. The analysis in this report does not distinguish among jurisdictions based on such discretionary incentives, because:

- There is generally no before-the-fact basis for forecasting the value of incentives any jurisdiction may ultimately provide, without entering into negotiations over a specific investment proposal
- The primary focus of the cost analysis is on the fundamental business cost structures that apply to typical business operations within each jurisdiction.

Interpretation of Results

While great care has been taken in performing this analysis and developing the findings, the resulting comparisons are of a general nature. All factors examined in this study are subject to change over time due to changes in local laws, regulations, and/or market conditions. The results of this study should not be interpreted as a definitive or final opinion on the merits of locating any specific facility in one jurisdiction over another. Further analysis is required to determine the preferred site for any specific facility or operation.

Further Information on Methodology

Further details on methodology are contained in the Appendices to this report, available online at CompetitiveAlternatives.com.

2 The International Comparison

The overall results, by country, represents the highest level of aggregation of business costs in this study, combining the results for all industries, locations and cost factors examined.

Overall Results by Country

Business costs in each country are estimated based on the analysis of:

- Representative business operations for 19 industries—7 services and 12 manufacturing operations
- 26 individual location-sensitive cost components
- A representative group of major cities in each country, chosen to provide comparable national averages.

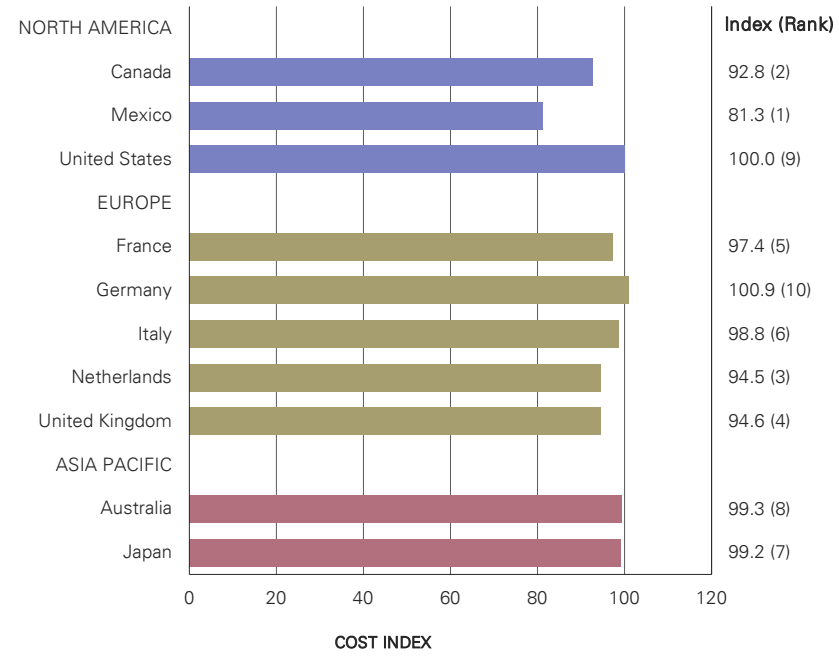
Overall results are illustrated below. Total business costs in each country are expressed as an index, with the baseline index of 100.0 being assigned to the United States. Countries with business costs lower than the US baseline have a cost index less than 100, while countries with business costs higher than the US baseline have a cost index greater than 100. Rankings are based on ascending business costs, with the lowest cost country ranking first.

Mexico the lowest-cost country examined, is the only high growth (emerging) country included in the study. As a NAFTA member, Mexico's 18.7 percent cost advantage over the United States in 2014 is similar to 2010. With little change in the value of the Mexican peso over that four year period, Mexico's cost advantage relative to its northern neighbor has been holding steady in recent years.

Canada ranks second among the 10 countries, with business costs 7.2 percent lower than in the United States. Moving ahead of both the Netherlands and the United Kingdom, Canada re-establishes a competitive advantage over these countries seen in 2010 and earlier editions of *Competitive Alternatives*.

Costs in the **Netherlands** (third) and the **United Kingdom** (fourth) are virtually identical, at 5.5 and 5.4 percent (respectively) below the US base—essentially unchanged from 2012, although their rankings do swap in 2014.

Overall Results: US = 100.0[1]



1 Average of services and manufacturing sectors, based on 7 service operations and 12 manufacturing operations.

France and **Italy** rank fifth and sixth in the standings, and continue to represent mid-cost countries among the mature market nations.

The final four countries are tightly grouped, with a significant convergence of business costs in recent years. **Japan** and **Australia** have moved ahead of the **United States** since 2012, leaving **Germany** as the only country with business costs higher than the US. These countries all report business costs within one percent of the US baseline.

Annual Average Business Costs

The cost indices presented above are calculated based on average costs for the 19 model business operations analyzed in this study. To illustrate this methodology, the table below shows:

- Annual average business costs for each country, by major cost category; and
- The calculation of the resulting cost index.

To provide some physical operating context to the annual cost values shown in the table below:

- Labor costs reflect all salary/wages, statutory, and benefit costs for an average workforce of 93 employees.
- Facility costs relate to leasing 50,866 square feet (4,727 square meters) of operating space, reflecting both office space for services operations and industrial space for manufacturing operations.

These physical characteristics and the values presented in the table below reflect combined results for the diverse group of operations examined in this study. Actual physical characteristics and model financial results vary significantly for each business operation. Chapter 4 presents results for sectors and subsectors, which reflect major industry groups.

This analysis includes a total of 26 location-sensitive cost factors, which have been summarized into major cost categories in the table below. Chapter 5 presents results for key location-sensitive cost factors.

Overall Average[1] Annual Income Statement, US $'000

	North America			Europe					Asia Pacific	
	Canada	Mexico	US	France	Germany	Italy	Netherlands	UK	Australia	Japan
Revenues[2]	24,296	23,051	24,771	24,697	24,751	24,518	24,263	24,367	24,656	24,680
Expenses (costs)[3]										
Labor & benefits	7,851	3,584	9,017	8,240	9,210	8,137	8,207	7,312	8,737	8,294
Facility lease	574	541	550	869	636	669	390	1,013	840	1,118
Transportation & utilities	1,382	1,840	1,247	1,487	1,554	2,047	1,558	1,692	1,695	983
Interest & depreciation	1,269	1,052	1,358	1,311	1,332	1,325	1,302	1,333	1,201	1,381
Non-income taxes	189	58	418	404	144	98	24	267	73	434
Location-insensitive costs	9,615	9,615	9,615	9,615	9,615	9,615	9,615	9,615	9,615	9,615
Profit before income tax	3,416	6,361	2,566	2,771	2,260	2,627	3,167	3,135	2,495	2,855
Income taxes	403	1,963	734	411	663	772	585	472	619	931
Effective tax rate	*11.8%*	*30.9%*	*28.6%*	*14.8%*	*29.4%*	*29.4%*	*18.5%*	*15.1%*	*24.8%*	*32.6%*
Net profit after tax	3,013	4,398	1,832	2,360	1,597	1,855	2,582	2,663	1,876	1,924
Total annual costs	$21,283	$18,653	**$22,939**	$22,337	$23,154	$22,663	$21,681	$21,704	$22,780	$22,756
Cost index (US=100.0)	**92.8**	**81.3**	**100.0**	**97.4**	**100.9**	**98.8**	**94.5**	**94.6**	**99.3**	**99.2**
Rank	**2**	**1**	**9**	**5**	**10**	**6**	**3**	**4**	**8**	**7**

1 Average of services and manufacturing sectors, based on 7 service operations and 12 manufacturing operations. Annual average costs over a 10-year analysis horizon starting in 2014.

2 Revenues vary slightly by location because several underlying business operations are assumed to operate as cost centers. For taxation purposes, corporate revenues are allocated to cost center operations based on the cost of operation plus a fixed percentage markup.

3 Individual cost factors are grouped by major cost category.

"Mexico is a NAFTA country, so it's important to compare to the US and Canada. We acknowledge that Mexico is the only emerging market in the study, but its economic stability, low wages, reforms in important sectors, and active pursuit of trade agreements globally continue to attract the attention of international investors."

Luis Ricardo Rodriguez, Global Location & Expansion Services, KPMG in Mexico

Cost Trends 2012-2014

The following table compares the rankings of all study countries to their relative rankings from the prior 2012 edition of *Competitive Alternatives*:

- Rankings remain unchanged for four countries—Mexico, the Netherlands, France, and Italy
- Relative rankings have improved for Canada, Japan, and Australia
- Relative rankings have dropped for the United Kingdom, United States and Germany.

The most dramatic change in rankings in 2014 is the big gain for Japan, now ranking in seventh place among the 10 nations and ranking ahead of the United States for the first time since Japan joined *Competitive Alternatives* in 1999. Years of low inflation allowed Japan to gradually improve its competitiveness during the 2000s, even as the yen appreciated. Now, with a significant drop in the value of the yen over the last two years, we are witnessing a new paradigm in Japan's global cost competitiveness.

This table also details key cost trends that have influenced the results for each country in the current study. Despite the increases and decreases in various cost factors detailed in the table, one notable finding is the overall stability of cost fundamentals in most countries over the last two years. With the low growth, low inflation environment that most countries are experiencing, total costs for the 19 model business operations examined have barely moved since 2012. Excluding Mexico, the nine mature market countries examined show an average increase in costs of just 1.2 percent over the two year period.

While many variations in country results are explained by the trends identified in this table, some caution must be applied in the interpretation of historical trends due to ongoing refinements to the costing methodology used in successive editions of *Competitive Alternatives*.

Cost Trends Since 2012

		2014		2012
	Significant Cost Trends	**Index**	**Rank**	**Rank[1]**
Australia	8% currency depreciation against the US$	99.3	8	9
	Increase in industrial facility lease costs			
	Decrease in sea freight rates			
	Increase in natural gas rates			
	New fire services levies added to property taxes			
Canada	3% currency depreciation against the US$	92.8	2	4
	Decrease in office facility lease costs			
	Increase in industrial facility lease costs			
	Decrease in sea freight, increase in air freight rates			
France	1% currency appreciation against the US$	97.4	5	5
	Increase in industrial facility lease costs			
	Increase in sea freight rates			
	Increase in electricity and natural gas rates			
Germany	1% currency appreciation against the US$	100.9	10	8
	Marginal reduction in total labor costs (benefits)			
	Increase in sea freight, decrease in air freight rates			
	Increase in electricity rates			
Italy	1% currency appreciation against the US$	98.8	6	6
	Marginal reduction in total labor costs (benefits)			
	Increase in sea freight and utility rates			
	Increase in local property tax costs			
Japan	23% currency depreciation against the US$	99.2	7	10
	Decrease in sea freight and air freight rates			
	Increase in electricity and natural gas rates			
	Phased-in corporate income tax rate reduction			
Mexico	5% currency appreciation against the US$	81.3	1	1
	Highest increase in labor costs among all countries			
	Increase in road and air freight rates			
	Corporate minimum flat tax abolished			
Netherlands	1% currency appreciation against the US$	94.5	3	3
	Marginal reduction in total labor costs (benefits)			
	Lower office and industrial facility lease costs			
	Increase in sea freight and air freight rates			
United Kingdom	3% currency appreciation against the US$	94.6	4	2
	Marginal reduction in total labor costs			
	Decrease in office facility lease costs			
	Increases in freight and utility costs			
	Phased-in corporate income tax rate reduction			
United States	Modest increase in total labor costs	100.0	9	7
	Decrease in sea freight rates			
	Increase in air freight rates			
	Decrease in electricity and natural gas rates			

1 Rank among the 10 countries included in both the 2012 and 2014 studies.

Exchange Rate Sensitivity

Exchange rates are a key consideration for business investors when comparing international locations, and the cost comparisons presented in this study are sensitive to exchange rate changes. The table below estimates the sensitivity of the study results to possible future changes in exchange rates.

The analysis presented here reflects the output of the *Competitive Alternatives* business cost model, which compares all costs in US dollars. Exchange rate changes do not affect local business costs expressed in local currency, but do impact international comparisons when local costs are converted to a common currency.

If the value of any country's currency increases relative to the US dollar (currency appreciation), then the country's business costs increase in US dollar terms. This results in a higher business cost index. Conversely, a decrease in local currency value relative to the US dollar improves cost competitiveness, resulting in a lower business cost index.

The percentage impact on business costs (in US dollars) is less than the change in exchange rates because:

- Some cost factors are generally priced globally in US dollars and exchange rate changes do not alter these cost factors in US dollar terms. Such cost factors include major plant equipment, commodity raw materials, globally sourced parts and subcomponents, and international sea and air freight.
- Corporate income taxes effectively dampen the impact of exchange rate changes, with tax costs increasing as other costs decrease, assuming constant revenue.

Comparing the exchange sensitivity results presented in the table below:

- The study results for Mexico are less sensitive to exchange rates than results for the mature market countries, due to lower wage and salary levels in Mexico. Labor and other local-currency costs represent a relatively lower share of overall business costs in Mexico, and thus exchange rate changes have a relatively lower impact on total business costs.
- Among the mature market countries, results are relatively less sensitive to exchange rates for Canada, the Netherlands, and France. It is estimated that a 10 percent currency depreciation for these countries would result in a cost index decrease of less than 3.0 percentage points, while a 10 percent currency appreciation would result in a cost index increase of approximately 3.5 percentage points.
- The results are most sensitive to exchange rates for the United Kingdom, Japan, Italy, Australia, and Germany. For these countries, a 10 percent currency appreciation or depreciation would result in a greater change in cost index than for the other countries studied.
- For the United States, if all other currencies were to appreciate by 10 percent relative to the US dollar, effectively devaluing the US dollar, the US would rise to fifth from its current ninth place among the countries.

Further analysis of exchange rate impacts on the study results can be obtained by visiting the Detailed Results section of the study website, CompetitiveAlternatives.com.

Sensitivity of Results to Exchange Rates

	If Local Currency Decreases in Value vs. US $		2014 Study Results	If Local Currency Increases in Value vs. US $	
	-20%	-10%		10%	20%
Australian Dollar	**AU $1.30**	**AU $1.19**	**AU $1.08**	**AU $0.97**	**AU $0.86**
Australia	93.2	96.0	99.3	103.4	109.2
Canadian Dollar	**CA $1.26**	**CA $1.16**	**CA $1.05**	**CA $0.95**	**CA $0.84**
Canada	87.6	90.0	92.8	96.2	100.6
Euro	**€0.88**	**€0.80**	**€0.73**	**€0.66**	**€0.58**
France	92.2	94.6	97.4	100.8	105.5
Germany	94.9	97.6	100.9	105.0	110.9
Italy	93.0	95.6	98.8	102.8	108.1
Netherlands	89.2	91.6	94.5	98.1	102.6
Japanese Yen	**¥120.52**	**¥110.47**	**¥100.43**	**¥90.39**	**¥80.34**
Japan	93.6	96.1	99.2	103.0	108.2
Mexican Peso	**MX $15.62**	**MX $14.32**	**MX $13.02**	**MX $11.72**	**MX $10.42**
Mexico	78.5	79.8	81.3	83.2	85.6
UK Pound	**£0.74**	**£0.68**	**£0.62**	**£0.56**	**£0.50**
United Kingdom	89.0	91.5	94.6	98.4	103.5

1 Local currency value per US dollar.

3 Regional and City Comparisons

Site searches often differ in the range of geographic locations considered. Whether the search is global or regional, there is often a trade-off involved in choices between countries and in choices between larger and smaller cities in any country. Larger cities tend to provide larger labor pools, better access to customers and suppliers, and better support infrastructure, while smaller cities generally tend to offer lower labor and facility costs. This chapter presents results by city, first for larger international cities, and then for all other featured cities on a regional basis.

Cities Over Two Million Population

Many companies prefer to locate in very large metro areas to gain benefits such as:

- Access to a larger and higher skilled workforce
- Access to universities and colleges
- Proximity to clusters of customers, suppliers, and competitors
- Access to major ports and airports
- Greater ability to relocate and recruit senior management personnel
- The international orientation of business and cultural life in these large cities.

Among all the cities included in this edition of *Competitive Alternatives*, 48 have metropolitan populations of at least 2 million people. Results for all cities in this category are illustrated in the following tables.

North America

In North America, Monterrey and Mexico City offer the lowest business costs, consistent with Mexico's first place ranking among the 10 countries.

The three largest Canadian cities—Toronto, Montreal, and Vancouver—rank ahead of all the large US cities. Costs in the most expensive of the large Canadian cities, Vancouver, are just marginally below those of Atlanta, the low cost leader among the large US cities.

Among the US cities, Atlanta is followed by Cincinnati, Orlando and Charlotte as the cost leaders. Meanwhile, Boston, Seattle, New York City, and San Francisco represent the most expensive large North American cities in which to do business.

Results for Cities Over 2 Million — North America

City	Country	Cost Index
Monterrey	Mexico	80.7
Mexico City	Mexico	81.9
Montreal	Canada	92.0
Toronto	Canada	93.6
Vancouver	Canada	94.6
Atlanta	US	94.7
Cincinnati	US	94.9
Orlando	US	95.1
Charlotte	US	95.2
San Antonio	US	95.6
Tampa	US	95.8
Cleveland	US	96.3
Pittsburgh	US	96.4
St. Louis	US	96.6
Phoenix	US	96.7
Kansas City	US	96.8
Dallas-Fort Worth	US	96.8
Miami	US	97.0
Baltimore	US	97.1
Houston	US	98.0
Portland	US	98.1
Detroit	US	98.2
Minneapolis	US	98.2
Las Vegas	US	98.2
Denver	US	98.4
Riverside-San Bernardino	US	98.7
Chicago	US	99.1
Philadelphia	US	99.4
Sacramento	US	99.5
San Diego	US	99.9
North Virginia, Metro DC	US	100.1
Los Angeles	US	100.5
Boston	US	101.1
Seattle	US	101.4
New York City	US	103.6
San Francisco	US	104.2

"The degree of variation in business costs between major cities in some countries is quite remarkable. This highlights the importance of having up-to-date data on cost competitiveness. This information is important to businesses making investment decisions and governments seeking investment."

Elio Luongo, Tax Managing Partner, KPMG in Canada

Europe

In Europe, Manchester is the clear cost leader, with overall business costs more than 10 percent below both the US baseline and London.

Milan and Rome rank second and third, respectively, behind Manchester, with business costs lower than in Paris or London. Business costs in these cities are all below the US baseline.

Berlin and Frankfurt have the highest business costs among the large European cities, with costs that are within one percent of the US baseline.

Results for Cities Over 2 Million — Europe

City	Country	Cost Index
Manchester	United Kingdom	89.4
Milan	Italy	98.3
Rome	Italy	99.2
Paris	France	99.4
London	United Kingdom	99.9
Berlin	Germany	100.8
Frankfurt[1]	Germany	101.0

1 Based on estimated metro/regional population within reasonable commuting distance of at least two million people. (No official measures of metro population are available).

Asia Pacific

Japan's improved cost competitiveness in 2014 causes Osaka to catapult into first place among the large Asia Pacific cities, from fourth in 2012. Osaka now outperforms Australia's cost leader, Melbourne. Costs in Brisbane and Sydney are above the US baseline. Costs in Tokyo are also above the US baseline, and Tokyo continues to represent the highest cost city compared in the Asia Pacific region.

Results for Cities Over 2 Million — Asia Pacific

City	Country	Cost Index
Osaka	Japan	96.3
Melbourne	Australia	97.6
Brisbane	Australia	100.5
Sydney	Australia	101.0
Tokyo	Japan	102.1

Cities with Populations of One to Two Million

Cities with populations between 1 and 2 million are sometimes referred to as "Tier 2" cities. These cities are generally large enough to attract interest and investment on some globally-oriented projects, yet small enough to offer a more competitive cost environment than the largest cities in their respective countries.

The 18 cities examined that have metro populations of between 1 and 2 million are detailed in the following table.

In **North America**, Edmonton and New Orleans are almost tied for the lowest business costs among the 14 comparably sized cities studied in Canada and the United States. Nashville and Oklahoma represent the other cost leaders in this group of cities. At the other end of the spectrum, Hartford and Trenton are the most costly cities in this group, although still with business costs below the US baseline.

In **Europe**, Eindhoven and Twente Region in the Netherlands are the cost leaders. Along with Marseille in France, these regional cities all have lower business costs than any of the large continental European cites examined.

In **Asia Pacific**, Adelaide is the only city examined with a metro population below two million. Business costs in Adelaide are lower than both the US baseline and average business costs for Australia.

"The Netherlands is a cost leader in Europe. Costs are generally low and cost differences between Dutch cities—small or large—are generally less significant than in other countries surveyed."

Elbert Waller, High Growth Markets Practice, KPMG in the Netherlands

Results for Cities with Population 1 to 2 Million

City	Country	Cost Index
North America		
Edmonton, AB	Canada	94.0
New Orleans, LA	US	94.1
Nashville, TN	US	94.9
Oklahoma City, OK	US	95.1
Raleigh, NC	US	95.6
Memphis, TN	US	95.8
Indianapolis, IN	US	96.2
Salt Lake City, UT	US	96.6
Austin, TX	US	96.8
Buffalo, NY	US	96.9
Providence, RI	US	97.7
Wilmington, DE	US	98.1
Hartford, CT	US	98.9
Trenton, NJ	US	99.5
Europe		
Eindhoven	Netherlands	94.5
Twente Region	Netherlands	94.6
Marseille	France	95.4
Asia Pacific		
Adelaide	Australia	98.9

Cities Under One Million Population

A total of 41 cities with populations of less than 1 million population have been included in this study.

The following table presents results for these cities, by region. The table also highlights size differences that exist among these cities, from Charlottetown, Prince Edward Island; Cheyenne, Wyoming; and Kamloops, British Columbia—each with populations of less than 100,000, to Honolulu, Hawaii—which has a population approaching 1 million.

The cost leaders in the **New England/ Atlantic Canada** region are the Atlantic Canada cities of Moncton, Charlottetown, and Fredericton, all with costs nine percent or more below the US baseline. Costs are somewhat higher in Halifax, St. John's and Bangor, while Manchester (New Hampshire) and Burlington (Vermont) have the highest business costs among the smaller cities in this region.

In the **Northeast US/Canada** region, costs are lowest Quebec City, followed by Niagara Region and Sudbury in Ontario, and then the US cities of Youngstown, Lexington, and Charleston (West Virginia). Business costs are notably higher in Saginaw, Michigan, which represents the most expensive of the smaller cities examined in this region.

Results for North American Cities with Population Under 1 Million

Population of Less Than 500,000		Population of 500,000 to 1,000,000	
City	Cost Index	City	Cost Index
New England / Atlantic Canada			
Moncton, NB	90.1	n/a	
Charlottetown, PE	90.4		
Fredericton, NB	90.8		
Halifax, NS	91.6		
St. John's, NL	93.7		
Bangor, ME	95.2		
Manchester, NH	98.0		
Burlington, VT	98.4		
Northeast US / Canada			
Niagara Region, ON	91.9	Quebec City, QC	90.7
Sudbury, ON	93.5	Youngstown, OH	94.0
Lexington, KY	94.5		
Charleston, WV	94.6		
Saginaw, MI	96.0		
Southeast US			
Shreveport, LA	92.5	Baton Rouge, LA	93.6
Montgomery, AL	93.8	Jackson, MS	94.4
Mobile, AL	94.8	Gulfport-Biloxi, MS	94.4
Spartanburg, SC	94.8	Little Rock, AR	94.5
Midwest US / Western Canada			
Saskatoon, SK	92.8	Winnipeg, MB	92.0
Cedar Rapids, IA	94.0	Omaha, NE	94.3
Sioux Falls, SD	94.5	Albuquerque, NM	95.2
Fargo, ND	95.1	Wichita, KS	95.4
Champaign-Urbana, IL	95.2	Madison, WI	96.8
Beaumont, TX	95.5		
Cheyenne, WY	95.8		
Billings, MT	96.0		
Pacific US / Canada			
Kamloops, BC	93.6	Boise, ID	96.1
Anchorage, AK	108.0	Spokane, WA	96.9
		Honolulu, HI	104.5

In the **Southeast US** region, Shreveport and Baton Rouge, both in Louisiana, are the low cost leaders, with Shreveport also being the lowest cost US city examined in this study. Within this region, the Louisiana cities are followed by Montgomery (Alabama), Jackson (Mississippi), Gulfport-Biloxi, and Little Rock. While business costs are higher in Mobile and Spartanburg, costs in these cities are still moderate relative to other regions of the United States.

In the **Midwest US/Western Canada** region, Winnipeg, Saskatoon, Cedar Rapids, Omaha, and Sioux Falls are the low cost leaders, all with costs more than five percent below the US baseline. Ranked behind these leaders are Fargo, Champaign-Urbana, Albuquerque, Wichita, and Beaumont. Among the smaller cities examined in this region, business costs are highest in Cheyenne, Billings, and Madison (Wisconsin).

Finally, in the **Pacific US/Canada** region, Kamloops and Boise are the low cost leaders, followed by Spokane. Honolulu and Anchorage—the two cities examined that are not in the "Lower 48" US states—both have business costs that are higher than in other US cities, and represent the most expensive US cities examined in this study.

Detailed City Results, by Sector

The following exhibits contain the cost index results for all featured cities in North America, by region, for the business sectors and subsectors examined in this study. Similar results for the international cities appear in the following section.

Results by City[1] - North America

	Services Sector			Manufacturing Sector	Overall Result
	Digital Services	Research & Development	Corporate Services		
New England / Atlantic Canada					
Bangor, ME	89.9 (6)	85.1 (6)	85.0 (6)	98.5 (5)	**95.2 (6)**
Boston, MA	101.4 (11)	100.4 (11)	103.8 (11)	100.8 (11)	**101.1 (11)**
Burlington, VT	96.5 (9)	92.4 (8)	92.7 (9)	100.1 (10)	**98.4 (9)**
Charlottetown, PE	81.0 (2)	75.1 (2)	75.0 (1)	95.7 (2)	**90.4 (2)**
Fredericton, NB	81.6 (3)	75.2 (3)	78.6 (3)	95.7 (3)	**90.8 (3)**
Halifax, NS	83.9 (4)	77.0 (4)	80.1 (4)	96.2 (4)	**91.6 (4)**
Hartford, CT	94.7 (7)	96.3 (10)	96.8 (10)	100.1 (9)	**98.9 (10)**
Manchester, NH	96.5 (8)	90.3 (7)	91.8 (7)	100.0 (8)	**98.0 (8)**
Moncton, NB	80.5 (1)	72.7 (1)	76.7 (2)	95.5 (1)	**90.1 (1)**
Providence, RI	96.8 (10)	92.5 (9)	92.2 (8)	99.3 (7)	**97.7 (7)**
St. John's, NL	84.1 (5)	77.7 (5)	81.9 (5)	98.7 (6)	**93.7 (5)**
Northeast US / Canada					
Baltimore, MD	96.9 (16)	94.6 (16)	91.9 (15)	98.0 (10)	**97.1 (15)**
Buffalo, NY	95.3 (14)	89.9 (10)	89.8 (12)	99.0 (16)	**96.9 (14)**
Charleston, WV	92.2 (9)	85.3 (5)	84.4 (4)	97.4 (8)	**94.6 (8)**
Cincinnati, OH	89.9 (7)	90.0 (11)	89.0 (9)	96.9 (7)	**94.9 (9)**
Cleveland, OH	91.3 (8)	92.8 (14)	91.1 (14)	98.1 (12)	**96.3 (12)**
Detroit, MI	96.4 (15)	93.3 (15)	92.7 (16)	99.7 (20)	**98.2 (17)**
Indianapolis, IN	95.3 (13)	90.4 (12)	89.7 (11)	97.8 (9)	**96.2 (11)**
Lexington, KY	93.8 (10)	87.2 (7)	85.1 (6)	96.6 (5)	**94.5 (7)**
Montreal, QC	80.6 (2)	81.4 (4)	85.4 (7)	95.9 (2)	**92.0 (3)**
New York City, NY	104.6 (21)	105.8 (21)	110.1 (21)	102.4 (21)	**103.6 (21)**
Niagara Region, ON	80.8 (3)	80.3 (2)	83.6 (3)	96.2 (3)	**91.9 (2)**
North Virginia, Metro DC, VA	101.3 (20)	103.9 (20)	101.3 (20)	99.2 (17)	**100.1 (20)**
Philadelphia, PA	99.2 (18)	100.6 (19)	98.7 (18)	99.4 (18)	**99.4 (18)**
Pittsburgh, PA	94.7 (12)	92.0 (13)	90.2 (13)	98.0 (11)	**96.4 (13)**
Quebec City, QC	78.1 (1)	77.2 (1)	80.8 (1)	95.7 (1)	**90.7 (1)**
Saginaw, MI	93.9 (11)	88.4 (9)	87.9 (8)	98.3 (14)	**96.0 (10)**
Sudbury, ON	81.0 (4)	80.6 (3)	83.1 (2)	98.3 (13)	**93.5 (4)**
Toronto, ON	83.7 (5)	87.0 (6)	89.7 (10)	96.4 (4)	**93.6 (5)**
Trenton, NJ	99.6 (19)	98.7 (18)	99.4 (19)	99.6 (19)	**99.5 (19)**
Wilmington, DE	98.7 (17)	97.6 (17)	95.1 (17)	98.5 (15)	**98.1 (16)**
Youngstown, OH	88.7 (6)	87.5 (8)	84.8 (5)	96.7 (6)	**94.0 (6)**
Southeast US					
Atlanta, GA	92.1 (7)	90.0 (10)	89.2 (16)	96.4 (4)	**94.7 (8)**
Baton Rouge, LA	83.7 (2)	90.6 (14)	87.3 (10)	96.2 (3)	**93.6 (2)**
Charlotte, NC	94.3 (14)	90.3 (12)	88.4 (13)	96.8 (9)	**95.2 (13)**
Gulfport-Biloxi, MS	92.5 (8)	88.9 (7)	85.3 (6)	96.5 (5)	**94.4 (6)**
Jackson, MS	91.9 (5)	86.4 (3)	84.6 (2)	97.0 (10)	**94.4 (5)**
Little Rock, AR	91.6 (4)	86.1 (2)	84.7 (3)	97.2 (11)	**94.5 (7)**
Memphis, TN	95.2 (17)	92.0 (16)	88.0 (12)	97.3 (13)	**95.8 (16)**
Miami, FL	94.5 (15)	94.5 (17)	91.4 (17)	98.4 (17)	**97.0 (17)**
Mobile, AL	94.0 (13)	89.5 (8)	85.8 (7)	96.6 (8)	**94.8 (9)**
Montgomery, AL	92.8 (10)	87.8 (5)	85.2 (5)	95.7 (1)	**93.8 (3)**
Nashville, TN	93.8 (12)	89.6 (9)	87.1 (9)	96.6 (7)	**94.9 (11)**
New Orleans, LA	84.4 (3)	90.7 (15)	89.2 (15)	96.6 (6)	**94.1 (4)**
Orlando, FL	92.0 (6)	88.0 (6)	86.2 (8)	97.6 (15)	**95.1 (12)**
Raleigh, NC	94.6 (16)	90.6 (13)	88.5 (14)	97.3 (12)	**95.6 (14)**
Shreveport, LA	82.2 (1)	85.8 (1)	84.7 (4)	95.9 (2)	**92.5 (1)**
Spartanburg, SC	92.6 (9)	86.6 (4)	84.5 (1)	97.5 (14)	**94.8 (10)**
Tampa, FL	92.9 (11)	90.2 (11)	87.5 (11)	97.9 (16)	**95.8 (15)**

1 Refer to Footnote 1 on page 17.

Results by City[1] - North America (cont'd)

	Services Sector			Manufacturing Sector	Overall Result
	Digital Services	Research & Development	Corporate Services		
Midwest US / Western Canada					
Albuquerque, NM	89.6 (4)	87.1 (11)	84.5 (10)	98.5 (14)	**95.2 (10)**
Austin, TX	94.2 (20)	93.5 (22)	91.0 (21)	98.3 (13)	**96.8 (20)**
Beaumont, TX	91.8 (10)	88.3 (15)	86.6 (14)	98.1 (10)	**95.5 (12)**
Billings, MT	92.5 (13)	87.0 (10)	83.9 (7)	99.2 (22)	**96.0 (15)**
Cedar Rapids, IA	90.8 (8)	84.3 (5)	83.9 (5)	97.0 (3)	**94.0 (3)**
Champaign-Urbana, IL	94.0 (18)	87.7 (13)	86.6 (13)	97.4 (6)	**95.2 (9)**
Cheyenne, WY	90.8 (7)	85.6 (7)	84.0 (8)	99.3 (23)	**95.8 (14)**
Chicago, IL	99.9 (26)	98.1 (25)	99.0 (26)	99.1 (19)	**99.1 (26)**
Dallas-Fort Worth, TX	95.0 (22)	94.6 (24)	91.1 (22)	98.1 (8)	**96.8 (21)**
Denver, CO	95.7 (23)	93.6 (23)	92.1 (23)	100.2 (26)	**98.4 (25)**
Edmonton, AB	86.0 (3)	83.9 (3)	88.0 (17)	97.3 (5)	**94.0 (4)**
Fargo, ND	91.0 (9)	84.4 (6)	82.6 (3)	98.6 (17)	**95.1 (8)**
Houston, TX	96.6 (25)	98.1 (26)	94.2 (25)	98.7 (18)	**98.0 (23)**
Kansas City, MO	93.9 (17)	90.8 (18)	87.9 (16)	99.1 (20)	**96.8 (19)**
Madison, WI	94.6 (21)	91.6 (20)	90.7 (20)	98.6 (16)	**96.8 (22)**
Minneapolis, MN	96.1 (24)	93.4 (21)	93.3 (24)	99.7 (25)	**98.2 (24)**
Oklahoma City, OK	92.1 (12)	87.4 (12)	83.9 (6)	97.9 (7)	**95.1 (7)**
Omaha, NE	90.1 (6)	86.2 (8)	84.4 (9)	97.2 (4)	**94.3 (5)**
Phoenix, AZ	93.5 (16)	89.2 (16)	88.6 (19)	99.2 (21)	**96.7 (18)**
Salt Lake City, UT	92.9 (14)	88.1 (14)	86.7 (15)	99.4 (24)	**96.6 (17)**
San Antonio, TX	92.0 (11)	89.4 (17)	86.5 (12)	98.1 (9)	**95.6 (13)**
Saskatoon, SK	83.2 (2)	81.7 (2)	83.0 (4)	96.9 (2)	**92.8 (2)**
Sioux Falls, SD	90.1 (5)	84.0 (4)	81.6 (1)	98.2 (11)	**94.5 (6)**
St. Louis, MO	94.1 (19)	91.5 (19)	88.5 (18)	98.6 (15)	**96.6 (16)**
Wichita, KS	93.2 (15)	86.6 (9)	85.0 (11)	98.2 (12)	**95.4 (11)**
Winnipeg, MB	82.8 (1)	75.7 (1)	81.6 (2)	96.8 (1)	**92.0 (1)**
Pacific US / Canada					
Anchorage, AK	99.6 (11)	99.7 (11)	97.8 (11)	111.6 (14)	**108.0 (14)**
Boise, ID	92.7 (3)	86.4 (2)	84.4 (2)	99.3 (4)	**96.1 (3)**
Honolulu, HI	97.6 (9)	98.0 (9)	95.1 (9)	107.5 (13)	**104.5 (13)**
Kamloops, BC	84.4 (1)	81.1 (1)	81.6 (1)	98.1 (2)	**93.6 (1)**
Las Vegas, NV	95.7 (5)	94.5 (6)	91.1 (5)	99.9 (7)	**98.2 (6)**
Los Angeles, CA	100.5 (13)	101.6 (12)	99.8 (12)	100.4 (8)	**100.5 (10)**
Portland, OR	96.7 (6)	93.1 (5)	92.2 (6)	99.7 (6)	**98.1 (5)**
Riverside-San Bernardino, CA	97.4 (7)	97.1 (8)	95.0 (8)	99.5 (5)	**98.7 (7)**
Sacramento, CA	97.5 (8)	96.2 (7)	95.0 (7)	100.8 (10)	**99.5 (8)**
San Diego, CA	98.3 (10)	99.0 (10)	96.8 (10)	100.6 (9)	**99.9 (9)**
San Francisco, CA	104.3 (14)	107.9 (14)	108.1 (14)	103.2 (12)	**104.2 (12)**
Seattle, WA	100.3 (12)	102.0 (13)	99.9 (13)	101.7 (11)	**101.4 (11)**
Spokane, WA	93.5 (4)	90.8 (4)	87.6 (3)	99.3 (3)	**96.9 (4)**
Vancouver, BC	87.2 (2)	86.5 (3)	87.9 (4)	97.6 (1)	**94.6 (2)**
Mexico					
Mexico City	71.8 (2)	63.9 (2)	54.7 (2)	89.1 (2)	**81.9 (2)**
Monterrey	70.8 (1)	62.9 (1)	53.3 (1)	87.8 (1)	**80.7 (1)**

1 Business costs are compared for 19 industry-specific business operations, 7 in the services sector and 12 in the manufacturing sector. Overall results are based on the average of business costs for the services sector and the manufacturing sector. Business costs are expressed as an index, with the US being assigned a baseline index of 100.0. An index below 100 indicates lower costs than the US. An index over 100 indicates higher costs than the US. (e.g., an index of 95.0 represents a 5.0% cost advantage relative to the US.) Figures shown in brackets represent the rank of each city relative to other cities within the same geographic region, with 1 representing the lowest cost city in the region.

Detailed City Results, by Sector (cont'd)

The following exhibit contains the cost index results for all featured cities in Europe and Asia Pacific, for the business sectors and subsectors examined in this study.

Results by City[1] - Europe and Asia Pacific

	Services Sector			Manufacturing Sector	Overall Result
	Digital Services	Research & Development	Corporate Services		
Europe					
France					
Marseille	92.0 (2)	80.6 (2)	90.7 (4)	98.5 (4)	**95.4 (4)**
Paris	98.9 (7)	97.8 (7)	104.3 (10)	99.1 (6)	**99.4 (7)**
Germany					
Berlin	101.6 (9)	99.9 (9)	99.5 (7)	101.0 (10)	**100.8 (9)**
Frankfurt	102.5 (10)	100.8 (10)	101.4 (9)	100.8 (9)	**101.0 (10)**
Italy					
Milan	99.8 (8)	97.4 (6)	93.4 (6)	98.8 (5)	**98.3 (5)**
Rome	98.8 (6)	96.1 (5)	93.1 (5)	100.5 (8)	**99.2 (6)**
Netherlands					
Eindhoven	92.3 (4)	83.9 (4)	89.5 (3)	96.8 (2)	**94.5 (2)**
Twente Region	92.2 (3)	83.5 (3)	89.3 (2)	97.0 (3)	**94.6 (3)**
United Kingdom					
London	97.5 (5)	99.2 (8)	99.6 (8)	100.3 (7)	**99.9 (8)**
Manchester	81.7 (1)	78.5 (1)	74.9 (1)	93.7 (1)	**89.4 (1)**
Asia Pacific					
Australia					
Adelaide	94.0 (1)	91.7 (2)	94.4 (2)	101.2 (4)	**98.9 (3)**
Brisbane	97.6 (4)	97.1 (4)	99.3 (4)	101.6 (5)	**100.5 (4)**
Melbourne	95.0 (3)	89.3 (1)	95.6 (3)	99.3 (2)	**97.6 (2)**
Sydney	98.7 (5)	98.9 (5)	100.7 (5)	101.7 (6)	**101.0 (5)**
Japan					
Osaka	94.8 (2)	92.2 (3)	90.5 (1)	97.8 (1)	**96.3 (1)**
Tokyo	101.7 (6)	105.6 (6)	106.6 (6)	101.1 (3)	**102.1 (6)**

1 Refer to Footnote 1 on page 17.

Further detailed results for each city, by cost component, for each of the 19 individual business operations examined, are available online at CompetitiveAlternatives.com.

Results by Sector & Industry

4

The preceding chapters presented the overall results for all countries and cities. This chapter presents results for the three services subsectors and the manufacturing sector.

The hierarchy of sector and industry analysis for *Competitive Alternatives* is illustrated below.

The overall results for all countries and cities (presented in the preceding chapters) represent the top level of the analysis hierarchy and incorporate business modeling outcomes from both the services sector and the manufacturing sector.

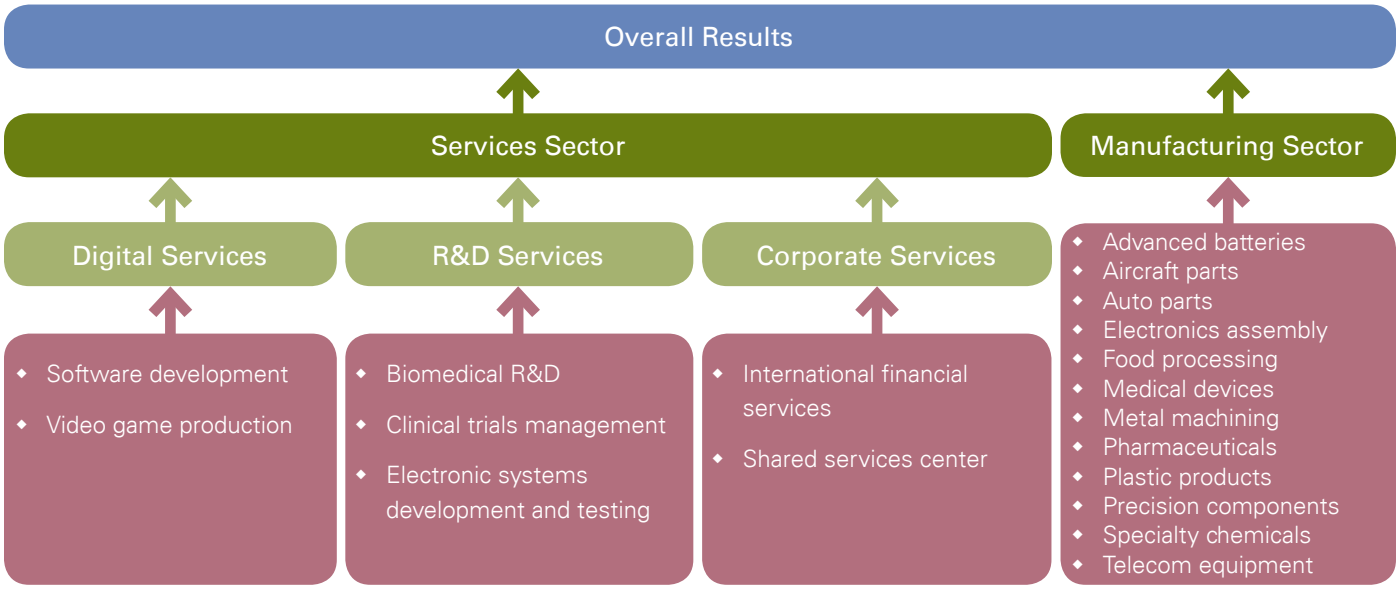
Those results are ultimately based on the analysis of 19 individual industry-specific business operations, as shown in the bottom (red) level of the analysis hierarchy. The 19 individual business operations have been chosen to reflect industries that are regularly seen making site selection decisions through the assessment of multiple jurisdictions.

The 19 operations have been developed with reference to specific industries, and are also potentially relevant to a wider range of industries. For example:

- The metal machining operation examined is potentially relevant to various industries—industrial equipment, agricultural equipment, transportation equipment, and building products (hardware)
- Similarly, the electronics assembly operation examined is potentially relevant to certain segments of the automotive, aerospace, and medical equipment industries (among others), given the increased sophistication of electronic systems in the products of all these industries
- The biomedical R&D operation examined is potentially applicable to diverse fields of biological research, including biotechnology, pharmaceuticals, nutraceuticals, agricultural biotechnology, and marine biotechnology.

Results for each of the 19 industry-specific business operations examined are available online at CompetitiveAlternatives.com/industries.

Sectors and subsectors form the middle (green) level of the analysis hierarchy, connecting and combining results for reasonably similar types of business operation. This chapter presents the results for the three services subsectors and the manufacturing sector.



Digital Services

Results for the digital services subsector are based on the combined analysis of two representative, industry-specific operations:

- **Digital entertainment:** a video game production studio that is a subsidiary of a large games publishing house, developing and releasing new games on multiple gaming platforms
- **Software design:** an independent software development firm performing original and ongoing application development for packaged software.

Results for these individual industry-specific operations can be found online at CompetitiveAlternatives.com/industries.

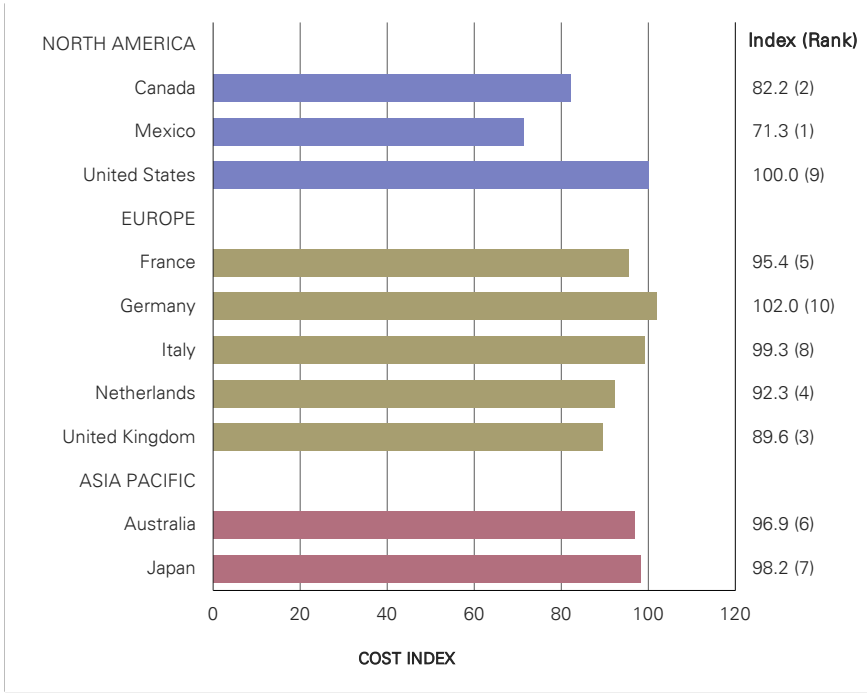
The Operating Parameters table shows the combined operating characteristics of these firms, which include:

- Leased office space, with sufficient space to create a modern, collaborative, and social high tech work environment
- A technically oriented workforce, but also with significant sales and customer support functions
- A significant level of activities eligible for either R&D tax incentives or specific digital media production incentives.

Digital Services - Operating Parameters

Facilities Requirements	
Class A office space leased	21,375 ft² (1,986 m²)
Other Initial Investment Requirements	
Office equipment - US $'000	$2,300
Equity financing - % of project costs	67%
Workforce	
Management	6
Sales and administration	22
Dedicated product development	71
Customer support	6
Total employees	105
Energy Requirements	
Electricity monthly consumption	60,000 kWh
Electricity peak demand	180 kW
Other Annual Operating Characteristics	
Sales at full production - US $'000	$21,000
Operating costs - % of sales	11%
Investment in tax-eligible R&D - % of sales	10%

Digital Services - International Results (US=100.0)



Results by country

International results for this subsector are expressed as a cost index for each country, relative to the US baseline index of 100.0.

Mexico, Canada, and the United Kingdom are the cost leaders in the digital services subsector, with business costs ranging from 10.4 percent below the US baseline for the UK (cost index 89.6), to 28.7 percent below the US baseline for Mexico (cost index 71.3).

Canada demonstrates its strongest relative results in this subsector (cost index 82.2), ranking second among the countries with a cost advantage of 17.8 percent relative to the US. This significant advantage is due in part to substantial incentives that several Canadian provinces provide to digital media production firms.

Costs in the Netherlands, France and Australia are all between 3 and 8 percent below the US baseline. Germany has the highest business costs in this subsector, 2 percent higher than in the US.

Digital Services - Results for Selected Cities, by Country

		Index	Rank[1]
North America – Selected Cluster Cities			
Canada	Edmonton, AB	86.0	20
	Montreal, QC	80.6	5
	Niagara Region, ON	80.8	6
	Toronto, ON	83.7	15
	Vancouver, BC	87.2	21
Mexico	Mexico City	71.8	2
	Monterrey	70.8	1
United States	Albuquerque, NM	89.6	23
	Austin, TX	94.2	61
	Baton Rouge, LA	83.7	14
	Denver, CO	95.7	75
	Honolulu, HI	97.6	88
	Omaha, NE	90.1	27
	Orlando, FL	92.0	37
	Providence, RI	96.8	82
	San Francisco, CA	104.3	106
	Seattle, WA	100.3	99
International Locations – All Cities			
Australia	Adelaide	94.0	59
	Brisbane	97.6	87
	Melbourne	95.0	70
	Sydney	98.7	90
France	Marseille	92.0	35
	Paris	98.9	93
Germany	Berlin	101.6	103
	Frankfurt	102.5	105
Italy	Milan	99.8	97
	Rome	98.8	92
Japan	Osaka	94.8	68
	Tokyo	101.7	104
Netherlands	Eindhoven	92.3	42
	Twente Region	92.2	41
United Kingdom	London	97.5	85
	Manchester	81.7	10

1 Rank among 107 featured cities.

Results by city

Comparing the results in this subsector for selected cities, the Mexican cities have the lowest business costs, consistent with Mexico's national ranking. Costs in Monterrey are 1 percentage point lower than in Mexico City.

Among the Canadian and US cities highlighted for their prominent or emerging digital clusters, costs are lowest in Montreal, Quebec; Niagara Region, Ontario; Baton Rouge, Louisiana; and Toronto, Ontario. Of these jurisdictions, both Quebec and Louisiana offer significant incentives to a wide range of e-business and/or software development firms. These incentives have much broader reach among digital sector firms than the targeted digital media production incentives offered by numerous North American jurisdictions, including Ontario.

Among the international cities, Manchester in the United Kingdom and Marseille, France are the cost leaders, both with business costs well below their respective national results. Results in the two Netherlands cities are consistent with Netherlands' fourth place ranking among the countries in this subsector.

Among all cities highlighted here, business costs for the digital services subsector are highest in Berlin, Tokyo, Frankfurt, and San Francisco.

Results for all featured cities for the digital services subsector are presented in Chapter 3. Summary results for additional benchmark cities are presented in Chapter 7.

R&D Services

Results for the R&D services subsector are based on the combined analysis of three industry-specific operations:

- **Biotechnology:** A "pure" biomedical research facility, operating as a wholly owned subsidiary of a parent firm, and with no external commercial sales
- **Product testing:** An electronic systems development and testing facility, also operating as a wholly owned subsidiary of a parent firm, and with no external commercial sales
- **Clinical trial administration:** An independent clinical trials management firm, overseeing the design, conduct, and statistical analysis of clinical trials commissioned by drug companies and other clients. (This operation is a trials management firm; hospital/clinical operations and costs are not included in the model.)

Results for these individual industry-specific operations can be found online at CompetitiveAlternatives.com/industries.

The Operating Parameters table shows the combined operating characteristics of these firms, which include:

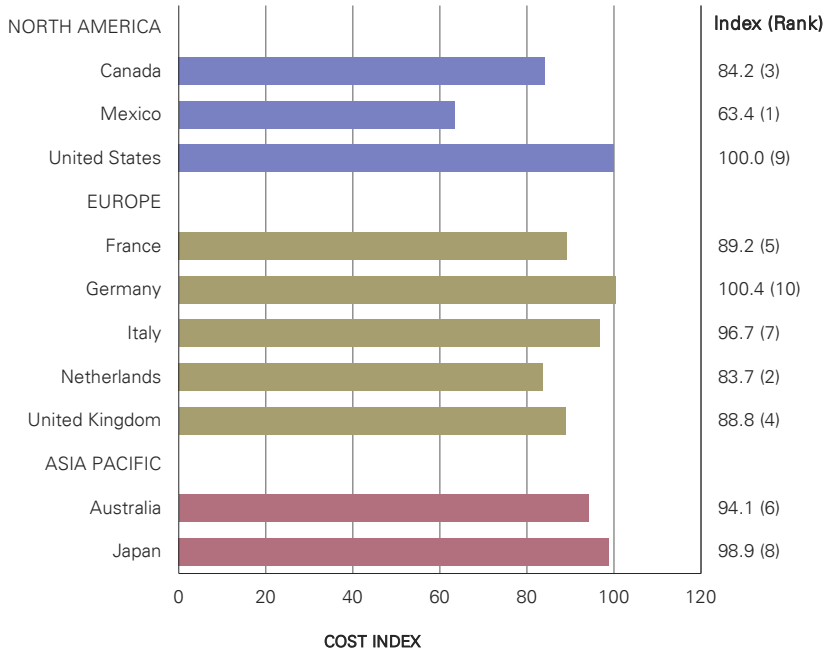
- Leased office/commercial space sufficient to meet the laboratory space requirements of the biomedical and electronic systems operations
- Significant investments in R&D equipment
- A non-management workforce consisting almost entirely of professional and technical staff
- A significant level of tax-eligible R&D activities.

R&D Services - Operating Parameters

Facilities Requirements	
Class A office space leased	33,333 ft² (3,097 m²)
Other Initial Investment Requirements	
Machinery and equipment - US $'000	$333
Office equipment - US $'000	$383
R&D equipment - US $'000	$2,667
Inventory - US $'000	-
Equity financing - % of project costs	95%
Workforce	
Management	5
Sales and administration	11
Dedicated product development	46
Total employees	62
Energy Requirements	
Electricity monthly consumption	58,333 kWh
Electricity peak demand	157 kW
Other Annual Operating Characteristics	
Sales at full production - US $'000	$8,000[1]
Operating costs - % of sales - plus, fixed in US $'000	2% $1,267
Investment in tax-eligible R&D - % of sales	32.0%

1 Two of the three R&D operations examined represent cost centers. For taxation purposed, corporate revenue is allocated to these operations based on the cost of operation plus a fixed 10% markup. The sales revenue shown represents the sales revenue of the one profit-center R&D operation examined.

R&D Services - International Results (US=100.0)



Results by country

International results for this subsector are expressed as a cost index for each country, relative to the US baseline index of 100.0.

Mexico, the Netherlands, and Canada are the cost leaders in the R&D services subsector, with business costs ranging from 15.8 percent below the US baseline for Canada (cost index 84.2), to 36.6 percent below the US baseline for Mexico (cost index 63.4). Costs in the United Kingdom and France are also more than 10 percent below the US baseline.

The Netherlands, France and Australia all achieve their best relative results in this subsector, achieving both their highest rankings among the countries and their largest cost advantages relative to the US baseline. These three countries all offer government incentive support for R&D activities.

R&D Services - Results for Selected Cities, by Country

		Index	Rank[1]
North America – Selected Cluster Cities			
Canada	Saskatoon, SK	81.7	16
	St. John's, NL	77.7	9
	Sudbury, ON	80.6	13
	Toronto, ON	87.0	35
	Winnipeg, MB	75.7	6
Mexico	Mexico City	63.9	2
	Monterrey	62.9	1
United States	Baltimore, MD	94.6	81
	Boston, MA	100.4	99
	Dallas-Fort Worth, TX	94.6	80
	Indianapolis, IN	90.4	58
	Minneapolis, MN	93.4	75
	Philadelphia, PA	100.6	100
	Pittsburgh, PA	92.0	67
	Raleigh, NC	90.6	59
	Salt Lake City, UT	88.1	43
	San Diego, CA	99.0	95
International Locations – All Cities			
Australia	Adelaide	91.7	66
	Brisbane	97.1	85
	Melbourne	89.3	48
	Sydney	98.9	94
France	Marseille	80.6	12
	Paris	97.8	89
Germany	Berlin	99.9	98
	Frankfurt	100.8	101
Italy	Milan	97.4	87
	Rome	96.1	82
Japan	Osaka	92.2	69
	Tokyo	105.6	105
Netherlands	Eindhoven	83.9	18
	Twente Region	83.5	17
United Kingdom	London	99.2	96
	Manchester	78.5	10

1 Rank among 107 featured cities.

Results by city

Comparing the results in this subsector for selected cities, the Mexican cities lead with the lowest business costs, consistent with Mexico's national ranking. Costs in Monterrey are 1 percentage point lower than in Mexico City.

Among the Canadian and US cities highlighted for their prominent or emerging R&D clusters (in diverse fields of research), costs are lowest in Winnipeg (biomedical research), St. John's (oceanographic research), and Sudbury (mining technology and geological research).

Among the listed US cities, Salt Lake City, Indianapolis, and Raleigh are the cost leaders. These three cities all have specializations in biotech research, among other fields.

For the international cities, Manchester in the United Kingdom and Marseille, France are the cost leaders, both with business costs well below their respective national results. These two cities both rank ahead of the two Netherlands cities, despite the Netherlands ranking ahead of both the UK and France in the international standings.

Among all cities highlighted here, business costs for the R&D services subsector are highest in Philadelphia, Frankfurt, and Tokyo.

Results for all featured cities for the R&D services subsector are presented in Chapter 3. Summary results for additional benchmark cities are presented in Chapter 7.

Corporate Services

Results for the corporate services subsector are based on the combined analysis of two representative operations:

- **Professional services:** an international financial services business providing services that may include securities trading, foreign exchange, funds management, and/or treasury activities, with a focus on serving non-resident corporate clients
- **Support services:** a corporate shared services center providing centralized accounting, customer call center, and internal IT support functions.

Results for these individual operations can be found online at CompetitiveAlternatives.com/industries.

The Operating Parameters table shows the combined operating characteristics of these firms, which include:

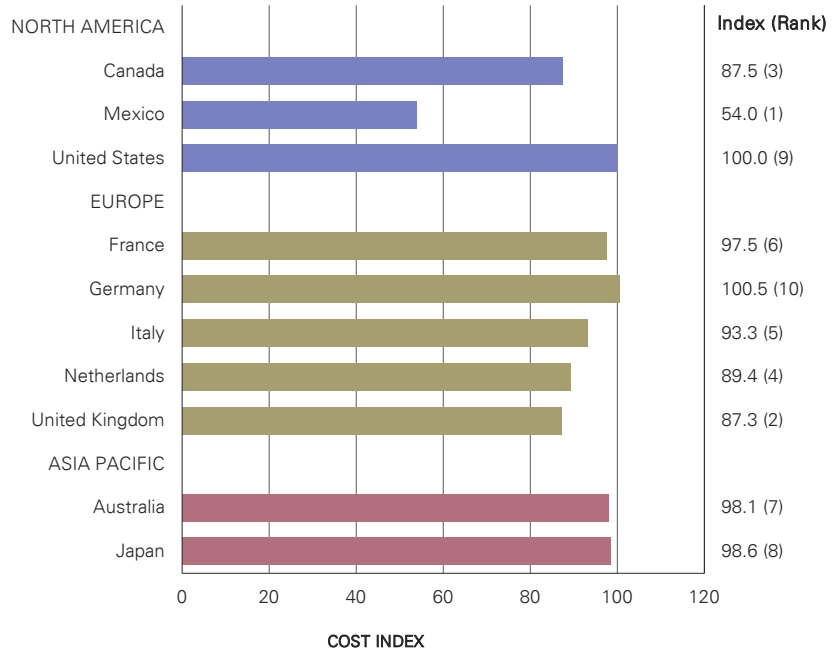
- Leased office space, downtown for the financial services operation and suburban for the shared services center
- A workforce weighted towards lesser-skilled administrators—such as clerks, teleservice, and help desk staff—for the shared services center, but still with a significant tally of professionals in the financial services operation and the shared services accounting function
- Both operations are assumed to operate as wholly owned subsidiaries of their parent firms.

Corporate Services - Operating Parameters

Facilities Requirements	
Class A office space leased	18,250 ft² (1,695 m²)
Other Initial Investment Requirements	
Office equipment - US $'000	$1,750
Equity financing - % of project costs	100%
Workforce	
Management	9
Sales and administration	61
Customer support	21
Other	7
Total employees	98
Energy Requirements	
Electricity monthly consumption	39,000 kWh
Electricity peak demand	128 kW
Other Annual Operating Characteristics	
Sales at full production - US $'000	_[1]
Operating costs - US $'000	$2,125

1 These operations represents cost centers. For taxation purposes, corporate revenues allocated to the operation are assumed to be cost-of-operation, plus a fixed percentage markup.

Corporate Services - International Results (US=100.0)



Results by country

International results for this subsector are expressed as a cost index for each country, relative to the US baseline index of 100.0.

Mexico ranks first among the 10 countries in all sectors, and sees its greatest cost advantage relative to the US baseline in this subsector. With a cost index of 54.0, costs in Mexico are 46 percent lower than in the United States. The large number of lower-wage administrative staff result in this extremely large cost advantage for Mexico in this subsector.

The United Kingdom ranks second and Italy ranks fifth among the countries—representing the strongest relative results for these two countries among the sectors examined. Costs in the United Kingdom, as well as in third-ranked Canada and fourth-ranked Netherlands, are all more than 10 percent below the US.

Corporate Services - Results for Selected Cities, by Country

		Index	Rank[1]
North America – Lowest Cost Cities			
Canada	Charlottetown, PE	75.0	4
	Moncton, NB	76.7	5
	Fredericton, NB	78.6	6
	Halifax, NS	80.1	7
	Quebec City, QC	80.8	8
Mexico	Monterrey	53.3	1
	Mexico City	54.7	2
United States	Sioux Falls, SD	81.6	10
	Fargo, ND	82.6	13
	Cedar Rapids, IA	83.9	17
	Oklahoma City, OK	83.9	18
	Billings, MT	83.9	19
	Cheyenne, WY	84.0	20
	Charleston, WV	84.4	21
	Omaha, NE	84.4	21
	Boise, ID	84.4	23
	Spartanburg, SC	84.5	24
International Locations – All Cities			
Australia	Adelaide	94.4	83
	Brisbane	99.3	94
	Melbourne	95.6	88
	Sydney	100.7	100
France	Marseille	90.7	65
	Paris	104.3	104
Germany	Berlin	99.5	96
	Frankfurt	101.4	102
Italy	Milan	93.4	81
	Rome	93.1	79
Japan	Osaka	90.5	64
	Tokyo	106.6	105
Netherlands	Eindhoven	89.5	59
	Twente Region	89.3	58
United Kingdom	London	99.6	97
	Manchester	74.9	3

1 Rank among 107 featured cities.

Results by city

Comparing the results in this subsector for selected cities, the Mexican cities have the lowest business costs, consistent with Mexico's national ranking. Costs in Monterrey are 1.4 percentage points lower than in Mexico City.

Among the Canadian and US cities, the lowest cost cities in each country have been highlighted in this table—reflecting a greater sensitivity to costs, and especially labor costs, in this subsector (as compared to the knowledge-intensive digital and R&D services subsectors).

The five lowest cost Canadian cities all have business costs lower than in any of the US cities examined. However, all the Canadian and US cities listed here have costs more than 15 percent below the US baseline. These cities all represent small-to-medium regional cities, with Oklahoma City the only city highlighted that has a population in excess of 1 million. This grouping of lower-cost cities reflects the generally lower labor costs seen in such regional cities.

For the international cities, Manchester in the United Kingdom is the cost leader by a wide margin. Costs for this subsector are lower in Manchester than in any other city examined, outside of Mexico.

Among all cities highlighted here, business costs for the corporate services subsector are highest in Frankfurt, Paris, and Tokyo.

Results for all featured cities for the corporate services subsector are presented in Chapter 3. Summary results for additional benchmark cities are presented in Chapter 7.

Manufacturing

Results for the manufacturing sector are based on the combined analysis of 12 industry-specific operations:

- **Aerospace**: aircraft parts manufacturer
- **Agri-food**: food processing
- **Automotive**: auto parts manufacturer
- **Chemicals**: specialty chemical producer
- **Electronics**: electronics assembly operation
- **Green energy**: advanced batteries and/or fuel cell systems manufacturer
- **Medical device**: medical device manufacturer
- **Metal components**: metal machining shop
- **Pharmaceutical**: pharmaceutical drug producer
- **Plastics**: plastic products manufacturer
- **Precision manufacturing**: precision component shop
- **Telecommunications**: telecom equipment manufacturer.

Results for these individual industry-specific operations can be found online at CompetitiveAlternatives.com/industries.

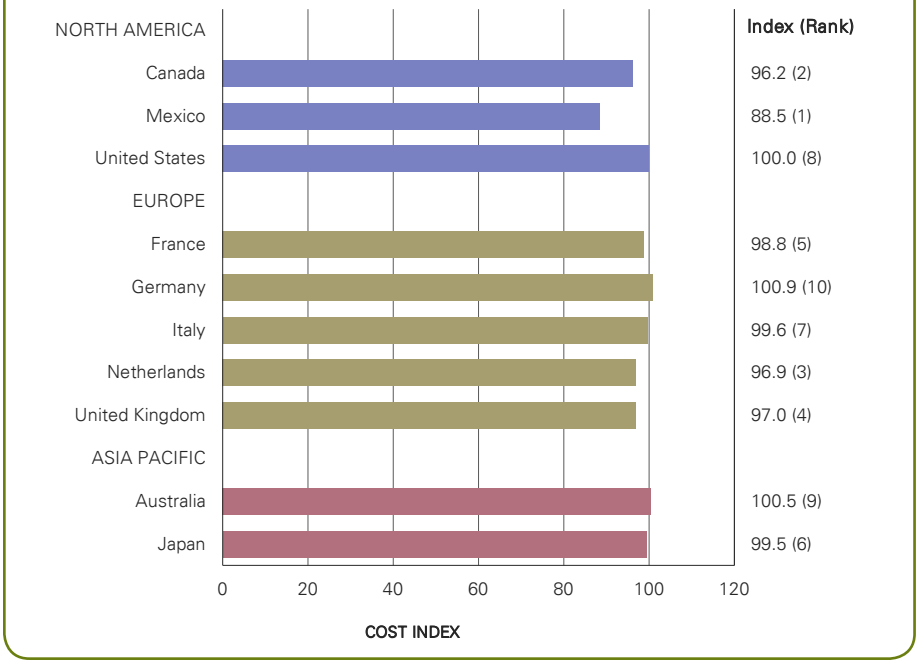
The Operating Parameters table shows the combined operating characteristics of these firms, which include:

- Leased industrial facilities
- Significant investments in machinery and equipment
- A production workforce oriented toward technical and skilled positions
- Moderate energy requirements.

Manufacturing Services - Operating Parameters

Facilities Requirements	
Leased industrial facility	76,125 ft² (7,072 m²)
Size of site	4.7 acres (18,885 m²)
Other Initial Investment Requirements	
Machinery and equipment - US $'000	$15,796
Office equipment - US $'000	$331
R&D equipment - US $'000	$397
Inventory - US $'000	$4,417
Equity financing - % of project costs	51%
Workforce	
Management	5
Sales and administration	13
Production/non-dedicated product development	
- Professional, technical	31
- Operators	34
- Unskilled laborers	12
Other	3
Total employees	98
Energy Requirements	
Electricity monthly consumption/demand	239,542 kWh / 856 kW
Gas monthly consumption	12,670 CCF (35,894 m³)
Other Annual Operating Characteristics	
Sales at full production - US $'000	$36,854
Materials & other direct costs - % of sales	43%
Operating costs - % of sales	6%
Investment in tax-eligible R&D - % of sales	2.8%

Manufacturing - International Results (US=100.0)



Results by country

Costs for globally sourced machinery, materials, parts, and subcomponents are similar by location, resulting in lower cost differences among the countries in this sector.

Mexico is the cost leader once again, with a clear cost advantage relative to Canada, the Netherlands, the United Kingdom, and all other countries.

Japan and the United States both achieve their best rankings among the 10 countries in this sector, ranking sixth and eighth respectively. This stronger showing for the US in manufacturing is timely given the upswing in re-shoring of production from China to the US in 2013, which included major US-based hardware manufacturing announcements from Apple and Google.

Manufacturing - Results for Selected Cities, by Country

		Index	Rank[1]
North America – Lowest Cost Cities			
Canada	Moncton, NB	95.5	4
	Charlottetown, PE	95.7	5
	Quebec City, QC	95.7	6
	Fredericton, NB	95.7	8
	Montreal, QC	95.9	10
Mexico	Monterrey	87.8	1
	Mexico City	89.1	2
United States	Montgomery, AL	95.7	7
	Shreveport, LA	95.9	9
	Baton Rouge, LA	96.2	13
	Atlanta, GA	96.4	14
	Gulfport-Biloxi, MS	96.5	16
	New Orleans, LA	96.6	17
	Lexington, KY	96.6	18
	Nashville, TN	96.6	19
	Mobile, AL	96.6	20
	Youngstown, OH	96.7	21
International Locations – All Cities			
Australia	Adelaide	101.2	100
	Brisbane	101.6	101
	Melbourne	99.3	78
	Sydney	101.7	103
France	Marseille	98.5	58
	Paris	99.1	68
Germany	Berlin	101.0	98
	Frankfurt	100.8	96
Italy	Milan	98.8	66
	Rome	100.5	93
Japan	Osaka	97.8	40
	Tokyo	101.1	99
Netherlands	Eindhoven	96.8	24
	Twente Region	97.0	29
United Kingdom	London	100.3	91
	Manchester	93.7	3

1 Rank among 107 featured cities.

Results by city

Comparing the results in this sector for selected cities, the Mexican cities have the lowest business costs, consistent with Mexico's national ranking. Costs in Monterrey are 1.3 percentage points lower than in Mexico City.

Among the Canadian and US cities, the lowest cost cities in each country have been highlighted in this table—reflecting a greater sensitivity to costs, and especially labor costs, in this the manufacturing sector (as compared to more knowledge-intensive sectors).

The lowest cost locations are found in Eastern Canada—led by Moncton, Charlottetown, and Quebec City—as well as in the US Southeast—led by Montgomery, Shreveport, and Baton Rouge. Generally low labor and facility costs in these regions are sufficient to offset higher transportation costs associated with moving finished goods to major markets.

For the international cities, Manchester in the United Kingdom is the cost leader, with lower costs than in any other city examined, outside of Mexico. Among the other international cities examined, Eindhoven and Twente Region in the Netherlands, and then Osaka, Japan offer the lowest business costs for manufacturing.

Among all cities highlighted here, business costs for the manufacturing sector are generally highest in the largest cities. Costs in most Australian cities, the two German cities, Rome, Tokyo, and London are all higher than the US baseline.

Results for all featured cities for the manufacturing sector are presented in Chapter 3. Summary results for additional benchmark cities are presented in Chapter 7.

5 Comparison by Cost Component

This chapter compares the results among the 10 countries for each of the major location-sensitive cost components. Detailed results for all cities are available at CompetitiveAlternatives.com.

Significance of Cost Factors

The significance of the location-sensitive cost factors examined varies both by location and operation, with significant variations existing between the services sector and the manufacturing sector.

Labor costs include wages and salaries, employer-paid statutory plans, and other employee benefits. Labor costs represent the largest category of location-sensitive cost factors for all industries examined.

For the services operations examined, labor costs typically range from 75 to 90 percent of location-sensitive costs, while for manufacturing operations the typical range is from 45 to 60 percent of total location-sensitive costs.

Facility costs represent the next significant cost factor. For services operations, office lease costs represent 4 to 16 percent of total location-sensitive costs. For manufacturing operations, industrial lease costs range from 2 to 6 percent of location-sensitive costs.

Transportation costs are only assessed for manufacturing operations, reflecting the costs of moving finished goods to markets. For the manufacturing operations examined, transportation costs represent 7 to 24 percent of total location-sensitive costs.

Utility costs represent 1 to 8 percent of location-sensitive costs. Electricity and natural gas costs are more significant for manufacturers than for non-manufacturers.

Costs of capital include both depreciation and interest. These are major cost items for manufacturers, ranging from 9 to 21 percent of location-sensitive costs. Capital-related costs are much less significant for services operations, at 0 to 7 percent of location-sensitive costs.

Taxes typically represent 2 to 10 percent of total location-sensitive costs for the services operations examined, and 6 to 14 percent for manufacturing operations.

Relative Significance of Key Location-Sensitive Cost Factors

	Services Sector[1]	Manufacturing Sector[2]
Labor costs	**74% – 90%**	**44% – 60%**
Salaries and wages	*52% – 64%*	*31% – 42%*
Statutory plans	*9% – 11%*	*5% – 7%*
Other benefits	*13% – 16%*	*7% – 10%*
Facility costs (office, factory leasing)	**4% – 16%**	**2% – 6%**
Transportation costs (road, sea, air)	**n/a**	**7% – 24%**
Utility costs (electricity, natural gas)	**1% – 1%**	**2% – 8%**
Cost of capital (depreciation, financing)	**0% – 7%**	**9% – 21%**
Taxes	**2% – 10%**	**6% – 14%**
Income taxes[3]	*0% – 11%*	*4% – 11%*
Property taxes	*0% – 0%*	*1% – 3%*
Other taxes	*0% – 1%*	*0% – 1%*

1 Range for 7 services sector operations included in the overall results.

2 Range for 12 manufacturing sector operations included in the overall results.

3 Varies with revenue. Modeled operations are assigned revenues in line with typical industry targets.

Labor Costs

Labor costs represent the most significant group of cost factors examined in this study, and include salaries and wages, employer-paid statutory plans, and other employee benefits.

The workforce required for each business operation is based on 42 benchmark job positions used consistently throughout this study. These positions reflect the full range of skills and responsibilities typically required in each of the business operations. A summary of the average workforce profile for each sector is provided in Chapter 4.

Salaries and wages include regular compensation, as well as any additional cash compensation customarily paid to employees (shift bonuses, incentive pay, etc.) Mexico has the lowest average salary/wage levels by far among the 10 countries examined. France, the United Kingdom, and Italy lead the mature market countries for this factor.

Statutory plans and payroll-based taxes are compared as a percentage of payroll. These costs are lowest in the United States, Canada, and the United Kingdom, all with statutory costs at or below 10 percent of payroll.

Other employee benefits include a wide range of employer-paid perks, such as vacation entitlements, supplemental retirement savings, and private medical coverage. These costs, compared as a percentage of payroll, are lowest in Australia, Japan, and Germany.

The United States has the highest costs for employee benefits, with private health insurance being a key driver. US health insurance is currently being impacted by the introduction of "Obamacare", causing premium increases in some situations. However, companies also continue to refine their strategies for providing health coverage to their employees, with a view of mitigating costs. Only future data will reveal the final net impact of these changes.

Total labor costs, combining all of the above labor-related cost elements, are lowest in Mexico, by a wide margin. Among the mature market countries, total labor costs are lowest in the United Kingdom, Canada, and Italy.

Physical Productivity Factors

Physical productivity is the result of four main factors. These factors have been addressed in this study as follows:

Actual hours worked, including the costs associated with paid time not worked (vacation and holidays), have been included in the analysis on the assumption that absent workers must be covered by temporary labor, overtime, or additional staffing to keep the facility running year round.

Capital and technology applied are assumed to be equal in all countries, as the model compares identical facilities in every location. The effort required to recruit workers with the required industrial and technology skills may vary from location to location, and is not included in this analysis. However, all countries and regions in this study, including Mexico, have modern sophisticated industrial sectors, suggesting that generally suitably skilled labor pools (of varying size) exist in each region studied.

Specific workplace training provided to employees is also assumed to be equal for this comparison of identical facilities in each location.

Physical productivity of workers recognizes the possibility that, given the same hours, tools, and training, workers in some countries may be more productive (i.e., achieve higher output per worker hour). This factor is extremely difficult to assess in an objective manner, and the comparisons in this study do not differentiate between countries on this basis.

Labor Cost Comparison, Per Employee

	Salaries & Wages		Benefits				Total Labor	
			Statutory Plans		Employee Benefits			
	Average per Employee[1] (US$)	Rank	Percent of Payroll	Rank	Percent of Payroll	Rank	Average per Employee[1] (US$)	Rank
North America								
Canada	$65,504	6	10%	2	26%	6	$89,038	3
Mexico	$29,105	1	13%	5	27%	7	$40,648	1
United States	$70,125	7	9%	1	36%	10	$102,249	9
Europe								
France	$56,126	2	42%	10	24%	5	$93,450	6
Germany	$75,715	10	17%	7	21%	3	$104,440	10
Italy	$60,848	4	28%	9	24%	4	$92,287	4
Netherlands	$64,433	5	15%	6	30%	8	$93,074	5
United Kingdom	$58,925	3	10%	3	31%	9	$82,930	2
Asia Pacific								
Australia	$73,210	9	19%	8	16%	1	$99,093	8
Japan	$71,607	8	12%	4	19%	2	$94,067	7

1 Average for services sector (7 business operations) and manufacturing sector (12 business operations), as per the overall results. Represents 42 different job positions, including professional and management positions.

Facility Costs

Office Leasing

For the services operations examined in this study, facilities are assumed to be established in leased Class "A" office or commercial space, ranging from 10,000 to 45,000 square feet (929 to 4,180 square meters).

For most services operations examined in this study, costs are based on office space located in a suburban office park, or equivalent location. **Suburban office** lease costs are lowest in the Netherlands, Germany, and Italy.

The international financial services operation examined is assumed to be located in a downtown (city center) office building. **Downtown office** lease costs for this operation are lowest in the Netherlands and Mexico.

Office lease costs reflect gross rent, and include all operating, tax, and insurance costs generally passed on by the landlord to the tenant in each location.

Care should be exercised in interpreting these national rankings due to significant variations in leasing costs which may occur among cities within each country.

Factory Leasing

For the manufacturing operations, facilities are assumed to be established in a leased suburban industrial building, either an existing modern building or a design-build-lease facility developed for this firm and leased back by the developer. Land requirements range from 2 to 7 acres (0.8 to 2.8 hectares) and factory sizes range from 30,000 to 120,000 square feet (2,790 to 11,148 square meters).

Factory lease costs for each location are based on rental costs for prime bulk industrial space. Lease costs only include net rent. Additional costs, including utilities and property taxes, are borne directly by the manufacturing firm and are considered later in this chapter.

Based on these parameters, factory lease costs are lowest in the United States, the Netherlands, and Mexico.

Industrial Land and Construction

As the manufacturing operations examined utilize leased industrial buildings, industrial land and construction costs do not directly impact facility costs reported here. However, these costs are collected as part of the study research program and are used to estimate market values of industrial properties in each location, as a basis for calculating local property tax.

Facility Costs[1]: Office and Factory Leasing Costs

	Services Sector – Office Lease[2]				Manufacturing – Factory Lease[3]	
	Suburban		Downtown		Suburban	
	US$ per sq.ft.[4]	Rank	US$ per sq.ft.[4]	Rank	US$ per sq.ft.[4]	Rank
North America						
Canada	$27.06	4	$44.32	4	$5.49	4
Mexico	$27.25	5	$23.93	2	$5.14	3
United States	$27.95	6	$40.20	3	$4.70	1
Europe						
France	$42.39	10	$63.54	8	$8.02	7
Germany	$25.78	2	$45.82	5	$7.50	5
Italy	$26.41	3	$52.82	7	$7.96	6
Netherlands	$15.30	1	$15.29	1	$5.09	2
United Kingdom	$37.29	8	$101.21	10	$12.30	9
Asia Pacific						
Australia	$35.72	7	$47.50	6	$9.75	8
Japan	$40.44	9	$96.32	9	$14.18	10

1 Results are the average for the comparable cities selected for the international results. Care should be exercised in interpreting the country averages due to the significant variations in costs among cities within each country.

2 Gross rent for office facilities includes all operating, tax, and insurance costs passed on by the landlord to the tenant as additional rent.

3 Net rent only for a prime bulk industrial facility. All operating costs are in addition and are borne directly by the tenant.

4 Equals 0.09 m^2; 10.76 sq.ft. = 1 m^2.

Transportation Costs

The manufacturing operations examined in this study are assumed to deliver their physical products by some combination of surface (land and sea) and air freight. The table below illustrates the transportation modes typically used by each type of operation, as well as the relative significance of transportation costs.

Transportation costs are estimated based on a general practice that firms deliver product to major distribution centers in full load or standardized less-than-full load quantities, using normal delivery schedules. (In other words, the model assumes that firms are not selling to customers requiring just-in-time (JIT), just-in-order (JIO), or other specialized warehousing and delivery services, which can significantly affect transportation costs.)

The comparisons are based on costs-to-market, combining transportation rates for each distribution channel and the proximity of each location to major markets for the various products, generally on a global basis. Figures shown here for all freight modes include relevant fuel and security surcharges.

The transportation cost results should be interpreted only as general indicators of transportation cost relationships among countries, since they are based on assumed global and regional product distribution patterns for each operation within each country. Operations with different product distribution patterns may have significantly different average transportation costs.

For **surface freight**—40' containers to global destinations and equivalent road freight to regional destinations—average costs per load are lowest in Japan, the United States, and the United Kingdom.

Costs for **air freight** to a range of global destinations vary more significantly by region. Average air freight costs are lowest from Japan, Germany, and Canada.

Combining these two distribution channels, **total freight costs** are lowest in Japan, the United States, and Germany. The positive results for Japan reflect both the growing importance of Asian markets for many types of products, plus a very competitive logistics market resulting in favorable transportation rates.

Summary of Distribution Channel Assumptions and Significance of Transportation Costs[1]

	Global Distribution Channels Used		Significance of Transportation Costs[2]
Business Operation	Surface	Air	% of Total Location Costs
Manufacturing			
Advanced batteries	√		24%
Aircraft parts	√	√	23%
Auto parts	√		14%
Electronics assembly	√	√	13%
Food processing	√		21%
Medical devices	√	√	13%
Metal components	√		19%
Pharmaceuticals	√	√	15%
Plastic products	√		23%
Precision components	√		17%
Specialty chemicals	√		7%
Telecom equipment	√	√	9%

1 Only those operations that distribute products are included.
2 Includes all modes of transport.

Transportation Costs

	Global Distribution		Total Annual Cost	
	Surface Freight per Load[1,2]	Air Freight per Kg[1]	US$'000[3]	Rank
North America				
Canada	$1,987	$2.78	$2,315	5
Mexico	$2,782	$2.98	$3,124	10
United States	$1,746	$2.89	$2,112	2
Europe				
France	$1,894	$2.96	$2,284	4
Germany	$1,920	$2.25	$2,188	3
Italy	$2,589	$3.76	$3,083	9
Netherlands	$1,991	$3.33	$2,433	6
United Kingdom	$1,788	$5.82	$2,646	8
Asia Pacific				
Australia	$2,064	$3.50	$2,501	7
Japan	$1,039	$1.85	$1,240	1

1 Average for those manufacturing operations that utilize full load delivery logistics for each mode of distribution.
2 Per standard 40' container, or equivalent.
3 Average for 12 manufacturing operations included in the overall results.

Utility Costs

Electricity

The operations examined in this study are not particularly energy-intensive, and electricity costs typically represent only 1 to 5 percent of total location-sensitive costs. Details of average electricity demand and consumption requirements for each sector can be found in Chapter 4.

Compared in US cents per kilowatt-hour, electricity costs are lowest in the United States, Canada, and the Netherlands.

Natural Gas

Natural gas costs are analyzed only for manufacturing operations, as natural gas is generally irrelevant or immaterial for service operations. For the manufacturing operations examined, natural gas costs typically represent up to 4 percent of total location-sensitive costs.

Care should be exercised in interpreting national results, since there may be significant differences in the availability and cost of natural gas among study locations. For the few locations where piped natural gas is not readily available, costs of alternate fuel sources have been substituted based on energy equivalencies for the fuel source representing the most economical alternative (generally fuel oil).

Subject to these qualifiers, natural gas for each country are compared on the basis of US dollars per 100 cubic feet (CCF). The lowest natural gas costs are in Mexico, followed by the United States and then Canada.

Utility Costs: Electricity and Natural Gas

	Electricity[1]		Natural Gas[2]	
	US¢ per kWh	Rank	US$ per CCF[3] (100 ft³)	Rank
North America				
Canada	10.4 ¢	2	$0.65	3
Mexico	14.6 ¢	6	$0.42	1
United States	8.7 ¢	1	$0.59	2
Europe				
France	12.3 ¢	4	$1.87	8
Germany	18.3 ¢	8	$2.04	10
Italy	21.6 ¢	10	$1.90	9
Netherlands	12.2 ¢	3	$1.83	7
United Kingdom	15.3 ¢	7	$1.49	5
Asia Pacific				
Australia	20.4 ¢	9	$1.34	4
Japan	14.4 ¢	5	$1.63	6

1 Average for 19 operations included in the overall results.

2 Average for 12 manufacturing operations included in the overall results. Natural gas costs have not been analyzed for non-manufacturing operations.

3 Equals 2.83 m³ or 29.87 gJ.

"Shale and other unconventional sources of natural gas are transforming the US energy economy and helping to spur a manufacturing revival in the US, especially among the Gulf Coast states."

Hartley Powell, Global Location and Expansion Services, KPMG in the US

Financing Costs

The base interest rates used in this study represent typical cash deposit rates and mid-class commercial bond/loan rates in each country in Q4 2013.

In Mexico, the borrowing rate reflects a mix of lending in local currency and US dollars, which tends to reduce the total cost of borrowing. Cash deposits are assumed to be kept in hard currency, a business practice frequently seen in Mexico.

For operations in volatile industries or with limited fixed assets to offer as security, additional interest rate premiums have been added to the base borrowing rates as appropriate.

Interest Rates Used in This Study

	Cash Deposit Rate	Commercial Borrowing Rate
North America		
Canada	1.10%	5.06%
Mexico	2.42%	7.40%
United States	0.38%	4.16%
Europe		
France	0.68%	4.09%
Germany	0.68%	4.09%
Italy	0.68%	4.09%
Netherlands	0.68%	4.09%
United Kingdom	0.58%	4.44%
Asia Pacific		
Australia	2.53%	5.18%
Japan	0.11%	4.07%

Taxes Other Than Income

Property Taxes

Property taxes paid in each country are compared on the basis of US dollars of tax per square foot of building space. Property taxes include taxes levied on the value of land and buildings, machinery and equipment, inventory, and other physical assets. National results should be interpreted with caution, as property tax costs can vary significantly between locations based on local tax rates and property values.

For **services operations** occupying leased office space, property taxes on real estate are typically levied on the landlord. The amount of tax passed on to the tenant is captured indirectly in total office leasing costs, but is not separately identifiable. In France, however, the liability for property tax on leased properties ("CFE") is legally transferred directly to the lessor, resulting in the high tax burden seen for France in this category.

Direct taxation of equipment and/or business occupancy impacts the national results for 5 of the 10 countries. In the other 5 countries, for the locations examined, the services operations are not subject to direct taxes on equipment and/or business occupancy, so there is no property tax cost.

For **manufacturing operations**, property taxes typically account for about 2 percent of location-sensitive costs. The lowest property tax costs for manufacturing operations are in Mexico, followed by the Netherlands, and Italy.

Total Property Taxes

	Services Sector[1] (Leased Facilities)		Manufacturing Sector[2]	
	US$ per sq.ft.[3]	Rank	US$ per sq.ft.[3]	Rank
North America				
Canada[4]	$0.00	1	$4.98	7
Mexico	$0.00	1	$0.09	1
United States	$0.53	7	$6.45	8
Europe				
France	$9.07	10	$2.80	5
Germany	$0.00	1	$3.79	6
Italy[5]	$3.36	9	$1.47	3
Netherlands	$0.29	6	$0.53	2
United Kingdom	$0.00	1	$7.03	9
Asia Pacific				
Australia	$0.00	1	$1.88	4
Japan	$1.55	8	$10.43	10

1 Average for 7 services sector operations included in the overall results. Property taxes levied on the landlord for leased multi-tenant office space are not included here, but are implicitly included in gross rents compared earlier under Facility Costs.

2 Average for 12 manufacturing sector operations included in the overall results. Includes all property taxes related to leased industrial facilities on the same basis as if they were owned facilities.

3 Average US$ per square foot of building space. 1 sq.ft. = 0.09 m^2; 10.76 sq.ft. = 1 m^2.

4 In Canada, a few jurisdictions do tax equipment and/or business occupancy, but not any of the cities included in the calculation of the national result.

5 In Italy, the local property tax ("IMU") is intended to be repealed and replaced by alternative forms of local tax as of January 2014. However, as at January 2014 the form of such new taxes is subject to significant uncertainty, so this analysis continues to reflect the IMU tax in effect for 2013.

Sundry Local Business Taxes

In addition to property taxes, which represent the most common form of local business tax, sundry local business taxes also apply in approximately 20 of the jurisdictions studied. Because these taxes take a wide variety of forms, no overall summary comparison is presented for them. However, sundry local business taxes are included in the total cost calculations for this study.

Capital Taxes

Capital taxes include all taxes levied on business financial capital, including long term debt, share capital, and/or retained earnings/reserves. Capital taxes can include taxes levied annually, and/or one-time taxes levied at the time debt or shares are issued.

Capital taxes only apply in certain countries and regions:

- In the **United States**, capital taxes apply (in various forms) in about 40 percent of all locations examined
- In **Japan**, prefectural and municipal capital taxes apply in both locations considered in this study
- In **Italy**, a national tax applicable to relevant corporate borrowings imposes a minor one-time tax cost
- In **France**, the minor capital tax costs reflect one-time taxes or fees on the issuance of share capital.

Capital Taxes

	US$'000 per Annum[1]	Percent of Location-Sensitive Costs[1]
North America		
Canada	nil	–
Mexico	nil	–
United States	<$1 – $58	<0.01% – 0.48%
Europe		
France	$1	<0.01%
Germany	nil	–
Italy	$1	0.01%
Netherlands	nil	–
United Kingdom	nil	–
Asia Pacific		
Australia	nil	–
Japan	$29 – $32	0.21% – 0.26%

1 Average over 10 years. Range for those locations where capital taxes apply.

Sales and Transaction Taxes

Transaction taxes include gross receipts, non-refundable sales, and refundable value-added/sales (VAT OR GST) taxes.

Gross receipts taxes apply in France and a small number of US jurisdictions, either instead of, or in addition to, state or local income taxes. The United States also imposes an industry-specific gross receipts tax on manufacturers of medical devices.

The tax burden in the locations where gross receipts taxes apply is typically up to US $200,000 per annum, or up to 1.5 percent of location-sensitive costs. The highest costs for this type of tax are seen in France and in Charleston, West Virginia. Costs in other relevant US locations are less than US $100,000 per year.

Non-refundable sales taxes apply in nearly all US states, and a minority of Canadian provinces. Where non-refundable sales taxes apply, exemptions are generally available for many of the costs incurred by a manufacturer to avoid the compounding of taxes into the price of goods at each stage of the production process.

The tax burden in the locations where sales taxes apply is typically between US $60,000 and US $330,000 per annum, or approximately 0.5 to 2.6 percent of location-sensitive costs. Lower sales tax costs are seen in a few jurisdictions.

Refundable value-added/sales taxes (VAT or GST) have been excluded from the analysis since their refundable nature means there is no net cost to a business once input tax credits (refunds) have been claimed. These taxes do impose a cost on companies in terms of administration and cash flow timing, but such costs are not material to this study. Among the 10 countries studied, the US is the only country where refundable value added taxes do not exist.

Income Taxes

Effective income tax rates are calculated to reflect combined corporate tax rates (federal, regional, and local), net of generally applicable tax credits, grants, and other government incentives. The national results presented here represent the average for the representative cities within each country. Effective tax rates may vary by jurisdiction due to the existence of regional (state, provincial, etc.) and local corporate income taxes. Effective income tax costs are compared by sector.

Digital Services

Effective tax rates for digital operations are partially influenced by tax incentives for R&D expenditures, as well as incentives for video game and/or software production offered in some Canadian and US jurisdictions.

Canada, the United Kingdom, and France are the countries that offer the lowest effective corporate income tax rates in the digital services subsector.

R&D Services

France, the Netherlands, and Canada all offer significant R&D tax incentives which may be fully or partially refundable in certain situations, resulting in a "negative" tax cost (or net government subsidy) for R&D operations in some jurisdictions. Australia, the United Kingdom, and the United States also offer R&D incentives, resulting in effective tax rates for R&D operations that are well below their respective nominal tax rates.

Corporate Services

For general corporate services operations, the lowest effective income tax rates are offered by the United Kingdom, Canada, and the Netherlands.

Effective tax rates in this subsector tend to be relatively closer to a jurisdiction's nominal tax rate, due to fewer incentives applying in this subsector. However, in Mexico, new restrictions on the deductibility of employee benefit costs particularly impact this labor-intensive subsector, resulting in a relatively high effective income tax rate for corporate services in Mexico.

Manufacturing

For manufacturing operations, the United Kingdom, Canada, and the Netherlands offer the lowest effective corporate income tax rates, with effective rates below 21 percent.

Effective Combined Corporate Income Tax Rate[1]

	Services Sector						Manufacturing Sector[4]	
	Digital Services[2]		Research & Development[3]		Corporate Services[2]			
	%	Rank	%	Rank	%	Rank	%	Rank
North America								
Canada	4.3%	1	-10.0%	3	21.8%	2	16.7%	2
Mexico	32.1%	7	36.4%	10	45.9%	10	29.4%	9
United States	32.7%	8	19.6%	6	38.7%	8	27.0%	6
Europe								
France	18.5%	3	-63.0%	1	32.9%	6	22.5%	4
Germany	31.1%	6	32.1%	7	31.2%	5	27.9%	8
Italy	34.1%	10	35.4%	9	39.8%	9	25.0%	5
Netherlands	20.9%	4	-20.3%	2	24.9%	3	20.8%	3
United Kingdom	17.9%	2	2.3%	4	20.4%	1	15.1%	1
Asia Pacific								
Australia	25.7%	5	3.3%	5	30.0%	4	27.3%	7
Japan	33.8%	9	32.9%	8	37.5%	7	31.5%	10

1 Percentage of net profit before tax for representative operations, net of government grants and incentives.

2 Average for two operations included in the overall results.

3 Average for three R&D operations included in the overall results. Most activities represent tax-eligible R&D activities. Negative effective income tax rates are the result of refundable R&D income tax credits, grants, or other incentive programs. These amounts may be substantial in some countries or locations.

4 Average for 12 manufacturing operations included in the overall results.

Further Tax Analysis

Taxes are the subject of a separate KPMG report, *Competitive Alternatives Special Report: Focus on Tax*, that analyzes international tax issues in greater depth than this report on business costs.

The *Focus on Tax* report is expected to be available as of June 2014 online at CompetitiveAlternatives.com.

Nature of Results

The results described here are sensitive to operating specifications, including revenue assumptions. Effective tax rates will also vary for different operations, regions, and cities within countries, and over time, due to changes in tax laws and regulations. These results are of a general nature, and further detailed analysis is required to draw a conclusion about comparative tax rates for a particular operation in alternate locations.

Other Competitiveness Factors

6

The focus of the preceding chapters is a detailed comparison of business costs across all study locations. While business cost comparisons are one important aspect of the site selection process, consideration of a wider range of factors, including the business environment, cost of living, and quality of life, is integral to making an informed location choice. This chapter presents comparative information on a variety of non-cost competitiveness factors.

The relative importance of cost and non-cost factors varies both between different industries and among individual firms within a particular industry. The final ranking and prioritization of relevant site selection criteria will vary for each unique location project. Therefore, this chapter does not attempt to draw any overall conclusions regarding the "total competitiveness" of each location. The results and ratings detailed in this chapter need to be interpreted by individual companies in relation to their specific needs.

This chapter compares other competitiveness factors primarily at the national level. Select competitiveness metrics are also available at the regional and/or city level, as reported in Appendix C.

Key Site Selection Factors

	Cost Factors	Other Key Factors
Business	**Business Costs** ◆ Facilities: industrial, office ◆ Labor: wages, salaries, benefits ◆ Transportation and distribution ◆ Utilities ◆ Financing ◆ Federal, regional, local taxes	**Business Environment** ◆ Labor availability and skills ◆ Access to markets, customers, suppliers ◆ Road, rail, port, airport infrastructure ◆ Utility, telecom, internet services and reliability ◆ Suitable sites and facilities ◆ Regulatory environment
Personal	**Cost of Living** ◆ Personal taxes ◆ Cost of housing ◆ Cost of consumer products and services ◆ Healthcare costs ◆ Education costs	**Quality of Life** ◆ Healthcare facilities ◆ Schools and universities ◆ Crime rates ◆ Climate ◆ Culture and recreation

"For some projects, other factors can override cost. These are what we call 'absolute drivers.' For example, Sydney has a quality about it that you won't find in many other locations. Regardless of cost, there are certain types of investments that are best suited to major global cities like Sydney, London, or Tokyo."

Simon Corden, Government Advisory Practice, KPMG in Australia

Site Selection Factors

Area Development Magazine's annual US Corporate Surveys provide a valuable assessment of business-related and quality of life site selection factors considered to be "important" by survey respondents. These exhibits show some significant changes and some similarities in the ranking of these site selection factors between 2013 and previous years:

- As economic recovery in the US has continued, the availability of labor has risen to the top of the 2013 rankings, cited as important by 95.1 percent of respondents and edging out highway accessibility as the number one site selection factor. The cost of labor also remains a key consideration, cited as important by 90.8 percent of respondents and ranking third among the business factors.
- Availability of advanced ICT services and available buildings have both risen significantly in the rankings since 2011, potentially reflecting a more expansion-oriented business outlook.
- Dropping in importance are three related factors—corporate tax rates, state and local incentives, and tax exemptions, each of which dropped three places in the rankings. Improved corporate earnings may be causing this lesser focus on forms of government support and assistance.
- Proximity to major markets and inbound/outbound shipping costs have also moved down the rankings. This shift may be reflective of lower transportation costs as seen in the cost analysis, and/or the ongoing digitization of many products and services.

Most of the identified site selection factors are included within the scope of the *Competitive Alternatives* study. These factors are either captured as part of the study cost analysis, or are considered in the review of other competitiveness factors presented in this chapter.

Site Selection Factors, by Indicated Importance[1]

	Percentage of Respondents Citing as Important (Rank)				Analyzed in *Competitive Alternatives* Chapter	
	2013		2011		Ch. 5	Ch. 6
Availability of skilled labor	95.1	(1)	88.4	(2)		✓
Highway accessibility	93.5	(2)	93.8	(1)		✓
Labor costs	90.8	(3)	88.4	(2)	✓	
Occupancy or construction costs	87.4	(4)	85.9	(5)	✓	
Availability of advanced ICT services	84.6	(5)	76.6	(13)		✓
Available buildings	83.3	(6)	76.3	(15)	✓[3]	
Corporate tax rate	82.4	(7)	86.0	(4)	✓	
State and local incentives	81.9	(8)	85.9	(5)	✓[2]	
Low union profile	81.4	(9)	81.0	(10)		✓
Energy availability and costs	80.8	(10)	84.8	(7)	✓	✓
Tax exemptions	80.6	(11)	83.6	(8)	✓[2]	
Right-to-work state	80.6	(11)	77.5	(12)		
Available land	80.3	(13)	73.9	(16)	✓[3]	
Expedited or "fast-track" permitting	76.3	(14)	72.4	(17)		
Proximity to major markets	75.6	(15)	83.0	(9)		✓
Availability of long-term financing	74.8	(16)	70.0	(18)		
Environmental regulations	71.7	(17)	76.4	(14)		✓
Inbound/Outbound shipping costs	70.9	(18)	79.2	(11)	✓	
Proximity to suppliers	67.7	(19)	67.8	(19)		
Raw materials availability	60.5	(20)	52.8	(22)		

1 Area Development, 2013 and 2011 Corporate Surveys. Factors considered by more than 60% of total respondents in either year to be "very important" or "important."

2 All significant non-discretionary incentives and exemptions have been incorporated in the tax calculations and overall results for this study. Refer also to Chapter 1 for discussion of incentives methodology.

3 Due to the strong influence of supply and demand in real estate markets, costs of land and buildings provide a good indication of relative availability.

Quality of Life Factors, by Indicated Importance[1]

	Percentage of Respondents Citing as Important (Rank)				Analyzed in *Competitive Alternatives* Chapter
	2013		2011		Ch. 6
Low crime rate	80.9	(1)	82.0	(1)	✓
Healthcare facilities	79.7	(2)	71.0	(2)	✓
Housing costs	75.3	(3)	69.9	(3)	✓
Ratings of public schools	73.0	(4)	68.8	(4)	✓
Housing availability	71.5	(5)	64.1	(5)	✓
Recreational opportunities	66.4	(6)	53.2	(7)	
Colleges and universities in area	59.5	(7)	56.6	(6)	✓
Climate	59.5	(7)	52.2	(8)	
Cultural opportunities	54.8	(9)	42.8	(9)	

1 Area Development, 2013 and 2011 Corporate Surveys. Percentage of total respondents who consider a factor to be either "very important" or "important."

General Business Environment

Macro-Economic Conditions

The table below summarizes growth and inflation indicators for each of the study countries over recent years. With challenging conditions continuing, all countries have seen one or more dips in their path back to sustained economic growth.

Italy and the Netherlands have been the hardest hit in this regard, both seeing contractions in GDP in 2012 and 2013, and neither achieving annual average GDP growth above zero for the period 2010-13. Mexico and Australia have been the growth leaders over this period, although even these two strong performers expect lower GDP growth rates in 2013.

In terms of GDP per capita, the US continues to lead all other countries by a wide margin. Canada has seen improvement since 2011, moving up to second place on this measure, surpassing Australia and Netherlands.

Detailed data on regional GDP growth rates and GDP per capita for all featured cities are provided in Appendix C.

Price stability (inflation) has been a concern in recent years, with fears that economic stimulus spending and loose monetary policies in many countries would lead to rampant inflation. This has proven not to be the case, and Mexico was the only country to see an inflation rate in excess of 3 percent in 2012.

National Finance Indicators

	Gross Government Debt as % GDP[1]			Credit Rating[2]	Gross National Savings as % GDP[1]		Current Account Balance as % GDP[1]	
	2009	2012	Rank (2012)	2012	2012	Rank	2012	Rank
Australia	16.8	27.2	1	AAA	25.2	2	-3.7	9
Canada	81.4	85.6	5	AAA	20.8	6	-3.7	10
France	79.2	90.3	6	AA	17.6	7	-2.4	6
Germany	74.5	82.0	4	AAA	24.2	3	7.0	2
Italy	116.4	127.0	9	BBB	17.1	8	-0.5	4
Japan	210.2	237.9	10	AA-	21.6	5	1.0	3
Mexico	44.5	43.5	2	BBB+	23.8	4	-0.8	5
Netherlands	60.8	71.7	3	AA+	25.5	1	8.3	1
United Kingdom	68.1	90.3	7	AAA	10.8	10	-3.5	8
United States	89.1	106.5	8	AA+	13.1	9	-3.0	7

1 World Economic Outlook Database, IMF, April 2013. Reporting data as % of GDP.
2 Standard and Poor's. January 2014, Foreign currency rating.
Refer to Appendix C for full details on sources.

At the other end of the spectrum, inflation continues to be non-existent in Japan, a factor that has helped contribute to Japan's stronger performance in the international cost comparisons this year.

Government debt (refer to table above) continues to be a grave concern in many countries, with Mexico being the only country to decrease its debt-to-GDP ratio between 2009 and 2012. The US debt surpassed its GDP in 2012, and political brinkmanship on the US debt ceiling has been a cause of volatility over the last year.

As a result of growing debt levels, France, Italy, and the Netherlands have all seen their Standard & Poor's credit ratings drop by one notch between January 2012 and 2014. By contrast, Mexico's credit rating moved up one notch, and now rates above Italy.

Despite the government debt situation, the Netherlands leads all countries for gross national savings and current account surplus, providing it with more financial flexibility for tackling its debt than some other European countries. Germany also fares well on both these measures.

Growth and Inflation Indicators

	% GDP Growth Rate[1]						GDP/ Capita[1]		Inflation Rate[2]
	2010	2011	2012	2013	2010-13[1]	Rank	US$, PPP	Rank	2012 %
Australia	2.6	2.4	3.7	2.5	2.8	2	$43,042	3	1.8
Canada	3.4	2.5	1.7	1.6	2.3	3	$43,146	2	1.5
France	1.7	2.0	0.0	0.2	1.0	8	$35,680	8	2.0
Germany	3.9	3.4	0.9	0.5	2.2	5	$39,468	5	2.0
Italy	1.7	0.4	-2.4	-1.8	-0.5	10	$29,598	9	3.0
Japan	4.7	-0.6	2.0	2.0	2.0	6	$37,135	7	0.0
Mexico	5.1	4.0	3.6	1.2	3.5	1	$15,608	10	4.1
Netherlands	1.5	0.9	-1.2	-1.3	0.0	9	$41,447	4	2.5
United Kingdom	1.7	1.1	0.2	1.4	1.1	7	$37,299	6	2.8
United States	2.5	1.8	2.8	1.6	2.2	4	$52,839	1	2.1

1 World Economic Outlook Database, IMF, October 2013. The column "2010-13" reflects the annual average growth rate for the period.
2 Consumer Prices (MEI), OECD. Refer to Appendix C for full details on sources.

Institutional Effectiveness

Institutional effectiveness assesses the macro political-legal structures in each country, from the perspective of businesses.

The Netherlands leads on three measures in this category—reporting the highest levels of overall government effectiveness, the strongest rule of law, and lowest incidence of corruption among the study countries. However, the Netherlands is rated less favorably by business executives in terms of government policy adaptability to economic change.

Institutional effectiveness is also a strong topic for Canada. Business executives rank Canada first among the study countries for a key issue—government policy adaptability to economic change. Canada ranks second, behind only the Netherlands, for overall government effectiveness, strong rule of law, and low corruption.

Australia also fares well in each of these areas, although it has seen its rating for policy adaptability to economic change drop significantly over the last two years. One explanation for this could be the changes in Federal Government that took place in Australia over that period and the uncertainty this might have created for businesses around key economic policies.

Mexico rates well among the countries for policy adaptability to economic change, no doubt a reflection of its stronger performance than other study countries in terms of economic growth and controlling government debt. However, as the only emerging market country in the study, Mexico fares relatively poorly on the measures of government effectiveness, rule of law, and corruption.

Institutional Effectiveness Indicators

	Government Effectiveness[1]		Policy Adaptability to Economic Change[2]		Rule of Law[1]		Corruption[3]	
	Index	Rank	Index	Rank	Index	Rank	Index	Rank
Australia	8.2	3	4.5	6	8.5	3	8.1	2
Canada	8.5	2	5.9	1	8.5	2	8.1	2
France	7.7	8	2.0	9	7.9	7	7.1	8
Germany	8.1	4	4.7	4	8.3	5	7.8	4
Italy	5.8	9	1.9	10	5.7	9	4.3	9
Japan	7.8	7	4.0	8	7.6	8	7.4	6
Mexico	5.6	10	5.2	2	3.9	10	3.4	10
Netherlands	8.6	1	4.4	7	8.7	1	8.3	1
United Kingdom	8.1	5	4.7	5	8.4	4	7.6	5
United States	8.0	6	4.8	3	8.2	6	7.3	7

1 World Governance Indicators, World Bank, 2012. Rescaled to scale of 0 to 10 where 0 = low and 10 = high.

2 Scale of 0 to 10 where 0 = low and 10 = high. World Competitiveness Yearbook (WCY) copyright © 2013, IMD International, Switzerland, World Competitiveness Center, www.imd.ch/wcc.

3 Scale of 0 to 10 where 0 = highly corrupt and 10 = highly clean. Transparency International, 2013.

Refer to Appendix C for full details on sources.

Overall Competitiveness

The *Global Competitiveness Index* (GCI), by the World Economic Forum and the *World Competitiveness Yearbook* (WCY), by the International Institute for Management Development, both examine broad ranges of economic, institutional, and social factors in order to produce overall competitiveness indices by country. These two indices reflect somewhat different perspectives on international competitiveness, but are also similar in many ways.

Among the 10 countries analyzed in this report, the United States, followed by Germany, the Netherlands, and Canada offer the most broadly competitive business environments based on these two sources. Italy and Mexico tie for last place among the 10 countries, with GCI ranking Italy ahead of Mexico, while WCY takes the opposite view.

Economic Competitiveness Indicators

	2013 GCI Score[1]	Rank	2013 WCY Score[2]	Rank	Combined Rank[3]
Australia	5.09	7	80.51	5	7
Canada	5.20	6	89.13	2	4
France	5.05	8	71.33	8	8
Germany	5.51	1	86.20	3	2
Italy	4.41	9	56.33	10	9
Japan	5.40	4	74.53	7	5
Mexico	4.34	10	65.44	9	9
Netherlands	5.42	3	83.16	4	3
United Kingdom	5.37	5	79.15	6	5
United States	5.48	2	100.00	1	1

1 7 = high, 1 = low. Global Competitiveness Index (GCI) by the World Economic Forum, 2013-14.

2 100 = high, 0 = low. World Competitiveness Yearbook (WCY) copyright © 2013, IMD International, Switzerland, World Competitiveness Center, www.imd.ch/wcc.

3 Based on average of rankings among the 10 countries for each of GCI and WCY.

Refer to Appendix C for full details on sources.

Entrepreneurial Activity

	Total early-stage Entrepreneurial Activity[1]	Rank
Australia[2]	10.5	4
Canada	12.2	2
France	4.6	8
Germany	5.0	7
Italy	3.4	10
Japan	3.7	9
Mexico[3]	12.0	3
Netherlands	9.3	5
United Kingdom	7.1	6
United States	12.7	1

1 TEA = Total early-stage Entrepreneurial Activity as a percentage of the adult population. Global Entrepreneurship Monitor reporting 2013 or latest available data. The business discontinuation rate was also examined relative to TEA, and the relative ranking of countries does not vary significantly regardless of whether or not business discontinuations are netted off against TEA.

2 GEM 2011 Australia Report.

3 GEM 2012 Mexico Report.

Refer to Appendix C for full details on sources.

Entrepreneurial Climate

Entrepreneurial activity reflects another key facet of the general business climate and dynamism of the economy in a given country. Entrepreneurial activities may in some instances be inventions of necessity, but in many situations reflect willingness to take business risks and the ability to capitalize on product or process opportunities.

Entrepreneurial activity typically begins before the establishment of a new business, as entrepreneurs develop plans, strategies and financing to capitalize on their new business ideas. Entrepreneurial activity continues after the establishment of a new business, through the early stages of the business life cycle as entrepreneurs shepherd their new businesses either to a solid foundation for ongoing success, or to their demise.

The Global Entrepreneurship Monitor conducts stratified interviews on an annual basis to capture data on this full spectrum of entrepreneurial activity, capturing activity that precedes more usual measures based on "when the business license is issued".

The three NAFTA countries—the United States, Canada, and Mexico—all have similarly high levels of Total Entrepreneurial Activity (TEA), followed by Australia. This high level of entrepreneurial dynamic in the "new world" countries is in contrast to the lower levels of TEA seen in all the European countries and Japan. Japan and Italy show the lowest levels of entrepreneurial activity among the study countries, implying a more risk-averse, employment-based economic approach.

Labor Markets

Labor Force Activity

Labor force participation and unemployment statistics represent key macro level indicators of the health of a country's labor market and overall economy.

Unemployment rates for the study countries in Q2 2013 ranged from 4.0 percent in Japan to 12.1 percent in Italy.

After being hard hit with job losses from 2008 through 2011, and having the highest unemployment rate among the study countries in 2011, the United States has seen the strongest level of job creation over the last two years. The US unemployment rate has dropped by 1.5 percent from 2011 to 2013, more than double the improvement seen in any other country.

Despite predictions of economic recovery, unemployment rates in four countries—Australia, France, the Netherlands, and Italy—are now higher than they were in 2011. Indeed, unemployment rates in France and Italy have moved above 10 percent over the last two years, as these economies continue to struggle with job creation. However, such high unemployment rates also represent untapped talent that will be available when economic recovery and job creation finally take root.

Long term unemployment is particularly worrisome, as prolonged periods of unemployment both erode skills and discourage unemployed workers. The incidence of long term unemployment is higher now than in 2011 for six of the study countries, and Germany is the only country that has achieved a significant decline in long term unemployment over the last two years. Over the same period, long term unemployment has risen almost 4 percent in Italy, and now more than half of all unemployed workers in Italy have been out of work for a year or more.

Similar trends are seen in youth unemployment rates (workers under the age of 25). The United States and Germany have had the most success in reducing youth unemployment between 2011 and 2013, while the rate of unemployment for young workers has continued to climb in other European countries, especially in Italy where the youth unemployment rate has jumped 7.5 percent since 2011 and now more than one third of all young job seekers are out of work.

Unemployment rates only tell one part of the labor market story, and should be interpreted within the broader context of economic activity (participation) rates. Economic activity rates represent the proportion of the adult population that is either employed, or unemployed but looking for work. Adults who are neither employed nor looking for work are considered inactive. This may occur for a variety of reasons, but low activity rates are often symptomatic of poor-performing labor markets that reduce the incentive for people to look for work. Among the countries, Canada has the highest economic activity rate, at 66.7 percent, more than 17 percentage points higher than Italy, the lowest ranked country.

Detailed data on economic activity rates and unemployment rates for featured cities are provided in Appendix C.

Labor Force Activity Indicators

	Unemployment[1]		Incidence of Long-Term Unemployment[2,3]		Youth Unemployment[2,4]		Economic Activity (Participation)[2]	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
Australia	5.6%	4	20.3%	2	11.7%	5	65.2%	2
Canada	7.1%	6	11.9%	1	14.3%	6	66.7%	1
France	10.1%	9	39.9%	7	23.7%	9	56.7%	9
Germany	5.4%	3	45.2%	8	8.1%	2	60.1%	7
Italy	12.1%	10	52.4%	9	35.3%	10	49.3%	10
Japan	4.0%	1	38.5%	6	7.9%	1	59.1%	8
Mexico	5.0%	2	n/a	n/a	9.4%	3	60.9%	6
Netherlands	6.6%	5	33.1%	4	9.5%	4	65.2%	2
United Kingdom	7.7%	8	34.7%	5	21.3%	8	63.2%	5
United States	7.6%	7	29.3%	3	16.5%	7	63.7%	4

1 Labour Force Statistics (MEI), OECD. Reporting data for Q2 2013, except Mexico Q1 2013.
2 KILM database, 8th edition, ILO. Reporting 2012 data.
3 As Percentage of total unemployment, out of work for a year or more.
4 Unemployment rate among labor force participants aged 15-24 years.
Refer to Appendix C for full details on sources.

Population Demographics

Population demographics represent another important labor market consideration in the current era.

With aging populations and the large "baby boomer" generation now having started to retire, future labor supply is an issue in most mature economies, with increasing focus being placed on current and future skills gaps. With fertility rates stuck in low gear in virtually all mature market countries, for many countries immigration is the only potential source of labor market growth, but weak economic growth has also turned the tide of opinion against higher rates of immigration in some countries.

Both Germany and Japan are already experiencing population decline, creating challenges for economic systems geared toward constant growth. By 2035, it is projected that Italy's population will also be in decline, population growth will have ceased in the Netherlands, and none of the study countries will have population growth rates in excess of 1.0 percent.

Also by 2035, the median age in all study countries, except Mexico, is projected to be more than 40 years of age. Australia and the United States are expected to be the last two mature market countries to cross this threshold, both reaching a median age of 40.1 years in 2035. At that date, the median age in Germany and Italy is projected to have reached 50.0 years, while in Japan it will be 52.5 years. Only in Mexico will the population be more sprightly, with a median age of 35.8 in 2035—still much older than its 27.7 median years of age in 2015.

As a result of population aging, the ratio of elderly to the working age population ("old-age dependency ratio") is rising in all countries, placing an additional burden on the working age population and increasing existing pressures on healthcare and social services.

Japan faces the most immediate challenge in terms of aging population, with its old age dependency ratio now passing 40 percent. By 2035 in Japan, Germany and Italy, there will only be two (or fewer) workers to support each senior, compared to three workers today.

Some countries exhibit significant regional variations in age profiles. For example, the old age dependency ratio for Alaska in the United States at 11.5 percent is similar to that of Mexico City despite the large difference between the US and Mexico national dependency ratios.

A table providing detailed data by region for this topic can be found in Appendix C.

Projected Population Growth and Age Profiles

	Projected Population Growth Rate[1]			Median Age[1]			Old Age Dependency Ratio[1,2]		
	2015-20	2030-35	2030-2035 Rank	2015	2035	2035 Rank	2015	2035	2035 Rank
Australia	1.2%	0.9%	1	37.4	40.1	2	23%	33%	2
Canada	1.0%	0.6%	3	40.5	43.5	6	24%	39%	4
France	0.5%	0.3%	6	41.0	42.8	4	30%	42%	6
Germany	-0.2%	-0.4%	9	46.3	50.0	8	33%	55%	9
Italy	0.1%	-0.1%	8	45.0	50.0	8	34%	51%	8
Japan	-0.2%	-0.5%	10	46.5	52.5	10	44%	58%	10
Mexico	1.1%	0.6%	2	27.7	35.8	1	10%	20%	1
Netherlands	0.2%	0.0%	7	42.4	44.9	7	28%	46%	7
United Kingdom	0.5%	0.4%	5	40.5	43.0	5	28%	39%	4
United States	0.8%	0.6%	4	37.7	40.1	2	22%	35%	3

1 World Population Prospects: The 2012 Revision, United Nations Secretariat.

2 65+ population as % of population 15-65 year-old population.

Refer to Appendix C for full details on sources.

Availability of Skilled Labor

The availability of skilled labor is consistently ranked as a leading site selection factor by expanding and relocating firms.

Despite persistently high levels of unemployment in most countries, employers in many countries struggle to fill available positions due to a lack of skilled talent. This skills gap is particularly acute in Japan, where 85 percent of employers report problems filling skilled job vacancies due to a lack of qualified candidates. Less severe, but still notable skill gaps also exist in Australia, where 45 percent of employers encounter hiring difficulties, the United States (39 percent), and Mexico (38 percent). The Netherlands offers the best environment for hiring skilled workers, with fewer than 10 percent of employers reporting difficulties filling skilled job vacancies.

Measures related to education outcomes and expenditures can also help to assess these issues of skilled labor availability.

For the indicators of education outcomes and expenditures:

- Japan leads the 10 countries on measures of educational outcomes, achieving both the highest score for science skills among high school students (PISA Score), and the second highest percentage of working age adults who have completed tertiary education (degree or higher). These positive results for Japan are achieved despite the fact that Japan has the second lowest level of education spending, when measured as a percentage of GDP.
- Canada fares well on all education measures, ranking first among the countries for tertiary education attainment, and second among the countries for both high school science skills and spending on education.
- The United States ranks first among the countries in terms of education expenditures and third in terms of tertiary education attainment, but has weaker results in terms of its high school science skills.
- Italy's high unemployment rates, along with its poor rankings for these education measures, are particularly concerning, even though only 17% of employers report difficulty in filling skilled jobs. Italy ranks ahead of only Mexico on the assessment of high school science skills, last among the 10 countries for tertiary education attainment, and last among the countries for spending on education.

The shift towards a knowledge economy requires a well-educated labor force that is able to work with advanced technologies and adapt to innovative business processes. As a result, completion of some tertiary education has become the norm in the mature countries.

Skills Gap and Education Indicators

	Employer Difficulty in Filling Skilled Jobs[1]		High School Science Skills (PISA Score)[2]		Tertiary Education Attainment[3]		Education Expendit. as % GDP[4]	
	%	Rank	Score	Rank	%	Rank	%	Rank
Australia	45%	9	521	5	37.6%	5	6.1%	7
Canada	34%	5	525	2	50.6%	1	6.6%	2
France	33%	4	499	7	29.0%	7	6.3%	4
Germany	35%	6	524	3	26.6%	8	5.3%	8
Italy	17%	3	494	9	14.8%	10	4.7%	10
Japan	85%	10	547	1	44.8%	2	5.1%	9
Mexico	38%	7	415	10	17.4%	9	6.2%	6
Netherlands	9%	1	522	4	32.4%	6	6.3%	4
United Kingdom	13%	2	514	6	38.2%	4	6.5%	3
United States	39%	8	497	8	41.7%	3	7.3%	1

1 The Talent Shortage Survey, Manpower Group, 2013.
2 Programme for International Student Assessment (PISA), 2012, science competencies, OECD.
3 Percent of population aged 25-64 who have completed tertiary education. Reporting data for 2010. OECD Factbook 2013.
4 Expenditure on all levels of education (primary and above), from public and private sources. 2010 or latest data available, OECD.
Refer to Appendix C for full details on sources.

Labor Market Flexibility

Labor market flexibility is another area frequently indicated as important by business executives. A low union profile and "right to work" (or similar) laws allow firms to take swift action in response to rapidly changing competitive pressures and economic conditions in order to remain competitive.

Low union profile (union density) should not be considered in isolation, but should be interpreted within the wider context of collective bargaining agreements. For example, in France, only 7.8 percent of workers were members of unions in 2012, yet 95 percent were covered by collective bargaining agreements.

The United States and Japan are the countries with the lowest levels of collective bargaining coverage among the 10 nations, by a wide margin. Collective bargaining coverage in the US and Japan is half or less than that seen in third-ranking Canada.

Regulations governing other aspects of labor markets also affect labor flexibility. Employment protection legislation has an impact on the processes and costs involved in hiring and firing workers, as well as managing workers. On this measure, the United States and Canada offer greater employment flexibility than any other country, with the US offering the most flexibility for dealing with permanent employees, and Canada the greater flexibility with temporary employees. With the United Kingdom ranking third and Australia fourth on both these measures, these countries offer significantly greater labor flexibility than Japan or Mexico. The continental European countries offer the greatest protections to workers, although at the expense of employer flexibility.

Labor Market Flexibility Indicators

	Union Density[1]	Collective Bargaining Coverage[2]		Employer Flexibility Under Employment Protection Legislation[3]			
				Regular Employment		Temporary Employment	
	%	%	Rank		Rank		Rank
Australia	17.9	60	6	1.57	4	1.04	4
Canada	26.8	32	3	0.92	2	0.21	1
France	7.8	95	10	2.60	8	3.75	10
Germany	18.0	63	7	2.72	9	1.75	7
Italy	35.6	80	8	2.41	7	2.71	9
Japan	18.0	16	2	1.62	5	1.25	6
Mexico	13.6	36	5	1.91	6	2.29	8
Netherlands	18.2	82	9	2.84	10	1.17	5
United Kingdom	25.8	35	4	1.12	3	0.54	3
United States	11.1	13	1	0.49	1	0.33	2

1 Percentage of total workforce, OECD 2012 or most recent year available.
2 Percentage of total workforce, OECD. 2010.
3 Rating: 0 = most flexible, 6 = least flexible, OECD. Reporting 2013 data.
Refer to Appendix C for full details on sources.

Innovation

In an increasingly global market place, the ability to innovate is key to maintaining a competitive edge. While the determinants of innovation vary in different contexts, the basic components include the existence of a highly educated, technically-oriented labor force, coupled with investment in R&D and capacity to innovate.

The innovation talent pool can be measured in a number of different ways, including:

- Human resources in science and technology (HRST) is a broad international definition that includes all university and college graduates plus any other workers actually employed in science and technology occupations for which a degree would normally be required. Not all HRST workers are directly employed in occupations related to science and technology, but this definition views all tertiary graduates as assets in innovative societies. For example, the film and video gaming industries employ large numbers of people trained in the arts, but are also driving major innovations in digital imaging.
- Researchers (as a percentage of total employment) represents a narrower measure of the innovation workforce, counting only those who are actively involved in R&D.

In all of the mature market countries, HRST workers represent at least 30 percent of the total workforce, with the United States and the Netherlands leading on this measure. A closer examination of the composition of HRST also reveals some differences in the level of skills within this group. For example, while HRST workers make up a similar percentage of the labor force in the Netherlands and Germany, the Netherlands has significantly more professionals than technicians, while Germany has more technicians than professionals.

In terms of researchers per 1,000 employees, Japan and the United States are the leaders. There is a significant gap between the mature market countries and Mexico on this measure, with the proportion of researchers in Mexico's workforce being less than a quarter that of ninth ranked Italy.

Of course, in addition to technical staff, another component to innovation is investment in R&D. Comparing R&D expenditures as a percentage of GDP, in most cases there is a correlation between R&D expenditures and researcher employment. The three top-ranked countries for R&D expenditures are Japan, Germany and the United States.

Within each country, R&D investments tend to be concentrated in research and innovation hubs, typically situated in close proximity to large universities, technology campuses of large companies, and/or military/defense research facilities. Therefore, significant regional variations in R&D expenditures can exist. Appendix C contains data on R&D expenditures by region in Canada and the United States. The leading regions for R&D expenditures are New Mexico, Maryland, Massachusetts, Washington and California.

The innovation indicator reflects the view of global executives on the capacity for innovation seen in each country. Once again, the leaders are Germany, the United States, and Japan, generally consistent with the above measures of innovation workforce and R&D expenditures.

Innovation Indicators

	Science Employment[1]						R&D Spending[1]		Capacity for Innovation[2]	
	HRST Workforce as % of Total Employment				Researchers per 1,000 Employment		R&D Expend. as % GDP		Company Level Innovation	
	HRST Professionals	HRST Technicians	Total	Rank		Rank		Rank		Rank
Australia	18.1%	13.7%	31.8%	7	8.5	5	2.2%	5	4.5	7
Canada	18.6%	16.4%	35.0%	6	8.6	4	1.7%	8	4.3	8
France	17.2%	20.2%	37.4%	4	9.0	3	2.2%	4	4.8	6
Germany	17.8%	21.4%	39.2%	3	8.1	7	2.9%	2	5.6	1
Italy	13.5%	17.3%	30.8%	8	4.3	9	1.3%	9	4.2	9
Japan	n/a	n/a	n/a	n/a	10.2	1	3.4%	1	5.6	3
Mexico	4.0%	8.0%	12.0%	9	0.9	10	0.4%	10	3.5	10
Netherlands	23.1%	16.4%	39.5%	2	6.2	8	1.9%	6	5.1	5
United Kingdom	24.0%	12.9%	36.9%	5	8.4	6	1.8%	7	5.2	4
United States	22.6%	18.2%	40.8%	1	9.5	2	2.8%	3	5.6	2

1 HRST = Human Resources in Science and Technology. OECD, reporting 2012 or latest available data.

2 Scale of 1 to 7 where 1 = low and 7 = high. Global Competitiveness Report by the World Economic Forum, 2013.

Refer to Appendix C for full details on sources.

Regulatory Framework

Business Regulation

A wide range of regulations impact businesses, both in the countries where they operate and in the countries with which they trade.

A cost-efficient and functional business regulatory environment is a necessity for robust and healthy economies, with transparent and enforceable rules providing a level playing field for businesses. However, government must also consider the trade-offs of business regulation relative to the broader social context.

Transparency of commercial real estate markets is an important consideration in investment and location decisions, whether purchasing or leasing property. Among the countries, the United States, the United Kingdom, and Australia lead in this regard, while Italy, Japan, and Mexico are rated as least transparent.

The Market Access Index, by the World Economic Forum, ranks countries according to the extent to which the country's policy framework welcomes foreign goods and enables access to foreign markets for its exporters. Mexico receives the strongest score among all study countries on this index, likely due to its programs designed to facilitate cross-border manufacturing by US and international firms. Among the mature countries, Canada, Australia, and the United States are rated as having the most open markets, while Japan's market is the most restrictive.

Finally, combining a number of regulatory measures, the World Bank's Ease of Doing Business Index provides an overall comparison of countries based on their business regulatory environments. The United States receives top ranking among the study countries, followed by the United Kingdom, Australia, and Canada. By this measure, Mexico and Italy represent the countries that are most challenging for doing business.

Business Regulatory Environment Indicators

	Commercial Real Estate Transparency[1]		Market Access Index[2]		Ease of Doing Business Ranking[3]	
	Index	Rank	Index	Rank	Index[3]	Rank
Australia	1.36	3	2.88	3	11	3
Canada	1.56	5	2.32	2	19	4
France	1.57	6	3.10	5	38	8
Germany	1.80	7	3.10	5	21	5
Italy	2.16	8	3.10	5	65	10
Japan	2.39	9	3.21	10	27	6
Mexico	2.97	10	2.16	1	53	9
Netherlands	1.38	4	3.10	5	28	7
United Kingdom	1.33	2	3.10	5	10	2
United States	1.26	1	2.98	4	4	1

1 Scale of 1 to 5 where 1 = strong and 5 = weak. Jones Lang LaSalle, La Salle Investment Management, 2012.
2 Scale of 1 to 7 where 1 = strong and 7 = weak. World Economic Forum, 2012.
3 The index for each country represents its rank among 183 countries, World Bank, 2013.
Refer to Appendix C for full details on sources.

Environmental Regulation

Environmental concerns and regulations have received considerable attention from policy makers, the general public, and businesses over the last decade. As one example, major oil pipeline projects in North America have represented a lightning rod for environmental concerns in recent years. Balancing environmental stewardship with regulation that does not stifle economic growth is an ongoing challenge for governments.

With environmental concerns having become more prominent, companies need to meet increasingly stringent regulatory requirements that are significantly increasing business costs in some areas. However, innovative energy-efficient solutions can help reduce business costs in some situations, while emerging "green" industries are opening new fields of business opportunity.

The countries are compared on the basis of two contrasting environmental measures:

- Their environmental public health and ecosystem vitality, as assessed by the Yale Environmental Performance Index; and
- The degree to which global business executives view each jurisdiction's environmental laws and regulations as supporting or hindering business competitiveness.

There is generally, but not always, an inverse relationship between these two competing measures. Australia ranks first for environmental performance, but ninth in terms of environmental laws supporting business competitiveness. Meanwhile, Japan ranks first for laws that help boost competitiveness, but seventh for environmental performance.

The Netherlands and Germany defy this inverse relationship, representing countries that manage to strike a balance between environmental performance and competitiveness. The Netherlands ranks third among the countries on both measures, while Germany ranks second for environmental performance and fourth for environmental laws that support business competitiveness.

Environmental Performance and Regulation Indicators

	Environmental Performance[1]		Environmental Laws and Competitiveness[2]	
	Index	Rank	Index	Rank
Australia	82.4	1	58.9	9
Canada	73.1	6	73.1	2
France	71.1	8	60.3	7
Germany	80.5	2	64.5	4
Italy	74.4	5	53.7	10
Japan	72.4	7	74.4	1
Mexico	55.0	10	61.9	6
Netherlands	77.8	3	69.0	3
United Kingdom	77.4	4	59.6	8
United States	67.5	9	62.3	5

1 Yale Center for Environmental Law and Policy et. al., 2014.
Environmental Performance Index: Scale of 0 to 100 where 0 = low and 100 = high.

2 Scale of 0 to 100 where 0 = laws hinder competitiveness and 100 = laws do not hinder competitiveness.
World Competitiveness Yearbook (WCY) copyright © 2013, IMD International, Switzerland, World Competitiveness Center, www.imd.ch/wcc.

Refer to Appendix C for full details on sources.

Energy Supply and Demand

Energy availability and cost have fallen in the rankings of site selection factors in the *Area Development Magazine* Corporate Survey in recent years. This change likely reflects energy costs that have stabilized, or even moderated in recent years, at least within North America where new sources of shale oil and gas have been driving down a variety of energy costs. However, outside North America, rising energy costs still seem to be the norm, and coupled with environmental issues, help to maintain a strong focus on energy efficiency.

Comparing the study countries with respect to energy self-sufficiency and energy efficiency, there are some inverse correlations between energy self-sufficiency and the efficiency of energy use, although these are less strong today than in the past.

For example, Australia, Canada, and Mexico are the countries with the highest levels of energy self-sufficiency, with all three countries being net energy exporters. However, these three countries rank eighth, tenth, and sixth, respectively, in terms of energy efficiency. Meanwhile Italy and Japan rank last among the countries for self-sufficiency, both having to import more than 80 percent of their net energy requirements, but rank second and fourth, respectively, for efficiency of energy use.

One notable finding in this analysis is the improved efficiency of energy use over time. While all countries consumed less energy per billion dollars of GDP in 2011 (most recent data) than in 2009, this is not surprising given the poor GDP performance of most countries in 2009. However, comparing back to 2007, pre-recession, all countries are now consuming less energy per billion dollars of GDP than they were back in 2007. These increases in energy efficiency are significant, in the order of 10 to 25 percent.

Energy Indicators

	Energy Consumption[1]		Energy Self-Sufficiency[1]		Energy Efficiency[1]	
	Total Energy Consumption mtoe[2]	Rank	Production as % of Consumption[3]	Rank	Energy Consumption per $ billion of GDP[4]	Rank
Australia	123	9	241%	1	0.14	8
Canada	252	5	162%	2	0.20	10
France	253	4	54%	7	0.13	6
Germany	312	3	40%	8	0.11	3
Italy	167	8	19%	9	0.10	2
Japan	461	2	11%	10	0.12	4
Mexico	186	7	123%	3	0.13	6
Netherlands	77	10	83%	4	0.12	4
United Kingdom	188	6	69%	6	0.09	1
United States	2,191	1	81%	5	0.17	9

1 International Energy Agency, 2013 Key World Energy Statistics. Reporting 2011 data.
2 Total primary energy supply. Million tonnes of oil equivalent.
3 Equals domestic energy production as a % of total primary energy supply.
4 Equals consumption, in million tonnes of oil equivalent, divided by GDP ($ billions, at PPP).
Refer to Appendix C for full details on sources.

Infrastructure Quality

High quality infrastructure facilitates business operations and directly impacts productivity. Therefore, infrastructure quality also impacts a jurisdiction's attractiveness for business.

High-quality ICT (information and communications technology) infrastructure is indispensable to business in this technology-driven era. At the same time, in a globalized economy where reaching domestic and international customers and suppliers is a necessity, efficient transportation and distribution networks remain vitally important. Indicative of this, highway accessibility ranks as the second most important site selection factor in the *Area Development Magazine* 2013 Corporate Survey, while availability of advanced ICT services has risen significantly to fifth in the rankings.

Among the study countries, the Netherlands is rated as offering the best access to high quality ICT infrastructure, closely followed by the United Kingdom, then Australia and Japan. Most other countries are closely grouped on this measure, with the exception of Italy, ranking in ninth place well behind its other European counterparts, and Mexico, ranking tenth. While Mexico ranks last on this measure, it is the only emerging market country included in the study and is continuing to develop its infrastructure to support local businesses.

Comparing the quality of infrastructure for physical distribution of products, France, Germany, Japan, and the Netherlands are ranked highest by business executives. The United States and Canada rank in the middle of the pack for this indicator, with both countries contending with growing problems associated with aging infrastructure. Italy ranks last among the countries for quality of distribution infrastructure, behind ninth ranked Mexico.

Quality of Infrastructure Indicators

	ICT Development Index - Access[1]		Quality of Distribution Infrastructure[2]	
	Index	Rank	Index	Rank
Australia	7.90	3	7.52	8
Canada	7.38	8	8.36	6
France	7.53	6	9.24	1
Germany	7.46	7	9.11	2
Italy	6.57	9	5.88	10
Japan	7.82	4	8.90	3
Mexico	3.95	10	6.03	9
Netherlands	8.00	1	8.84	4
United Kingdom	7.98	2	8.09	7
United States	7.53	5	8.63	5

1 Scale of 0 to 10 where 0 = low and 10 = high. Rescaled. Measuring The Information Society, ITU, 2013 (reporting 2012 data).

2 Scale of 0 to 10 where 0 = low and 10 = high. World Competitiveness Yearbook copyright © 2013, IMD International, Switzerland, World Competitiveness Center, www.imd.ch/wcc.

Refer to Appendix C for full details on sources.

Quality of Life

Crime rates, healthcare facilities, housing cost and availability, and the quality of public schools represent the most important quality of life location factors identified in the 2013 *Area Development Magazine* Corporate Survey.

Safety and Crime

Personal safety and property crime can be key concerns in assessing potential business locations. High rates of crime not only have high personal and social costs, but are also disruptive to business.

Crime rates are notoriously difficult to compare across jurisdictions, given differences in the classification of crimes, crime recording practices, and the willingness of the population to report crimes. For this reason, homicide rates are considered the most reliable comparator for violent crime between countries.

The underlying societal conditions for crime and physical safety tend to change slowly over time, resulting in generally similar rankings for this measure as in prior years. Based on these statistics, Japan has the lowest homicide rates among all countries studied by a significant margin, followed by closely-grouped Germany, Italy, and the Netherlands. The homicide rate in the United States continues to be more than triple that of all other mature market countries. While Mexico has the highest rate of homicides, by an order of magnitude, Mexico's homicide rate now appears to have plateaued or even be declining, after rising significantly during the 2000s.

The results of an international executive survey conducted by the World Economic Forum provide further insights into safety in different countries, looking at police reliability and the cost of crime to business.

Canada and the Netherlands rank highest among the study countries on a measure of police reliability, followed by Australia, Germany, and Japan all with similarly favorable scores. The police are seen as least reliable in Italy and Mexico.

The cost that crime imposes on businesses is perceived as being lowest in Australia, Germany, and Japan. The costs of crime are seen as being similarly higher in both Italy and the United States than in the other mature market countries examined. Consistent with the other crime measures, the cost of crime to businesses is highest in Mexico, by a significant margin.

Safety and Crime Indicators

	Homicides per 1,00,000 Population[1]	Rank	Police Reliability[2]	Rank	Business Cost of Crime[2]	Rank
Australia	1.1	6	2.1	3	2.1	1
Canada	1.5	8	1.7	1	2.7	4
France	1.2	7	2.6	8	2.7	5
Germany	0.8	2	2.1	4	2.4	2
Italy	0.9	3	2.9	9	3.5	8
Japan	0.3	1	2.1	5	2.5	3
Mexico	23.7	10	5.4	10	5.3	10
Netherlands	0.9	3	1.9	2	2.8	7
United Kingdom	1.0	5	2.3	6	2.7	6
United States	4.7	9	2.4	7	3.5	8

1 UN, Intentional Homicide, reporting data from 2011 (2010 for Netherlands).

2 Original scale inverted such that 1 = highly reliable and 7 = highly unreliable. The Global Enabling Trade Report 2012, World Economic Forum.

Refer to Appendix C for full details on sources.

Healthcare

Availability of healthcare resources and health outcomes are key factors to many individuals in personal location decisions, particularly if managers or employees are relocating together with their families. From the perspective of companies, good healthcare services contribute to a healthy workforce, lower costs from illness-related absenteeism, and improve employee recruitment and retention.

Doctors per 100,000 inhabitants represents a basic measure of the accessibility of healthcare to the population. Australia, Italy, Germany, and France lead all other countries on this indicator. Data on doctors per 100,000 inhabitants at the regional level can be found in Appendix C.

Healthcare also represents a point of convergence between personal quality-of-life considerations and direct business costs, given the significant portion of total healthcare costs that are ultimately paid by businesses through statutory medical taxes and/or private health insurance benefits.

In terms of health expenditures, the United States spends the largest proportion of GDP on medical care among the countries studied—at least 45 percent more than any other country. Breaking total medical expenditures down between public and private spending, the US and Mexico are the only countries where more than 50 percent of total medical costs are paid by private sources (individuals and/or businesses). In all other countries, private healthcare expenses account for less than a third of total medical costs, with most countries having less than a quarter of healthcare costs paid privately.

Combining these measures, businesses and individuals in the United States spend a full 9.1 percent of GDP on medical care, compared to only 3.3 percent or less in every other country studied. The United Kingdom, the Netherlands, and Japan have the lowest private medical costs, at less than 2.0 percent of GDP.

Looking beyond resources invested in the medical system, life expectancy is a broad indicator of medical outcomes. Japan has the longest life expectancy among all 10 countries, at 83 years, followed closely by Australia, Canada, France, and Italy at 82 years. While the United States invests, by far, the largest share of GDP into healthcare, its life expectancy is the lowest among the mature market economies, at 79 years. Life expectancy is lower in Mexico, although at 75 years the life expectancy gap between the United States and Mexico is only four years.

Healthcare Indicators

			Health Expenditure[1]					
	Physicians per 100,000 habitants[1]	Rank	Total Expenditure as % GDP	Private Expenditure as % of Total[2]	Private Expenditure as % of GDP[2]	Rank	Life Expectancy[1]	Rank
Australia	385	1	9.0%	31.5%	2.8%	7	82	2
Canada	207	9	11.4%	28.9%	3.3%	9	82	2
France	338	4	11.7%	23.1%	2.7%	6	82	2
Germany	369	3	11.5%	23.2%	2.7%	5	81	6
Italy	380	2	9.5%	22.4%	2.1%	4	82	2
Japan	214	8	9.2%	19.7%	1.8%	3	83	1
Mexico	196	10	6.3%	51.0%	3.2%	8	75	10
Netherlands	286	5	12.1%	14.2%	1.7%	2	81	6
United Kingdom	277	6	9.6%	16.8%	1.6%	1	80	8
United States	242	7	17.6%	51.8%	9.1%	10	79	9

1 The World Health Organisation, World Health Statistics 2013, except Netherlands 2012.

2 Private expenditures include both expenditures by individuals and corporations (i.e., all non-public expenditures). Private expenditure as % of GDP = Total expenditure as % GDP x Private expenditure as a % of total.

Housing

Housing availability and affordability are integrally linked, with any shortage in housing availability in a location soon translating into higher house prices and, potentially for businesses, higher demands for wages and salaries.

Housing affordability is compared for several study countries, based on the "median multiple" measure of housing affordability (median house price as a multiple of median household income). These national results are based on an average of the cities included in this study.

The comparison indicates that, in general, housing is relatively more affordable in the United States and Canada than in the United Kingdom and Australia. Between 2010 and 2012, housing affordability remained constant in the United States, with an uptick in the US housing market being matched by rising incomes as economic recovery took root. Over the same period, housing affordability deteriorated slightly in both Canada and the United Kingdom, while Australia saw a more significant decline in affordability.

These ratios between housing prices and income—based on an average of the selected cities—give a broad picture of housing affordability. However, significant variations exist among local markets in each country and care should be taken in interpreting these national results. Housing affordability data for individual cities in these four countries are presented in Appendix C.

Housing Affordability

	Affordability (household income multiple)[1]
Australia	7.0
Canada	4.1
United Kingdom	6.3
United States	3.5

1 International Housing Affordability Survey, Demographia. Median house price as a multiple of median household income. Reporting data from 2012.

Based on an average of 4 local markets surveyed in Australia, 14 in Canada, 2 in the UK, and 71 in the US.

Quality of Public Schools

The performance of public schools is considered previously under the heading Availability of Skilled Labor, which presents the results of an international assessment in science skills among 15 year old high school students. Japan, Canada, and Germany are the top-ranked countries based on this measure.

Conclusion

Both business costs and other factors significantly influence the competitiveness of locations for different types of business. The findings of this report should be interpreted by firms in relation to their particular needs, and should be considered only as a starting guide to the various issues covered herein.

While great care has been taken in performing this analysis, the resulting comparisons are of a general nature and all factors examined are subject to change over time. The results of this analysis should not be interpreted as a definitive or final opinion on the merits of locating any specific facility in one jurisdiction over another. Further analysis is required, incorporating information and advice from a variety of other sources, to determine the best location for any specific facility or operation.

7 Other Sponsored Cities

In addition to the 107 cities featured in this report, 24 additional cities in Canada and the United States have been sponsored to be benchmarked against the costs of the featured cities. Details of the sponsoring agencies can be found on the following page. These results are not included in the main body of this report due to space constraints and the need to maintain balance among the countries under discussion.

Results for these cities were developed on the same basis as for the featured cities and are summarized in the table below. Detailed results for these cities are available online at CompetitiveAlternatives.com.

Results by City - Europe & Asia Pacific

	Services				
	Digital Services	Research & Development	Corporate Services	Manufacturing	Overall Result
CANADA					
Atlantic					
Saint John, NB	80.7	73.1	77.8	95.7	**90.4**
Sydney, NS	81.8	72.2	76.5	96.3	**90.7**
Truro, NS	81.0	71.2	75.5	96.4	**90.6**
Northeast					
Belleville-Quinte West, ON	80.5	80.1	82.6	95.9	**91.6**
Chatham-Kent, ON	80.0	78.6	82.0	96.0	**91.4**
Kingston, ON	80.6	79.6	82.3	96.4	**91.9**
Windsor-Essex,ON	81.5	81.8	83.2	96.0	**92.0**
Western					
Brandon, MB	81.3	71.8	79.2	96.9	**91.3**
Grande Prairie, AB	83.5	77.8	84.7	98.5	**93.7**
Lethbridge, AB	84.2	79.5	83.9	96.5	**92.5**
Lloydminster, AB	84.4	78.8	85.2	98.0	**93.6**
Moose Jaw, SK	80.5	74.0	78.7	96.4	**91.0**
Prince Albert, SK	81.0	75.0	79.0	96.9	**91.6**
Red Deer, AB	83.6	79.3	83.6	96.6	**92.4**
Regina, SK	84.4	84.0	83.3	97.2	**93.4**
Pacific					
Kelowna, BC	84.8	82.1	82.5	98.2	**93.8**
Nanaimo, BC	85.5	83.8	83.2	98.7	**94.5**
UNITED STATES					
Southeast					
Alexandria, LA	82.2	85.8	84.5	96.1	**92.6**
Houma, LA	82.8	88.2	85.6	95.8	**92.8**
Lafayette, LA	82.4	86.3	85.0	96.1	**92.7**
Lake Charles, LA	82.6	86.9	85.0	96.4	**93.0**
Monroe, LA	81.8	84.5	83.7	95.5	**92.0**
Pacific					
Bellingham, WA	94.6	91.5	90.6	100.3	**98.0**
Salem, OR	93.7	88.1	87.4	99.3	**96.6**

"Larger cities are traditionally more appealing for many companies to do business, but for certain types of companies, more cost competitive locations can be found in smaller regional cities."

Benjie Thomas, Private Equity, KPMG in Canada

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KNOW WHERE

SYDNEY, AUSTRALIA	07:42 PM
Central Business District	

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