Invest in Canada - Automotive 2012



AUTOMOTIVE

Canada's competitive advantages



Foreign direct investment in Canada's automotive industry

FOREIGN INVESTORS IN CANADA

- Arvin Sango
- Aisin Seiki
- Autoliv
- Bridgestone
- Brose
- Chrysler
- Continental
- Daimler
- Dana
- DFNSO
- Ford
- General Motors (GM)
- HBPO
- Hino
- Honda
- Johnson Controls
- Michelin
- Nemak
- PACCAR
- Raufoss Technology
- Toyota
- Tovoda Gosei
- TRW Automotive
- Volvo Buses

- Foreign direct investment (FDI) in Canada's transportation equipment manufacturing industry reached an accumulated \$23.56 billion* in 2011.¹
- Over 110 foreign companies established greenfield FDI projects in the automotive industry in Canada between 2003 and 2011, creating almost 31,000 new jobs.²

RECENT INVESTMENT EXAMPLES

Toyota

Toyota Motor Manufacturing Canada, a subsidiary of Japan-based Toyota Motor Corporation, invested \$545 million to upgrade and expand its assembly plants in Cambridge and Woodstock, Ontario. The expansion will include the production of the Tesla-powered RAV4 EV.

Ford

Ford, a U.S.-based automotive manufacturer, expanded its Essex Engine Plant in Windsor, Ontario by adding a third shift and also by adding the production of cylinder blocks for the 5.0-litre V-8 engine.

General Motors

In 2011, General Motors Canada, the Canadian subsidiary of the U.S.-based automotive manufacturer, invested \$185 million in its Oshawa, Ontario plant to produce the all-new Cadillac XTS and the next-generation Chevrolet Impala.

Honda

Honda, a Japanese automotive manufacturer, has added production of the popular CR-V to its assembly plant in Alliston, Ontario creating an additional 400 new jobs in 2011.

Dana

In 2011, Dana Holding Corporation, a U.S.-based automotive manufacturer, invested \$37 million in its Oakville and Cambridge, Ontario facilities to design and manufacture battery-cooling technology for electric and hybrid cars.

Arvin Sango

In 2011, Arvin Sango, a manufacturer of technically advanced and high quality components to Original Equipment Manufacturers chose London, Ontario for a new 110,000 sq.ft. production facility. The manufacturing facility will create 120 jobs and will supply Toyota Motor Manufacturing Canada with exhaust systems beginning the summer of 2012.

Canadian Autoparts Toyota

Canadian Autoparts Toyota invested in a \$1.8 million research project with the University of British Columbia to develop an innovative new casting process for aluminium wheels.

¹ Foreign Affairs and International Trade Canada, Trade and Economic Statistics (2011)

² fDi Markets database, fDi Intelligence from the Financial Times Ltd (2012)

^{*}Unless otherwise noted, all values in this publication are in Canadian dollars. Cover image: Photo courtesy of Ford Canada.

Automotive innovation in Canada

INNOVATION SNAPSHOT

- The Natural Sciences and Engineering Research Council of Canada (NSERC) invested \$23.3 million in automotive research between 2010 and 2011. NSERC is Canada's largest federal funding agency for university and college-based research in natural sciences and engineering.
- Automotive Partnership Canada (APC), a five year \$145 million initiative launched in 2009, provides research funding to support collaborative R & D activities within Canada's automotive industry. APC supports research projects that fall under the following four themes; environmental performance, cognitive car, next-generation manufacturing, and social sciences.
- AUTO21, the largest of Canada's Networks of Centres of Excellence, supports a number of research projects including design processes, materials and manufacturing and advanced fuel research.
- In the last decade (2002 to 2011), R & D spending in Canada's automotive industry has averaged more than \$460 million per annum.
- Between 2003 and 2011, over 1,400 automotive related patents were granted by the United States Patent and Trademark Office to inventors based in Canada.³

Case Study: Going Electric

In 2012, the Government of Canada committed up to \$21.8 million to Magna International's clean vehicle technologies development, in support of projects that could total up to \$199 million by March 2013. The focus is on developing energy-efficient components for vehicles and innovative powertrain components for next-generation vehicles, including lightweight composite materials, the use of recyclable materials to replace traditional petroleum-based materials, and automotive components for use in electric and hybrid vehicles.

General Motors (GM) Canada entered a five year \$10.5 million partnership with Waterloo-based Maplesoft and a multidisciplinary research team at the University of Waterloo in 2010. The team is working together to investigate crucial technologies for achieving more widespread use of electric vehicles, through model-based design and prototype testing. The Government of Canada is supporting this work through a \$3.6 million NSERC and APC contribution. Industry partners and the Ontario Research Fund are adding an additional \$6.9 million in contributions.

Case Study: Low platinum PEM fuel cells

In 2012, Automotive Fuel Cell Cooperation, Ballard Power, GM Canada, Hydrogenics, Hyteon Inc., and BIC Inc. have teamed up with 20 top fuel cell scientists and engineers from academia and government to develop a way to reduce by as much as 80%, if not eliminate, the platinum used in the next-generation of clean energy vehicles. The \$8.1 million project has received \$5 million funding from APC. The project is leveraging Canada's expertise in materials science and engineering, electrochemistry, and theory and modelling to develop catalysts that use less platinum and to explore less expensive alternatives. Companies expect to begin testing new prototypes within five years.

LEADING CANADIAN COMPANIES

- ABC Group
- AGS Automotive Systems
- Anchor Danly
- Ballard
- Canadian General-Tower
- Husky Injection Molding
- Linamar
- Magna International
- Martinrea
- Matcor-Matsu
- Mitchell Plastics
- NARMCO Group
- New Flyer Industries
- Platinum Tool
- ONX Software
- Valiant Corp
- Van-Rob
- Wescast Industries
- Westport Innovations
- Windsor Mold
- Woodbridge Group

³ fDi Benchmark estimates based on United States Patent and Trademark Office (2012)

⁴Industry Canada News Release, "Harper Government Invests in Jobs and Growth With Next-Generation Auto R&D" (2012)

Canada's automotive industry



TESTIMONIALS

"The strong support that we have received from both the federal and provincial governments is very important because it allows us to give these initiatives priority and helps to secure our production footprint in Canada."

Ray Tanguay,

Chairman, Toyota Motor Manufacturing Canada

With more than 1,300 automotive establishments and annual revenues of \$71 billion, Canada is a global automotive centre.

The automotive industry is Canada's largest manufacturing sector. It accounts for 16% of North American vehicle production and has 2.3 million units of installed production capacity. In 2011, Canada exported more than \$53 billion of automotive vehicles and parts.⁵ Canada is the sixth largest exporter of road motor vehicles in the world.⁶

Capital investment in Canada's automotive industry has averaged \$3 billion per annum between 2002 and 2011. Major companies such as Chrysler, Ford, General Motors, Honda and Toyota, along with other manufacturers such as Hino, Motor Coach Industries, PACCAR and Volvo Bus continue to invest in Canada's automotive industry. Canada is home to many of the most productive light vehicle assembly plants in North America. Canadian assembly plants have earned a global reputation for exceptional quality:

- Canadian assembly plants have won one-third of all J.D. Power awards for plant quality in North America since 1990 which is double Canada's share of regional production.
- Toyota's Cambridge, Ontario plant has won 11 J.D. Power plant quality awards, including the 2012 Gold Award (Best in the Americas) and the 2011 Platinum Award (Best in World).
- General Motors Oshawa, Ontario plant has won eight J.D. Power Quality Awards, including the 2009 Silver Award.
- The only Toyota plant outside Japan entrusted to produce Lexus vehicles is in Canada.⁷

Electric vehicles (EV) are forecast to account for up to 10% of new vehicle sales globally by 2025; hybrids will reach a 40% share.8 With significant energy resources, a growing EV industry, government incentives and action plans such as the Green Rebate Program (Saskatchewan), Green Trip (Alberta), the 2011-2020 Action Plan for Electric Vehicles (Quebec), the Manitoba EV Road Map (Manitoba) and LiveSmart BC, Canada is well positioned to capitalize on this form of clean transportation.9

⁵ Industry Canada, Trade Data Online (2011)

⁶ fDi Intelligence based on UN Comtrade Database (2010)

 $^{^{7}}$ J.D. Power and Associates (2012)

⁸ Roland Berger, "Automotive landscape 2025" (2011)

⁹ Electric Mobility Canada, Hybrid and Electric Vehicle Incentives: A Canadian overview (2011)

CANADA'S KEY STRENGTHS IN AUTOMOTIVE

Research and development (R & D)

Canada has vibrant R & D clusters and offers generous investment tax credits and funding to automotive companies for R & D. From 2002 to 2011, R & D spending in Canada's automotive industry has averaged more than \$460 million per annum. Key focus areas include alternative fuel, mechanical engineering, engine and transmission design, advanced materials, emissions, biomechanics, and vehicle safety. Intensive R & D related to electric vehicles is currently underway.

Logistics and market access

According to the World Bank, Canada has one of the world's best logistics infrastructures. ¹⁰ Canada has a highly developed transport infrastructure and duty-free access to the U.S., Mexico and many other global markets. It is part of a fully integrated North American automotive market with 37 high-volume assembly plants within a 500 km radius of the Windsor-Detroit border. Canada is the sixth largest exporter of road vehicles in the world. ¹¹

Supplier base

Canada has an extensive supplier base in every product category that is second to none. Many of the largest global suppliers have facilities in Canada, along with steel and other material producers. Assemblers and Tier 1s in Canada also have access to supply chains in the U.S. and Mexico.

Duty-free manufacturing tariff regime

Canada is the first G-20 country to offer a tariff-free zone for industrial manufacturers, a major initiative that will see tariffs on all manufacturing inputs reduced to zero by 2015.

SKILLS AND RESEARCH

The Canadian automotive manufacturing industry employs more than 111,000 people.¹² Canadian automotive workers are known for their strong work ethic, reliability, low turnover, and productivity. Manufacturing workers, on average, stay with an employer for more than 10 years.¹³

Canada has a world-class higher education system with 22 Canadian universities appearing in the top 500 universities of the world. Canada's top-quality educational institutions ensure a continuous supply of qualified graduates in engineering, machining, metalwork, welding, robotics, manufacturing systems, service technicians, as well as tool and die making.

In 2010, more than 63,000 students were enrolled in accredited engineering programs across Canada. A further 21,000 were enrolled in masters or doctoral engineering programs, an increase of 10% from 2009. A total of 11,450 undergraduate degrees in engineering were awarded in 2010¹⁵, more than the U.S. on a per capita basis. ¹⁶ Leading research groups and centres include:

- AUTO21 Network of Centres of Excellence
- CANMET Laboratories, Natural Resources Canada
- MacAUTO (McMaster University, Institute for Automotive Research and Technology)
- National Research Council Automotive Programs
- Automotive Centre of Excellence (University of Ontario Institute of Technology)
- Mechanical, Automotive and Materials Engineering (University of Windsor)
- WatCAR (University of Waterloo Centre for Automotive Research)

TESTIMONIAL

"Based on this partnership and through our continued investment, Honda believes in Canada as a great place to do business."

Satoshi Aoki.

Former Chairman, Honda Motor commenting on Honda's green engine plant

¹⁰ World Bank, International Logistics Performance Index (2010)

¹¹ fDi Intelligence based on UN Comtrade Database (2010)

¹² Statistics Canada – Automotive Industry (2011)

¹³ Statistics Canada - Labour force survey estimates (LFS), job tenure by National Occupational Classification (2011)

¹⁴ Shanghai Jiao Tong University, Academic Ranking of World Universities (2011)

¹⁵ Engineers Canada, Canadian Engineers for Tomorrow (2010)

¹⁶ United States Department of Education, National Center for Education Statistics (2010)

Automotive clusters

BRITISH COLUMBIA

Key strengths:

The hydrogen and fuel cell subsector in British Columbria is the largest in the world. Since 2002, more than \$1 billion has been invested into hydrogen and fuel cells R & D in Canada, with most of the funding going to British Columbia-based companies.

Industry size:

The province employs 1,200 employees, accounting for 70% of Canada's total employment in this subsector. British Columbia's advanced manufacturing and innovation sector offers a growing pool of more than 50,000 high quality engineering, technical and production workers.

Leading companies:

Vancouver-based Ballard Power Systems has contributed to a vibrant cluster of fuel cell technology entrepreneurs in the region. In 2011, Daimler announced a \$70 million fuel cell stack manufacturing plant in the Vancouver area in partnership with the Automotive Fuel Cell Cooperation (AFCC).

MANITOBA

Key strengths:

Manitoba specializes in the production of urban and intercity buses, fire trucks, motor homes, recreational vehicles, trailers and agricultural equipment. The industry is supported by a well-diversified infrastructure of suppliers of raw materials, parts, component assemblies and services to original equipment manufacturers (OEM). Many of these suppliers also serve the aerospace and agricultural equipment sectors. Over one third of the bus market in North America is supplied by Manitoba-based companies.

Industry size:

The cluster annually accounts for approximately \$1 billion in exports, accounting for 8% of Manitoba's annual exports. The transportation equipment manufacturing sector employs more than 6,000 workers, of which 1,430 were involved in the manufacturing of motor vehicle bodies and trailers in 2010. Close to 40 highly successful automotive companies build other types of vehicles in Manitoba including motor homes, fire engines, step vans and a wide range of semi-trailers. All of these products are sold across North America. About half of these firms are smaller companies, employing less than 100 persons.

Leading companies:

The sector is led by two large manufacturers: Motor Coach Industries Ltd. (MCI), a supplier of inter-city coaches; and New Flyer Industries, which is North America's leading supplier of urban transit buses and alternative fuel cell buses.



ONTARIO

Key strengths:

Ontario has been the top sub-national vehicle assembly jurisdiction in North America since 2004, winning J.D. Power North/South American assembly plant quality awards for 20 of the past 23 years. The most recent awards were for the GM Oshawa car plant (Silver in 2009) and the Toyota Cambridge-South plant (Gold in 2012, Platinum in 2011). Ontario is a leading location to research, design, develop and manufacture vehicles and components. AUTO21 and the Centre for Materials and Manufacturing connect scientists with companies to ensure commercialization of research breakthroughs. In addition, Ontario has more qualified engineers per capita than any G-7 country.

Industry size:

Ontario's automotive industry is home to 11 vehicle assembly plants operated by five of the world's largest vehicle manufacturers and more than 300 major suppliers. The automotive industry employs just over 87,000 workers, and manufactured more than 2.1 million vehicles in 2011¹⁷, of which 85% by value are exported. Over 40% of Ontario's 87,000 highly skilled autoworkers have post-secondary education and, on average, they stay with an employer for more than 10 years. Annual capital investment in automotive manufacturing has averaged \$3 billion over the past 10 years, in leading clusters such as Windsor, Oshawa, Kitchener-Waterloo, London, and Toronto.

Leading companies:

Major investors include Chrysler, Ford, General Motors, Honda, Toyota, Dana, Denso, Linamar, and Magna, to name a few. The only Toyota plant outside lapan to produce Lexus vehicles is in Ontario.



OUEBEC

Key strengths:

Quebec is known for its high-tech businesses specializing in parts and systems manufacturing for new-generation hybrid and electric vehicles. These businesses operate in the fields of lightweight materials, fuel delivery systems, electric motorization and batteries and include AMT Die Casting, Spectra Premium, TM4 and Bathium. Quebec has approximately 30 research centres working in promising fields related to the ground transportation industry, including new materials (light metals, composite materials), batteries, new propulsion systems, fuels and noise reduction. The strategic positioning of these research centres in key ground transportation sectors is a major asset for Quebec. Montréal's strong expertise in light metals is a key advantage for the industry, which is supported by large, cutting-edge research facilities such as the National Research Council Canada Industrial Materials Institute, the Centre for Applied Research on Polymers and Composites (CREPEC) at the École Polytechnique de Montréal, and the Concordia Centre for Composites at Concordia University.

The Quebec government has recently unveiled its 2011-2020 Action Plan for Electric Vehicles. This includes a commitment of \$36 million to support R & D and innovation in the electric-vehicle sector. This initiative will support projects targeting new technologies and innovative processes. These investments are on top of the \$30 million that the government had allocated to the mobilizing project for developing a Quebec electric bus within the framework of the 2010-2013 Québec Research and Innovation Strategy (QRIS).¹⁸

Industry size:

Quebec is home to over 250 businesses in original equipment manufacturing and the production of replacement markets for the automotive industry. The industry generates sales of approximately \$3.7 billion annually and employs 11,500 workers. Of the parts, systems and tools produced, 85% by value is shipped outside Quebec..

Leading companies:

Foreign investors include Volvo Buses, Toyoda Gosei, Raufoss, PACCAR, Rio Tinto Alcan and Mecachrome, among others.

¹⁷ Ministry of Economic Development and Innovation

¹⁸ Quebec Government, "Electric Vehicles: 2011-2020 Quebec Action Plan: Running on Green Power" (2011)

Canada's cost advantages

ADVANTAGE: COMPETITIVE SALARY COSTS

The cost of salaries paid to R & D engineers and production managers in Canada is lower than cities in Japan, Germany and the U.S., and comparable to France.

R & D engineer and production manager annual labour costs (\$)

This table shows the annual labour costs for an R & D engineer and a production manager. Labour costs include employee salary plus statutory employer social security contributions. Private healthcare costs are also included for U.S. and Canadian cities.

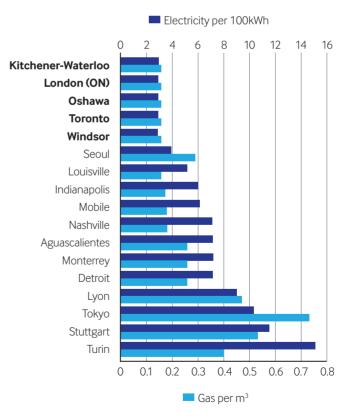
City	R & D Engineer (\$)	Production manager (\$)
Aguascalientes	62,024	97,195
Monterrey	73,024	127,124
Seoul	84,695	116,558
Turin	88,748	117,548
Lyon	93,790	114,424
Mobile	106,718	121,700
London (ON)	108,757	132,129
Toronto	110,576	135,417
Louisville	111,551	129,125
Windsor	113,247	140,246
Oshawa	114,114	141,814
Indianapolis	114,321	134,556
Kitchener-Waterloo	115,086	143,572
Nashville	116,322	138,461
Stuttgart	124,066	153,883
Detroit	124,993	152,458
Tokyo	175,902	246,781

ADVANTAGE: MOST COMPETITIVE UTILITY COSTS

Electricity costs in Canada are less than half of the U.S. and even cheaper when compared to Mexico and Europe. Natural gas costs are less than the U.S., Mexico and Europe, and up to five times cheaper than Japan. This creates substantial cost savings for companies.

Utility costs per unit (\$)

This table shows unit cost for industrial electricity and gas.



Source: Eurostat, United States Energy Information Administration and major energy providers (2011-2012)

Canada's competitive advantages

ADVANTAGE:

A LEADING EXPORTER OF MOTOR VEHICLES

Canada is the sixth largest exporter of road motor vehicles. In 2010, Canada exported US\$47.4 billion of road motor vehicles. On a per capita basis, Canada exported three times more than Mexico or the U.S., and more than Japan and South Korea.

Exports of road motor vehicles (US\$)

This chart shows exports of road motor vehicles in competitor locations.

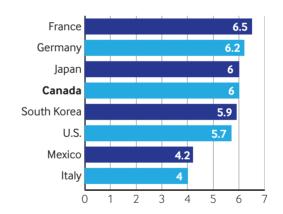
Country	Road motor vehicles exports per capita (US\$)	Road motor exports (US\$ billion)
Germany	2,344	191.5
Canada	1,418	47.4
Japan	1,113	143.1
South Korea	1,082	53.1
France	707	44.9
Italy	471	28.6
Mexico	443	51
U.S.	291	91.4

ADVANTAGE: WORLD-CLASS INFRASTRUCTURE

Canada's air, truck, rail, sea and waterway transportation services are fully integrated with U.S. networks, providing efficient access to consumers and suppliers throughout North America. According to corporate executives, Canada has a higher quality infrastructure than the U.S., Mexico, Italy and South Korea, and is comparable to Japan.

Overall infrastructure quality (Rank 1-7)

This chart shows the overall infrastructure quality. (1= extremely underdeveloped, 7= well developed and efficient by international standards)



Source: fDi Intelligence based on UN Comtrade Database (2010)

Source: World Economic Forum Global Competitiveness Report 2011-2012

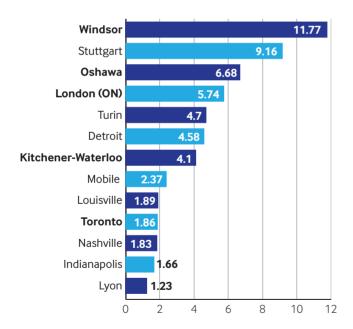
Canada's competitive advantages

ADVANTAGE: SKILLED LABOUR FORCE

Canadian cities are highly specialized in the automotive sector, with the proportion of the workforce in the transport equipment manufacturing higher than Detroit, Southern U.S. states and comparable to Germany.

Proportion of employment in transport equipment (%)

This chart shows the proportion of people employed in the transport equipment manufacturing sector.



ADVANTAGE: AUTOMOTIVE INNOVATION

Canadian cities have very high levels of research and innovation in the automotive sector, as reflected by the number of automotive patents granted in Canadian cities.

Number of automotive patents

This chart shows the estimated number of automotive related patents granted between 2003 and 2011 by the United States Patent and Trademark Office to inventors based in each city.



Source: fDi Intelligence estimates based on Eurostat NUTS 2 (2007-08); Statistics Canada Census Metro area (2006); United States Bureau of Labour Statistics MSA (2009) NACE 34-35/NAICS 336

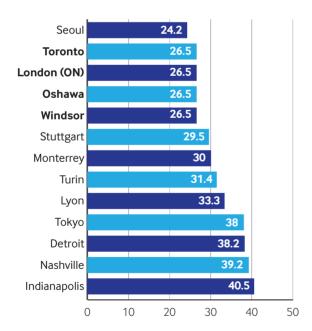
Source: fDi Intelligence estimates based on the United States Patent and Trademark Office (2012)

ADVANTAGE: FAVOURABLE CORPORATE INCOME TAX

Canada offers among the most attractive corporate income tax levels of any comparable country. Companies locating in Canadian cities pay lower corporate income taxes than the U.S., France, Germany, Italy, Japan and Mexico.

Corporate tax (%)

This chart shows the corporate income tax rates payable by companies. Figures are expressed as tax payable as a percentage of companies' gross profit.



Source: KPMG (Country and Canadian Provinces; 2012); The Tax Foundation (U.S. States; 2011)

ADVANTAGE: OUTSTANDING QUALITY OF LIFE AT AN AFFORDABLE COST

Canadian cities offer the highest quality of life in the world. Vancouver was rated the most liveable city in the world by the Economist Intelligence Unit in 2011 and also tops the fDi Intelligence index. Canadian cities are highest ranking when considering both quality of life and cost of living.

Attractiveness of cities

This chart shows the overall attractiveness of cities based on combining their quality of life and cost of living, with a 50% weight attached to each.



Source: fDi Intelligence from the Financial Times (2011). Vancouver = 100

Why Canada?

Canada is a place where businesses can achieve excellence on a global scale.

A welcoming business environment

Canada is the best place to do business in the world. Source: Forbes Magazine, October 2011

A growing economy

Canada has been the top performer among the G-7 in GDP growth over the 2008-11 period.

Source: Consensus Economics, April 2012

A highly educated workforce

Canada has the highest proportion of post-secondary graduates among members of the the Organization of Economic Co-operation and Development (OECD). Source: Education at a Glance 2011, OECD

Financial stability

Over the past four years, Canada's banking system has repeatedly been declared the soundest in the world. Source: World Economic Forum (WEF)

Low tax rates

Canada's combined federal-provincial statutory corporate income tax rate of 26% is more than 13% below the U.S. and among the lowest when compared to G-7 countries.

Source: Department of Finance Canada and the OECD Tax Database 2012

Scientific research and experimental development

Canada offers some of the most generous R&D tax incentives in the industrialized world, with combined federal and provincial tax credits that can currently save foreign investors, on average, up to 30 cents on the dollar invested in R&D in Canada. Canada also has the G-7's lowest costs in R&D-intensive sectors (up to 10.7% lower than the US). Source: Department of Finance Canada and KPMG Competitive Alternatives, 2012

NAFTA

The North American Free Trade Agreement (NAFTA) gives investors access to nearly 457 million consumers and a combined continental GDP of about US\$17.2 trillion. Canada continues to seek more free trade agreements with economic and emerging powers to increase trade. Source: World Bank, World Development Indicators Database

A great place to invest, work and live

Canada is one of the most multicultural countries in the world and it provides world-class universities, a universal health care system, clean and friendly cities and spectacular scenery. Source: United Nations Development Programme, Human Development Report 2010, Economic Intelligence Unit, Global Liveability Report 2011



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